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## **SECURE** SYNOPSIS

### **MAINS 2019**

# GS-III

## JULY 2019



**NOTE:** Please remember that following '*answers*' are *NOT* '*model answers*'. They are NOT synopsis too if we go by definition of the term. What we are providing is content that both meets demand of the question and at the same time gives you extra points in the form of background information.



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## General Studies Paper - III

*Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Inclusive growth and issues arising from it.*

**Q) What do you understand by inheritance tax ? Do you think the reintroduction of such a tax would serve as a measure to prevent the concentration of income and wealth in the hands of a few ? Discuss. (250 words)**

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**Why this question:**

The article talks about how Wealth inequality in India has been alarming and in what way Inheritance tax and its reintroduction can prevent the concentration of income and wealth in the hands of a few.

**Demand of the question:**

**Directive word:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction**

Define what is an inheritance tax.

**Body**

Explain that an inheritance tax, coupled with associated tax reforms, can potentially prevent the concentration of income and wealth in the hands of a few, reduce intra-generational inequality, promote inter-generational equity, and serve a meaningful purpose to address the distributional gaps that exist in India today.

Explain that an inheritance tax, if implemented well, can potentially help the government exchequer at a time when it has been scouting for additional sources of revenue to bridge the persistent gap between fiscal targets and outcomes. Recent policies on farm loan waivers, bank recapitalization, universal health insurance, and the expansion of other social sector programmes will pose significant challenges in maintaining fiscal prudence.

List all the benefits and suggest what needs to be done.

**Conclusion**

Conclude with importance of such tax initiatives and reforms for the betterment of the economy.

**Introduction:**

- An inheritance tax, also called an estate tax, is a tax assessed on all or a portion of an inherited estate. Life insurance, pensions, real estate, cars, belongings and debts are all part of one's estate. The inheritance tax rate depends on the value of the inheritance and the beneficiary's relationship to the decedent.
- Such a tax can potentially prevent the concentration of income and wealth in the hands of a few. It is more than three decades since estate duty was abolished in India

**Body:**

The objective behind the reintroduction of an inheritance tax:

- Wealth, income, and consumption inequality is high and has been rising in India, particularly in the post-liberalisation period.
- Economists Lucas Chancel and Thomas Piketty, analysing the dynamics of income inequality between 1922 and 2014, found that income inequality in India is at its peak since 1922, when income tax was first introduced here. In the 1930s, the top 1% of earners in India accounted for less than 21% of total income. This dropped significantly to 6% in the 1980s. However, it thereafter steadily increased to a historical high of 22% in 2014.
- Wealth inequality in India has also been alarming. According to Credit Suisse 2018 Global Wealth Report, the richest 1% own 51.5% and the richest 10% account for 77.4% of the nation's wealth. In contrast, the bottom 60% of the population owns only a meagre 4.7% of it.
- While the per capita income of Indians has risen since liberalisation, growth has failed to be inclusive.
- An inheritance tax, coupled with associated tax reforms, can potentially prevent the concentration of income and wealth in the hands of a few, reduce intra-generational inequality, promote inter-generational equity, and serve a meaningful purpose to address the distributional gaps that exist in India today.



- An inheritance tax, if implemented well, can potentially help the government exchequer at a time when it has been scouting for additional sources of revenue to bridge the persistent gap between fiscal targets and outcomes.
- According to an Oxfam survey in 2018, the wealth of the richest 1% of the population increased by ₹20.91 trillion, equivalent to total budget of the central government in 2017-18.
- Moreover, 37% of Indian billionaires have inherited family wealth, and control 51% of the total wealth of billionaires in the country. The survey also points out that 51 of a total of 101 billionaires are more than 65 years old and collectively own ₹10.54 trillion.
- Thus, even a moderate inheritance tax of 10-15%, benchmarked to other Asian countries such as the Philippines, Taiwan and Thailand, can potentially act as a stable and significant source of revenue for the government.
- There has been a discernible improvement in the government's tax administrative capacity, drawing upon the strengths of the information technology revolution.
- Project Insight of the Central Board of Direct Taxes and the application of Big Data analytics to improve tax compliance have strengthened tax administration.
- This, along with the thrust towards a digital economy, could potentially reduce the marginal cost of administering and monitoring compliance of an inheritance tax.

#### Global Experience:

- Today, many developed countries such as the US, UK, France, Japan and the Netherlands have inheritance tax laws in place.
- The US imposes Gift Tax and Estate Tax (both taxes levied on the donor) at 40 percent with a combined lifetime exemption threshold for both taxes amounting to approximately \$11 million per person.
- Likewise, inheritance tax in the UK is levied at 40 percent, but with a far lower exemption threshold.
- The growing concern surrounding India's increasing economic disparity, the imposition of estate duty may seem desirable.

#### Concerns:

- The inheritance tax is payable by the legal representative to whom the property may pass on death.
- The recipient of the property may not have the money available to pay tax that could lead to situations of distress sale.
- Arguments against the levy of inheritance tax mainly revolve around fears regarding the outflow of entrepreneurial human capital and financial resources going abroad.
- With India being a developing country, keeping capital intact in the hands of entrepreneurs may represent a more efficient investment for economic development.
- India needs to review the case for re-introducing an inheritance/estate tax with, ideally, relatively high thresholds, so it's targeted at the very rich.

#### Conclusion:

- India's inheritance tax must not be used as a symbolic tool, marketed as a Robin Hood tax, for populism.
- Rather, the intent should be grounded in the substantial distributional inequities that exist in the country today.

**Q) “Economic growth and human development need to go hand in hand, without it a \$5 trillion economy seems a distant dream”. Critically examine. (250 words)**

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#### **Why this question:**

The author in the article discusses in detail how a \$5 trillion economy seems a distant dream unless the country revives aggregate demand and healthcare.

#### **Key demand of the question:**

Students are expected to elucidate on how economic growth is linked to human development and one can not be achieved without the other.

#### **Directive:**

**Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.



### **Structure of the answer:**

#### **Introduction:**

Discuss the dream of \$5 trillion economy in short.

#### **Body:**

One has to explain that the country still has not overcome the challenges related to human development such as health aspects, ageing population, employment, lack of investments in agriculture etc.

Then explain how the above problems have consequences on economic growth of the country.

Take cues from the article and explain in what way it is essential for the country to focus on human development to achieve greater goals of economic growth.

#### **Conclusion:**

Conclude by emphasizing need to work on human development front to ensure continuous economic growth and development.

#### **Introduction:**

- The President of India spoke of India becoming a “Five Trillion Dollar” economy, last month. It was reiterated by the Prime Minister and was even discussed in the NITI Aayog Governing Council meet.
- India is, currently, a \$2.8 trillion economy; to reach the \$5 trillion mark by 2024, the economy would require nominal growth in dollar terms of over 12% a year. To reach \$ 5 Trillion, we need to shift our perspective from policy to projects

#### **Body:**

#### **Challenges towards realising the \$5 trillion economy goal:**

- **Health aspects:**
  - Huge losses of output inherent in the incapacity of the aged increasingly vulnerable to non-communicable diseases (e.g. diabetes, cardiovascular diseases, cancer).
  - Only 54.9 % of infants aged between 0-5 months are exclusively breastfed which is very essential for a child’s optimal growth, development and health at least till 6 months of age.
  - Female mortality rate in India is 139 and 212 for male per thousand respectively.
  - India being a tropical country is always under a constant threat of climate related epidemics such as dengue, malaria etc. Incidence of malaria is 18.8 people per thousand at 2016 levels.
  - India remains to be the highest TB burden country according to WHO, with as many as 211 people per lakh suffering from either newly contacted or relapsed TB.
  - India spends 3.9% of its GDP on health expenditure
  - Relative to those who were not afflicted with NCDs, those who did display higher probabilities of being not employed and just employed, had much lower probabilities of part-time and full-time employment.
- **Education:**
  - The ASER report by Pratham shows poor arithmetic and reading skills among primary school children.
  - Gross Enrolment Ratio (GER) in pre-primary was 13% of pre-primary school age children showing acute under admission and lack of importance given to early years of schooling in India during 2012-17.
  - Primary school dropout rate in India during 2007-2016 was 9.8%.
  - Survival rate to the last grade of lower secondary general education during 2016-16 was 97%.
  - Total government expenditure on education is a paltry 3.8% of total GDP.
- **Social constraints:**
  - Brahmins and other “forward” castes showed notably lower probabilities of being not employed, or just employed, but higher probabilities of being employed part-time and full-time, compared to Other Backward Classes (OBCs).
  - Dalits and tribals displayed patterns similar to OBCs’.
  - India has a huge gender disparity leading to poor women labour force participation.
- **Ageing population:**
  - Indian population is estimated at 1339.2 million in 2017 and is estimated to reach 1513 million by 2030.
  - The aged (60 years and above), with their growing vulnerability to NCDs and disabilities (such as the inability to walk and dress, apart from speech and vision impairment), and caste and education barriers impeding their employment.
  - Old age acts as a barrier to part-time and full-time employment.



- This can impede the growth and even fail the benefits of demographic dividend.
- **Unemployment:**
  - Unemployment touched a 45-year high of 6.1% in 2017-18 according to the recently released first periodic labour force survey (PLFS) report.
  - This has resulted in slowing of gross domestic product growth.
  - Deepening crisis in agriculture, the paralysis of the informal sector, sputtering manufacturing growth and slowing exports are all causes for high unemployment rate in India.
- **Lack of investments in agriculture:**
  - There is neither renewed emphasis on investment-driven growth, nor higher outlays on agriculture, are likely to substantially boost employment

#### Measures needed:

##### Agricultural sector:

- Encouraging public and private investments to develop infrastructure like cold chains;
- Special attention for north-eastern, eastern and rain-fed states for augmenting scope of access to institutional credit;
- Rationalisation and targeting of input subsidies towards small and marginal farmers.

##### Manufacturing Sector:

- A three-pillar strategy to achieve required expansion of output — focus on existing high impact and emerging sectors as well as MSMEs.
- In the defence sector, there is a need to identify key components and systems and encourage global leaders to set up manufacturing base in India by offering limited period incentives.
- Ensure incentives result in technology/process transfer.
- Measures to boost manufacturing in other areas including aeronautical, space, garments, organic/ayurvedic products besides emerging areas such as biotechnology, electric mobility, unmanned aerial vehicles, medical devices, robotics and chemicals.
- For micro, small and medium enterprises, there is a need to improve access to funding by way of development of SME credit risk databases, SME credit rating, and creation of community-based funds

##### Services sector:

- There is a need for focus on champion services sectors like IT, tourism, medical value travel and legal would be required to achieve the expansion of the services sector output and concerted efforts need to be made to increase exports.
- Improving rail connectivity and seamless connectivity to major attractions.
- E-commerce policy and regulatory framework for logistics segment.
- To promote growth of accounting and financial services, there is a need to pitch for promoting FDI in domestic accounting and auditing sector, transparent regulatory framework, and easing restriction on client base in the accounting and auditing sector

##### Way forward:

- India needs to carry out the crucial internal reforms that will allow it to be a productive international player and to take on the leadership roles that so many people across the world hope that it will.
- Reorganization of the health system with much greater emphasis on primary medical centres or PMCs
- Any improvement in the life of the majority would require a re-alignment of the growth process so that it is less damaging.
- This would very likely require that we have slower growth but the process can be configured to channel more of it towards poorer groups.
- India could and should aspire to double-digit growth. Without sustained growth at that all levels it has little hope of employing the roughly one million young people who join its workforce every month.
- And unless it takes advantage of its current, favourable demographics it is never likely to emerge as an upper-middle-income economy with a prosperous and thriving middle class.

**Q) Fifty years after bank nationalisation, banking is still seen as an enterprise driven by social purpose and political considerations and not depositors' interests. Discuss. (250 words)**

[Indianexpress](https://www.indianexpress.com)



**Introduction:**

- July 19, 2019 marks 50 years of nationalisation of 14 commercial banks in India by the Indira Gandhi government. The measure of bank nationalisation came into effect under the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance.
- The ownership of 14 major commercial private banks – estimated to be controlling 70 of the deposits in the country – was transferred to the government. According to many economists nationalization of banks was the single-most-important economic policy decision taken by any government after 1947. The impact of this decision is considered by some to be, even more than the economic reforms of 1991.

**Body:****Rationale behind Nationalization of banks:**

- address the rising economic difficulties in the 1960s
- remove control of the few on banking system
- provide adequate credit for agriculture, small industry and exports
- professionalize bank management
- encourage a new class of entrepreneurs

**Nationalization of Banks – as an enterprise driven by social purpose and political considerations:****Positives:**

- Control over some important parts of the so-called commanding heights of the economy has been eased by successive governments.
- Indian banking too has changed in terms of reach and penetration, formalisation of credit, channelizing savings for investment and for funding anti-poverty programmes, products offerings, service quality, efficiency, credit support to industry and other segments including in rural areas, helping to reduce regional disparities and boosting economic growth.
- In July 1969, at the time of nationalisation of banks, there were just 8,262 bank branches in the country. At the end of June 2018, state- owned banks alone had built a network of branches or a franchise of over 90,000 (over 29,000 in rural areas) and over 1.45 lakh ATMs while private banks had 28,805 branches.

**Negatives:**

- Some of the objectives of that political move in 1969 may have been achieved in the first decade or two.
- But what has remained unaltered in the last 50 years despite economic reforms is the political philosophy and belief.
- The political pay-offs are evident when the government retains control over the lenders. g.: The repeated instances of waiver of farm debt.
- Besides competition, rapid technological changes and innovation are transforming the way banks operate and when the government is struggling to cope with competing demands such as funding infrastructure projects, social sector programmes and delivering public goods. The result is Private banks have managed to chip away at the share of PSUs.
- The political philosophy reflected in the continuing ownership of many banks has come at a huge fiscal cost and poses a risk to financial stability. In the last five years alone, the recap tab at over Rs.3 lakh crore is far in excess of the aggregate funds, which many governments had infused over close to three decades, indicating the scale of the problem.
- Subsequent regimes have tried to pursue consolidation of banks. This is a politically less fraught affair compared to the option of privatisation but does not address the fundamental issue of governance, incentive structures for bankers, dual control and the separation of ownership or the distancing of the owner, the government from the management of the bank.

**Nationalization not in depositor's interest:**

- Most public sector banks (PSBs) are not in the desired position.
- The move failed to eradicate poverty and in scaling down inequalities of income, wealth and entitlements, especially in rural India.
- The performance of nationalised banks, on the parameters of branch expansion as well as increasing the number of deposits, never surpassed that of private banks.
- The real purpose was that it gave the ruling party access to finance as and when it needed without having to resort to black money.
- The government has pumped in over Rs 2.5 trillion in the last few years (including Rs 70,000 crore in 2019) and it still may not be enough.
- PSBs continue to struggle with a higher level of non-performing assets.



- **Recapitalisation:** The government does not have the fiscal space to continuously pump capital into PSBs. Click [here](#) to know more on recapitalisation.
- The idea of using recapitalisation bonds too has its limits as it is increasing the government's liability.
- **Technology:** The role of technology in banking and finance is rising rapidly.
- PSBs, with their weak balance sheets, are not in the best position to adapt and compete on this front.
- Naturally, the business will increasingly shift towards private sector banks.
- **Reforms:** It would be hard to implement the required reforms in PSBs in the present set-up.
- PSBs, which account for 66% of outstanding credit and 65.7% of deposits, need functional and operational independence.
- With the government being the majority shareholder, this will be difficult to attain.

#### Conclusion:

- Given the significance of a vibrant banking system in the growth story of the nation, privatisation of banks is proposed. However, privatisation of banks is not a panacea.
- India must not make haste in going for the privatisation of banks, rather it must focus on comprehensive governance reforms, resolution of NPAs and creating a free market so that investment can be reinvigorated and wheels of the economy can again get back on track.

### Q) What are Private equity funds? Trace the growth of PE Funds in India. List down the advantages and disadvantages of the same. (250 words)

[Livemint](#)

#### **Why this question:**

The news of Café Coffee Day founder V.G. Siddhartha's disappearance has brought into focus the role of private equity (PE) investors in shaping the startup culture in India.

#### **Key demand of the question:**

The answer must evaluate the concept of private equity funds and trace the growth of PE funds and the advantages and disadvantages.

#### **Structure of the answer:**

##### **Introduction:**

Define what are PE funds.

##### **Body:**

Equity capital that is not quoted on a public exchange is Private Equity. Private equity funds are investment companies that, as a rule, do not hold publicly-traded securities but seek the equity stakes in private companies.

Then discuss the Growth of PE Funds in India.

PE investors have been enticed by India's growing status as an economic powerhouse, its strong entrepreneurial spirit.

Discuss their advantages and disadvantages.

##### **Conclusion:**

Conclude with way forward, suggest upon the importance of PE funds and need for their regulatory mechanism.

#### **Introduction:**

- A Private Equity Fund, also known as Private Equity, is **equity capital which comprises of investors who invest directly in private companies**. This equity capital is not listed on the stock exchange and usually follows general investment criteria of investing in varied industries or follows industry specific criteria.
- Considering that **holding periods for private equity funds are long**, therefore, **private equity capital is raised from institutional and retail investors who can afford to invest large sums of money for longer time periods**.

#### **Body:**

##### **Growth of PE funds in India:**

- In India, PE line of financing is still in its nascent stages.
- While in the early 2000s, the focus of PE investments was towards the **booming sector of Information Technology** due to its dynamic growth opportunities.
- However, after the **burst of the dot-com bubble**, PE investors shifted focus to other commercially viable industries.
- Another hindrance to the rising graph of the PE investment was the **economic meltdown in 2008- 2009** which substantially deflected the investment deals size.



- However, consequently Flipkart's USD 150 million, 4th round funding in 2012 Q1 kicked off an overall positive sentiment in funds investing in the domestic e-commerce industry.
- India witnessed an increase in the number and size of PE investments made in 2014 aggregating to around \$11.5 billion, which was 17% higher than the total investment value as compared to the same period the previous year.
- PE investors have been steadfastly interested in certain lucrative sectors including **E-commerce, financial services, power and, energy among others.**
- Most notably, in the current economic scenario, Indian real estate industry owes its foundation to private equity.
- PE financing, in a broad ambit – now makes up **75 percent of the funds in India's real estate sector**, compared with just about a fourth in 2010.

#### Advantages:

- **Untapped Potential:** The arena of potential company investments for private equity a vastly uncharted and untapped territory. There are several options looming in the horizon, from unlisted privately owned companies which have just begun expanding, unpopular divisions of larger organizations or even companies which aren't doing well on the stock market and make them private.
- **Stringent Company Selection Process:** Firms which handle private equity investments are highly selective and spend a considerable amount of resources to assess the potential companies which they could invest in. This also involves an understanding of the risks involved and how to ease the same. From scores of potential companies, managers can be highly selective and choose one company which possesses all the required characteristics.
- **Clear Accountability:** Management teams of private equity owned companies are accountable to an engaged professional shareholder who has the right to protect their shareholding and act accordingly.

#### Disadvantages:

- **Money laundering:** It is alleged that some PE capital is actually political money routed via tax havens such as Mauritius to convert it into white money.
- Some so-called equity PE deals are actually debt transactions involving the issue of fully convertible debentures or compulsorily convertible preference shares.
- The agreement may even carry a "put" option in favour of the PE investor or a "buyback" clause that makes it incumbent upon the promoter to buy the security at a specified price and time. Promoters who do not have the money are forced to borrow or sell other assets to arrange money for the buyback

#### Conclusion:

- The private equity segment has also played a crucial role in the growth and development of many small and medium-size enterprises. It has also stimulated employment opportunities in the country and aided the progress of strategic capabilities.

*TOPIC: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.*

**Q) What do you mean by liberalization? How does it affect the international business environment? What led to Liberalisation of Indian economy? Discuss. (250 words)**

Indian Economy by Dutt and sundaram

#### **Why this question:**

The question is direct from GS paper III, it seeks to examine the effects of liberalization on international business environment and the causative factors responsible for liberalisation of Indian economy.

#### **Key demand of the question:**

The answer must discuss in detail what is liberalization, effects of it on international business environment, and the factors responsible for liberalisation of the Indian economy.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Describe what is liberalization.

**Body:**

Explain what you understand by liberalization?

What are the major goals of economic liberalization?

What is the importance of Liberalization?

Then discuss that the economic liberalization in India refers to the changes and reforms, initiated in 1991, of the country's economic policies, with the goal of making the economy more market- and service-oriented, and expanding the role of private and foreign investment.

Explain its effect on international business environment.

**Conclusion:**

Conclude with way forward and reassert the significance of it.

**Introduction:**

- Liberalization is defined as laws or rules being liberalized, or relaxed, by a government. Economic liberalization is generally described as the relaxing of government regulations in a country to allow for private sector companies to operate business transactions with fewer restrictions.
- It is usually promoted by advocates of free markets and free trade, whose ideology is also called economic liberalism. Economic liberalization also often involves reductions of taxes, social security, and unemployment benefits.

**Body:**

- With reference to developing countries, this term denotes to opening of their economic borders to multinationals and foreign investment.
- Many economists explained that economic liberalization is “opening up” to the rest of the world with regards to trade, regulations, taxation and other areas that generally affect business in the country.

**Conditions that led to liberalization of Indian Economy:**

- **Rise in Prices:**
  - Price rise continuously in India. The inflation rate increased from 6.7% to 16.7%. Due to inflation country's economic position became worse. Main reason for inflation was rapid increase in money supply. It was due to deficit financing Deficit financing means borrowing from Reserve Bank of India by Government to meet its deficit.
- **Rise in Fiscal Deficit:**
  - Due to increase in non- development expenditure fiscal deficit of the Govt. had been increasing. To cover the fiscal deficit, the Govt. has to raise loans and pay interest on it. Due to rise in fiscal deficit there was rise in public debt and interest. In 1991 interest liability became 36.4% of total govt. expenditure. The Govt. caught in debt trap. So Govt. has to resort to economic reforms.
- **Increase in Adverse Balance of Payments:**
  - When foreign exchange falls short for payment otherwise total imports exceed total exports, problem of adverse balance of payments arise. Though incentives are given for export promotion yet the desired results cannot be achieved. It is due to the fact that our export goods could not compete in price and quality. Liability of loan and its interest payment goes as increasing. It made balance of payments adverse.
- **Iraq War:**
  - In 1990-91, war in Iraq broke, and this led to rise in petrol prices. The flow of foreign currency from Gulf countries stopped and this further aggravated the problem.
- **Dismal Performance of Public Sector Undertakings:**
  - PSU's are enterprises wholly owned by Govt. have invested crores of Rs. in these enterprises. These are no performing well due to political interference and became big liability for Govt.
- **Fall in Foreign Exchange Reserves:**
  - Indians foreign exchange reserve fell to low ebb in 1990-91 and it was insufficient to pay for an import bill for 2 weeks. In 1986-87 foreign exchange reserves were Rs. 8151 crores ad in 1989-90, it declined to Rs. 6252 crores. Then Govt. had to sell Gold to meet the import liability.

**Impact of Liberalization on international business environment:**

- Investing in emerging market countries can sometimes be an impossible task if the country you're investing in has several barriers to entry.
- These barriers can include tax laws, foreign investment restrictions, legal issues and accounting regulations, all of which make it difficult or impossible to gain access to the country.





- The economic liberalization process begins by relaxing these barriers and relinquishing some control over the direction of the economy to the private sector. This often involves some form of deregulation and privatization of companies.
- Foreign companies got free access to Indian markets and made domestic products un-competitive. They obviously had better access to technology and larger economies of scale.
- The primary goals of economic liberalization are the free flow of capital between nations and the efficient allocation of resources and competitive advantages. This is usually done by reducing protectionist policies such as tariffs, trade laws and other trade barriers.
- One of the main effects of this increased flow of capital into the country is it makes it cheaper for companies to access capital from investors. A lower cost of capital allows companies to undertake profitable projects they may not have been able to with a higher cost of capital pre-liberalization, leading to higher growth rates.
- Software, BPO, KPO, LPO industry boom in India has helped India to absorb a big chunk of demographic dividend, which otherwise would have wasted. Best part is that export of services result in export of high value.
- 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.
- Stock Markets are platforms on which Corporate Securities can be traded real time. It provides mechanisms for constant price discovery, options for investors to exit from or enter into investment any time. These are back bone of free markets these days and there is robust trade going all over the world on stock exchanges.
- Telecom sector was a government owned monopoly and consequently service was quite substandard. After reforms, private telecom sector reached pinnacle of success. And Indian telecom companies went global. However, corruption and rent seeking marred growth and outlook of this sector.

#### Conclusion:

- In the Indian case the term liberalisation is used to show the direction of the economic reforms-with decreasing influence of the state or the planned or the command economy and increasing influence of free market or the capitalistic economy.
- It is a move towards capitalism. India is attempting to strike its own balance of the 'state-market mix'. It means even if the economic reforms have the direction towards market economy it can never be branded a blind-run to capitalism.
- Since the economy was more like the state economy in the former years, it has to go for a greater degree of mix of the market.

### Q) Do you think airlines in India can be run professionally under government control just as private airlines? Critically analyse. (250 words)

[Livemint](#)

#### **Why this question:**

The question seeks to examine the possibility of professional establishment of govt. airlines like that of the private ones amidst the recent debates surrounding the aviation industry.

#### **Key demand of the question:**

The answer must examine the possibility, associated issues and concerns.

#### **Directive:**

**Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

#### **Structure of the answer:**

##### **Introduction:**

Begin with brief introduction of the aviation sector scenario in India.

##### **Body:**

Discussion should include the following:

First explain that in India in the early phase of commercial aviation, airlines were state-owned and profits were not the list of priorities behind the commercial operations. After the liberalization of air travel in the 1980s, there was intense competition. Low-cost carriers, introduced cut-throat rivalry,



and government airlines started struggling. However, privatization is not a panacea for current problems of airlines. Some airlines despite being owned by the government are doing well.

List the issues plaguing the aviation sector, specifically the government ones and conclude what can be done.

### **Conclusion:**

Conclude with way forward.

### **Introduction:**

- The suspension of operations at Jet Airways — at one time India's largest private airline — announced recently, follows the troubles at Kingfisher, Air Deccan, and Sahara. The aviation sector is rife with hope and distress in a highly competitive market over the last 30 years.
- Despite the fact that the Indian civil aviation industry is currently considered the third largest domestic civil aviation market in the world, the industry is suffering from several problems India's government is pushing towards the privatisation of its debt-laden carrier Air India, which is losing market share amid cut-throat domestic competition.

### **Body:**

#### **Yes, Government can professionally run airlines in India:**

- There is no empirical evidence that private sector can run a better airline. After being privatised British rail has gained a reputation for poor services and management.
- There are many sectors and routes which the private airlines may not be interested in flying as they may not find them economical to operate.
- Connectivity to northeast and other sectors which were not explored by private airlines were undertaken by air India but now this might be an issue.
- In some situations, it is necessary to carry out emergency evacuations of Indian nationals from other countries due to natural hazards, political instability or wars.
- The civil aviation market in India, like in many parts of the world, is oligopolistic, with a few firms controlling large market shares.
- Forcing the exit or merger of an established state-run airline with the third largest market share by which has 31% of the planes in the sector and prime slots at airports worldwide will only aid in the undesirable concentration of market power with a few already large private airlines, and will prove anti-competitive.

#### **No, privatization is better for airlines:**

- Indian state need not run commercial enterprises for the simple reason that it tends to compromise profit for achieving overall welfare of the people
- In the case of Air India, the airline needs better management so as to not be a burden on the country's finances.
- The government will have to keep bailing out Air India with taxpayers' money if it decides to hold on to it.
- In the case of Air India, the cost is a lot higher as it is consistently making losses and is dependent on the government for survival. Further, the presence of state-owned enterprise distorts the market.
- A firm with access to government finances and practically no fear of failing affects price discovery in the market and can hurt private sector operators in the business.
- The government has fiscal constraints and needs to spend more in important areas such as health and education.
- The privatisation of airlines will ensure that the industry will run in a rational way. The private player, will bring about a rational spending, funding and capital infusion in Air India.
- According to **Economic survey**, disinvestment in public sector airlines will help boost Indian airlines' international market share.
- Problems faced by public sector airlines could be diluted:
  - For instance, since 2011-12, despite infusing Rs 24,000 crore of taxpayer money as equity support into Air India, the domestic share of the carrier has fallen from 19% to 13%.
  - The accumulated debts of the carrier have increased to around Rs 50,000 crore.
  - The national carrier is one among other airlines that were struggling and is still undergoing a 10-year rehabilitation package that started in 2012.
- Brings in more professionalism and reduces political interference.
- Competition might lead to lower fares.
- Helps it to achieve targets under UDAN scheme.

**Way forward:**

- **Offer a single integrated network:**
  - The domestic and international operations should be offered in one line, as there is significant value in the feed which they provide to each other. Air India is also part of a global system as a result of its membership of Star Alliance. Separation of domestic and international operations will result in reduced interest.
- **Provide comprehensive disclosures:**
  - The data room should include detailed information on Air India's finances and labour contracts as these are two of the most sensitive issues that will impact interest and valuations. A large proportion of the technical staff is due to retire within the next 5-10 years which is an issue that the new owners will need to prepare for.
- India should encourage development of domestic hubs so that Indian airlines can take passengers directly, instead of foreign carriers first taking passengers to their home countries and then offering them onward connections.
- To make private airlines operate in uneconomical routes, special incentives or subsidies can be granted to airlines operating on such routes.
- The government can establish a specialised agency under the Defence or External Affairs Ministry for evacuating Indians from foreign countries.
- On easing current restrictions on Indian airlines to fly overseas, the Survey has advocated a further liberalisation of the 0/20 rule.
- Public sector airlines will have to cut layers of management, align staff by role, bring in lateral hires, overhaul customer facing functions, and implement a massive training exercise.

**Q) Examine the impact of liberalisation on Indian companies, to what extent are they competing successfully with the MNCs? Discuss. (250 words)**

Indian economy by Dutta and Sundaram

**Why this question:**

**Key demand of the question:**

The question is about analysing the impact of liberalisation specifically on the Indian companies and in what way they are competing the MNCs satisfactorily.

**Directive:**

**Examine** – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

**Structure of the answer:**

**Introduction:**

Begin with brief introduction on what you understand by liberalization.

**Body:**

Discussion should include the following:

First explain the effects of liberalization in general and then explain how it impacted the Indian companies and in what way is the impact different from that on the MNCs

Explain that Foreign direct investment (FDI) in India is a major monetary source for economic development in India. Foreign companies invest directly in fast growing private Indian businesses to take benefits of cheaper wages and changing business environment of India.

Then discuss in what way it is helping the Indian companies to compete with other MNC's successfully, what are the challenges associated etc.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- Liberalization is defined as laws or rules being liberalized, or relaxed, by a government. Economic liberalization is generally described as the relaxing of government regulations in a country to allow for private sector companies to operate business transactions with fewer restrictions.
- It is usually promoted by advocates of free markets and free trade, whose ideology is also called economic liberalism. Economic liberalization also often involves reductions of taxes, social security, and unemployment benefits.

**Body:****Impact of Liberalization on Indian companies:****1. Impact on Small Scale companies:**

- After independence, government attempted to revive small scale sector by reserving items exclusively for it to manufacture. With liberalization list of reserved items was substantially curtailed and many new sectors were thrown open to big players.
- Small scale industry however exists and still remains backbone of Indian Economy. It contributes to major portion of exports and private sector employment. Results are mixed, many erstwhile Small scale industries got bigger and better. But overall value addition, product innovation and technology adoption remains dismal and they exist only on back of government support.

**2. Impact on Services Sector**

- 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. Here US have to jealously guard its jobs as we guard our agriculture.

**3. Information Technology industry**

- Software, BPO, KPO, LPO industry boom in India has helped India to absorb a big chunk of demographic dividend, which otherwise would 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 labor 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.

**4. Telecom Sector**

- Conventionally, Telecom sector was a government owned monopoly and consequently service was quite substandard. After reforms, private telecom sector reached pinnacle of success. And Indian telecom companies went global. However, corruption and rent seeking marred growth and outlook of this sector.
- Entry of modern Direct to Home services saw improvements in quality of Television services on one hand and loss of livelihood for numerous local cable operators.

**5. Education and Health Sector**

- It should be noted that food (Agriculture), Health and education (and to lesser extent banking) are among basic necessities, which every human being deserves and can't do without. Unfortunately, in developing countries there is market failure in all these sectors and majority of people can't afford beyond a certain limit (or can't afford at all). Concept of free markets, globalization, liberalization etc. fails here miserably. Free markets provide goods and services to people who can afford paying for them, not to those who deserve and need these.
- Now if we consider these sectors from angle of our inclination towards free markets, certainly there has been lot of progress. There has been world class education available in India and Deregulation has resulted in Mushrooming of private engineering and Medical Colleges. But in reality, this had far reaching devastating effect on society.
- On Social front India's performance is deplored all over the world and it is probably behind all important developing economies. This lacuna has been recognized and government has taken the charge. In case of education almost universal enrolments has been achieved upto primary level and now impetus should be on improving quality, so that student of public schools comes at par with at least average private ones.

**Conclusion:**

- In the Indian case the term liberalisation is used to show the direction of the economic reforms-with decreasing influence of the state or the planned or the command economy and increasing influence of free market or the capitalistic economy.
- It is a move towards capitalism. India is attempting to strike its own balance of the 'state-market mix'. It means even if the economic reforms have the direction towards market economy it can never be branded a blind-run to capitalism.
- Since the economy was more like the state economy in the former years, it has to go for a greater degree of mix of the market.





## Q) Trace the evolution of FDI in defence sector of India and also analyse the Implications of FDI in Defence on Self-Reliance and Indigenisation. (250 words)

[Financialexpress](#)

### **Why this question:**

The question is based on the policy perspective with respect to the investments in the defense sector and in what way FDI brings in self-reliance and Indigenization.

### **Key demand of the question:**

The answer must discuss the importance of FDI in defense, trace its evolution and analyse in detail its implications.

### **Directive:**

**Analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

### **Structure of the answer:**

#### **Introduction:**

Discuss first the importance of investments in defense sector in general.

#### **Body:**

The body of the answer to have the following aspects covered in detail :

Explain the evolution of FDI in Defence Sector.

Then discuss the associated advantages (Transparency, Quality Products, Reduction of Reserves, Positive Performance Pressure on Public Sector Enterprises, Employment Opportunities etc.) and disadvantages (Security Concerns, Competition for Domestic Private Industry, Overbearing Presence of Foreign Companies etc.)

Then focus on to explaining the Implications of FDI in Defense on Self-Reliance and Indigenization.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- India's defence industry received foreign direct investment (FDI) of a meagre USD 2.18 million during 2018-19. In 2014-15, 2015-16, and 2017-18, the sector attracted FDI worth USD 0.08 million, USD 0.10 million and USD 0.01 million, respectively, according to data given by Commerce and Industry Minister in a written reply in the Lok Sabha.

#### **Body:**

- Importance of FDI in defence sector lies in **Quality Products, Boost to Economy, Employment Opportunities, Increase in International Trade, Positive Performance Pressure on Public Sector Enterprises, Transparency and reduced corruption and Reduction of Reserves.**

#### **Evolution of FDI in defence sector of India:**

- The Defence Sector in India, being a strategic sector, was **traditionally reserved for the Public Sector till 1991.**
- Defence Public Sector Undertakings (Defence PSUs) and Ordnance Factory Board (OFB) monopolised defence products manufacturing while R&D was the exclusive turf of DRDO.
- The **concept of FDI in general was introduced in India in 1991** with the opening of the Indian economy.
- However, the Defence Sector was opened up 100% in **May 2001 for Indian Private Sector participation with FDI permissible up to 26%**, both subject to licensing.
- In August 2014, the Department of Industrial Policy and Promotion (DIPP) raised the limit up to 49% through Government route and above 49% through Cabinet Committee on Security (CCS), on case-to-case basis.
- The Government formulated a revised "Consolidated FDI Policy" in 2016, where the policy permitted FDI cap in defence, through **automatic route up to 49% and above 49% under Government route on case to case basis**, wherever it is likely to result in access to modern and "state-of-the-art" technology in the country.
- The **Government further raised FDI cap to 100% on again in 2016.** The phrase state-of-the-art was dropped for FDI above 49%. The **CCS approval was no more required.**
- However, the process of approval itself will include the Ministry of Defence (MoD) and the Ministry of Home Affairs (MHA) which will consider issues related to defence of the nation, internal security and every other matter which relates to the national security.
- The **requirement of single largest Indian ownership of 51% of equity has also been removed. A lock-in period of three years on equity transfer has been done away with in FDI for defence.**



### Implications of FDI in Defence on Self-Reliance and Indigenisation:

- **Build industrial capability and ecosystem:** Utilise FDI as a route to attract much needed foreign capital to boost building of the indigenous defence industrial manufacturing capability.
- **Induction of modern technology:** Enhanced FDI, that enables majority stake holding by foreign company, represents not merely acquisition of funds but also realistic possibilities of access to coveted modern technologies for weapons and equipment. The weapons and equipment so manufactured, on becoming globally competitive, in turn, would attract more FDI and better technology and the progressive cycle goes on.
- **Reduction in imports:** FDI in defence is likely to substantially improve the country's capacity to manufacture defence weapons and equipment locally and meet both qualitative and quantitative requirements of the Armed Forces.
- **Greater reliability of supplies in war.**
- **Better spares support**
- **Insulation from Embargoes:** Currently, India procures most of the critical weapons systems and equipment that are either manufactured or both manufactured and integrated abroad. When the same weapons systems and equipment are manufactured in the country, indigenous production will tend to insulate the country from unilateral imposition of embargoes by whimsical foreign suppliers.

### Way Forward:

- **National Defence Industrial Policy:** There is a genuine requirement to articulate National Defence Industrial Policy which should deal with all relevant issues pertaining to defence design, development and production.
- **Enhance FDI Cap:** It is strongly recommended to permit enhanced FDI, above 49 percent through Government route, in deserving cases without being overly protective about the Defence Public Sector Enterprises. Further liberalised FDI Policy in the Defence Sector is the need of the hour.
- **Minimise Procedural Delays:** Government should ensure that there is transparency, evident decisiveness and no room for bureaucratic/procedural delays and corruption.
- **Enhance interaction between Armed Forces and Industry:** The Armed Forces need to actively interact with the industry to enable focus on the technology desired in the future weapons systems and equipment.
- **Promote Export of Defence Products:** Exports should be encouraged to ensure economic viability of an enterprise as also to earn foreign exchange to offset the initial foreign exchange outflow.
- **Explore Strategic Partnership Model:** The partnership would essentially provide for long-terms needs of the Armed Forces. This route encourages the Industry to invest in Research and Development.
- **Build Military-Industrial Complex:** Suitable incentives, in terms of provision of funds for research, tax relief based on the investment made in research projects, provision of land on concessional rates to defence vendors, are required to be extended to encourage investment by Private Industry in R&D.
- **Extend Assistance to Domestic Private Sector:** India's Private Sector needs hand holding, in terms of technology to be able to graduate to manufacturing of complex modern weapons systems and military equipment by collaboration with foreign technology majors.
- **Encourage Multi-Nation Consortiums:** India should exploit its favourable geopolitical location and aspire to be a regional hub for global outsourcing of weapons and equipment. BrahMos Cruise Missile is an excellent example of high-grade output of consortium approach.

### Conclusion:

- But at the same time we should realize that FDI is not a magic wand which can solve all the problems of the defence sector.
- So Increase in the FDI Cap should be complemented by other defence sector reforms such as ensuring enabling environment for investment, solving land acquisition issues etc.

### Q) Do you think Insolvency and Bankruptcy Code can emerge as the lynchpin for resolving stressed assets in a time-bound manner? Critically analyse. (250 words)

[Livemint](#)

#### **Why this question:**

The Central government introduced the Insolvency and Bankruptcy Code (IBC) in 2016 to resolve claims involving insolvent companies. This was intended to tackle the bad loan problems that were affecting the banking system. Two years on the IBC has succeeded in a large measure in preventing corporates from defaulting on their loans. The IBC process has changed the debtor-creditor relationship.

#### **Demand of the question:**

The answer must analyse in detail the merits and demerits of Insolvency and Bankruptcy Code (IBC).



### **Directive word:**

**Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

### **Structure of the answer:**

#### **Introduction**

Define the basic features of Insolvency and Bankruptcy Code (IBC).

#### **Body**

Explain that Insolvency and Bankruptcy Code, 2016 is considered as one of the biggest insolvency reforms in the economic history of India.

This was enacted for reorganization and insolvency resolution of corporate persons, partnership firms and individuals in a time bound manner for maximization of the value of assets of such persons.

Then discuss the objectives of the IBC, explain the key aspects, the successes, challenges in implementation etc.

#### **Conclusion**

Conclude with way forward.

#### **Introduction:**

- The Government of India implemented the Insolvency and Bankruptcy Code (IBC) to **consolidate all laws related to insolvency and bankruptcy and to tackle Non-Performing Assets (NPA)**, a problem that has been pulling the Indian economy down for years.
- The Union cabinet’s approval of amendments to the Insolvency and Bankruptcy Code (IBC) to enhance its efficacy could bring relief to banks, foreign investors and others worried about the impact that quasi-judicial interpretations of the code’s grey areas might have on the country’s credit systems.

#### **Body:**

Yes, IBC is the lynchpin:

- **Unified law:** The interest of all parties i.e. lenders, borrowers and even operational creditors is now addressed under a unified law under the IBC.
- **Changed behavior of defaulters:** The IBC has given more teeth to lenders and has changed the credit behavior of borrowers. Now, there is a heartening trend of defaulters paying up dues before the case is admitted for insolvency under IBC.
- **Shift of control from debtor to creditor:** IBC proposes a paradigm shift from the existing ‘Debtor in possession’ to a ‘Creditor In Control’ regime, as now the Board of Directors is suspended in case of default and the IP manages the enterprise in the best interest of all its stakeholders.
- **Resolving the ‘chakravayuh challenge’:** IBC has made possible for struggling companies to ‘exit’ easily by allowing creditors to take the company to the NCLT for winding up.
- **Spurs professionalism in financing sector:** IBC has reduced crony capitalism, under and over invoicing, serial defaulters and lead to better allocation of capital by limiting the escape routes for defaulters and water tight frame for disposal of cases

#### **Success of IBC so far:**

- Due to the institution of IBC, we have seen that many business entities are paying up front before being declared insolvent. The success of the act lies in the fact that many cases have been resolved even before it was referred to NCLT.
- 4452 cases were dismissed at the pre-admission stage. Hence, it shows the effectiveness of IBC.
- Presently, there are 1332 cases before NCLT.
- Realization by creditors around Rs 80,000cr in resolution cases.
- Banks recovered Rs 5.28 lakh crore in 2017-18, compared to just Rs 38500 cr in 2016-17.
- The maximum amount recovered was Rs 4, 92,500 cr from 21 companies.
- 12 big cases are likely to be resolved this year, and the realization in these cases is expected to be around Rs 70000 Cr.

#### **Challenges posing the IBC:**

- **Tribunal issues:**
  - The NCLT started off well but they are clogging up now, they’re taking much longer than they did earlier.
  - More than 9,000 cases are before the 11 NCLT tribunals that have been set up around the country.



- National Company Law Appellate Tribunal (NCLAT) and that includes more than 2,500 insolvency cases.
- In the absence of jurisprudence and precedents, different NCLTs are giving different rulings.
- **Concerns with time stipulation:**
  - Regarding the time stipulation, in few cases the tribunal laid down that the 14-day period is only directive and not mandatory.
  - Also, the NCLAT has held that the provisions of the Limitation Act, which sets out the time-limits under which a complainant can approach the courts for redress, do not apply to proceedings under the Insolvency Code.
- **Administrative issues:**
  - IBC has failed to secure the due share of banks as the amount realized by banks in cases is falling too low, in some cases amount realized is less than even one-third of bank's claim value.
  - There have been loopholes in the functioning of Committee of Creditors. Nominated members of Financial creditors does not have any authority to take decisions upfront. It leads to a conflict of interest in reaching a revival plan.
  - There is no proper infrastructure of the Information Utilities (IU) that provide access to credible and transparent evidence of default.
  - There is a multiplicity of regulators to Insolvency Professionals i.e. presence of numbers of insolvency professional agencies (IPAs) to regulate professionals.
- **Authoritative Insolvency Resolution Professionals:**
  - The IBC's provision to throw the management out and replacing them with IRPs is consider to be draconian.
  - IRPs are a mix of chartered accountants, cost accountants, MBAs and retired public sector executives but there are many concerns has raised over the quality of the IRPs.
- **Drafting loopholes:**
  - Inevitably, there are loopholes in the Insolvency Act and some lawyers complain of poor drafting too.
  - For instance, the act has no provision for an amicable settlement once a case has been admitted.

#### Way forward:

- There is need for setting up more tribunals in different parts of the country to handle the greater-than-expected volume of cases.
- IBC must consider that there are distinct advantages if the existing management is allowed to keep running the company such as knowledge, information and expertise.
- India is more concerned with the recovery of NPA, not with the running of units, thus the first priority is to save the banking system.
- Thus the banks also must push policy makers towards this move because they're unlikely to get more if the case comes before the NCLT.
- Proactive training/onboarding of judges, lawyers, and other intermediaries will be necessary for effective implementation of the code.
- Technological infrastructure needs to be strengthened to avoid any kind of data loss and to maintain confidentiality. There is a requirement of enhanced IU infrastructure.

#### Conclusion:

- IBC as a structural reform has demonstrable impact, which is reflected in behavioural change among debtors, creditors and other stakeholders, it is the IBC or the insolvency law which has trumped even the GST.

*Topic– Inclusive growth and issues arising from it.*

**Q) Discuss the impact of global warming on future economy and Jobs, explain more so specifically with respect to Indian scenario. (250 words)**

[Indianexpress](https://www.indianexpress.com)

#### **Why this question:**

The article discusses the report, 'Working on a warmer planet: The impact of heat stress on labour productivity and decent work' anticipates an increase in "heat stress" resulting from global warming. It projects global productivity losses equivalent to 80 million full-time jobs in 2030, and the projection of 34 million jobs would make India the worst affected.

#### **Demand of the question:**

The answer must discuss the impact of global warming on future economy and Jobs.





### **Directive word:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

### **Structure of the answer:**

#### **Introduction**

Briefly discuss the recent trends in global warming, highlight the recent trends in it.

#### **Body**

The answer should discuss the following –

The report defines heat stress as heat in excess of what the body can tolerate without suffering physiological impairment. It generally occurs at temperatures above 35°C, in high humidity. Excess heat during work is an occupational health risk and restricts workers' physical functions and capabilities, work capacity and thus, productivity.

Take hints from the article and the report state how global warming can directly impact the job scenario and the economy.

#### **Conclusion**

Conclude by suggesting measures to tackle such adversaries.

#### **Introduction:**

- Climate change is certainly without argument the most serious global environmental crisis that we face. It is not the only environmental problem, but it is unique in its multi-scalar characteristic, from the global to the local. And, in many ways, it is arguably the most immediate of our problems.

#### **Body:**

##### **India is more vulnerable to climate change:**

- India, being a tropical country, is more susceptible to changes in temperature.
- Also, in India, about 50% of the population directly or indirectly depends on agriculture for a livelihood.
- The existent distress in the farm sector and the state governments' response with loan waivers has already strained their fiscal condition.
- Furthermore, the production of kharif crops is expected to decline.
- The possibility of adverse weather events is likely to increase in the future posing a greater challenge.
- The impact of climate change in agriculture is thus expected to reverberate in other sectors of the economy and affect the overall growth prospects.

##### **Impact of global warming on India's future economy and Jobs:**

- By 2030, India is expected to lose an equivalent of 34 million jobs as a result of global warming, says a report released by the ILO.
- The report, 'Working on a warmer planet: The impact of heat stress on labour productivity and decent work' anticipates an increase in "heat stress" resulting from global warming.
- It projects global productivity losses equivalent to 80 million full-time jobs in 2030, and the projection of 34 million jobs would make India the worst affected.
- The region projected to lose the most working hours is southern Asia, at 5% in 2030, corresponding to around 43 million jobs, respectively.
- A third of the southern Asian countries have already incurred losses greater than 4%.
- India, which lost 4.3% of working hours in 1995 because of heat stress, is projected to lose 5.8% of its working hours in 2030, which corresponds to 34 million jobs.
- The impact of heat stress on labour productivity and decent work' anticipates an increase in "heat stress" resulting from global warming.
- With some 940 million people active in agriculture around the world, farmers are set to be worst hit by rising temperatures, according to the ILO data, which indicates that the sector will be responsible for 60 per cent of global working hours lost from heat stress, by 2030.
- The report projects losses in working hours as **04% in agriculture, 5.29% in manufacturing, 9.04% in construction, and 1.48% in services.**
- Although most of the impact in India will be felt in the agricultural sector, more and more working hours are expected to be lost in the construction sector, where heat stress affects both male and female workers," the report says.
- There is little data in the country to corroborate trends of climate change and employment.



- However, that there has been no direct job loss at present, with distressed workers switching from one vulnerable sector to another.

#### Way forward:

- There is a need to strengthen its macroeconomic stability to deal with temperature shocks.
- India has considerably reduced its dependence on the monsoon as evident from avoiding a runaway inflation even after two successive years of drought.
- However, more needs to be done to enhance productivity in the agriculture sector.
- India can work on programmes that will help improve the quality of land and reduce the risk of climate change. Ex: Use employment under the MGNREGA to enhance soil and water conservation.
- India also needs to strengthen its overall capability by investing in and adopting new technology.
- We need to move climate change, global warming to the top of our foreign policy agenda.
- We need to start taking climate change more seriously, particularly on the adaptation side, because we really have a lot to be concerned about.
- And on the mitigation side, we have to be careful as we may not be fully exploring the scope of intersections between 'a low carbon agenda' and 'a development agenda'.

**Q) “Despite India’s outstanding growth in the last two decades, low pay and wage inequality remain serious obstacles towards achieving inclusive growth. An effective minimum wage policy that targets the vulnerable bottom rung of wage earners can help in driving up aggregate demand, and building and strengthening the middle class, and thus spur a phase of sustainable and inclusive growth”. Comment. (250 words)**

Livemint

#### **Why this question:**

The article highlights how in recent years, minimum wage systems have been strengthened by many countries to lift workers out of poverty and to reduce levels of inequality.

#### **Key demand of the question:**

The answer must bring out the relevance of minimum wage policy to Indian scenario and in what way it can be a game changer in alleviating people out of poverty and spurring sustainable and inclusive growth.

#### **Directive:**

**Comment**— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

#### **Structure of the answer:**

##### **Introduction:**

In brief explain what you understand by minimum wage policy.

##### **Body:**

Start by discussing the on going debate of the concept of minimum wage policy in economic survey. The Survey advises that the proposed labour code should include a provision for a minimum wage for both informal and formal sector workers, as 93% of the labour force is engaged in unorganized work. Discuss how and why India needs to have a mandatory national-level minimum wage to promote social justice and curb distress migration.

Discuss both the positives and negatives of such a policy.

##### **Conclusion:**

Conclude with a fair and balanced approach.

#### **Introduction:**

- The **International Labour Organization (ILO)** defines minimum wages as the **minimum amount of remuneration that an employer is required to pay wage earners for the work performed during a given period, which cannot be reduced by collective agreement or an individual contract.**
- A well-designed and streamlined minimum wage system is required to reduce wage inequality in India, the Economic Survey 2019 says.

**Body:****Need for a minimum wage policy in India:**

- Currently, the minimum wage system, under the Minimum Wages Act, 1948, in India is complex, with 1,915 different minimum wages defined for different job categories across States.
- Despite the complex system, workers were still falling through the gaps.
- About 93% of the labour force is engaged in unorganized sector.
- Salaries have undergone big increases in India and corporate emoluments have are increasing rapidly too.
- But wages (in real terms) remains where it was before the beginning of the 'New Economic Policy' of 1991.
- Wages of the unskilled workers vary wildly from Rs 850 per day in Kerala to a third of it in most other parts of the country.
- According to the ILO, One in every three wage workers in India is not protected by the minimum wage law.
- There are huge disparities within the various jobs in unskilled category. For instance, the minimum wage rate for domestic workers within a State is consistently lower than that for the minimum wage rates for security guards.

**Pros of National Minimum wage policy:**

- Workers who can cover the cost of living have better morale. They are more productive if they have a decent standard of living.
- A mandatory minimum national wage will force states to pay more than the floor rate, but not less
- It helps target the vulnerable bottom rung of wage earners can help in driving up aggregate demand and building and strengthening the middle class
- The move, the Survey said, will improve help regions attract investment and reduce distress migration.
- This would bring some uniformity in minimum wages across the country and make all states almost equally attractive from the point of view of labour cost for investment
- minimum wages can promote social justice without any major negative implication for employment if wages are set at an adequate level
- A minimum wage spurs economic growth. It gives workers more money to spend. This increases demand and business revenue.
- Workers who have more time and money can then invest in their education. This further increases their productivity. It improves the attractiveness of the country's labour pool. A more educated workforce increases innovation and the number of small businesses.

**Cons:**

- The minimum wage laws raise business labour costs. That's already the largest budget item for most of them. When the government forces them to pay more per worker, they hire fewer workers to keep the total labour costs the same. This increases the unemployment rate.
- It hits low-wage workers the hardest since they must now compete for fewer jobs. Some smaller companies may not be able to operate with fewer workers. They may be forced to declare bankruptcy instead.
- According to the Confederation of Indian Industries (CII), states should have the power to determine minimum wages as the concept of a national minimum wage will affect job creation.
- A minimum wage penalizes companies that are labour-intensive. By default, this rewards those that are in capital-intensive industries. Over time, this can shift the very fabric of the country's economic base.
- Minimum wage laws may increase job outsourcing. Companies move their facilities to countries where labour costs are lower.
- Minimum wage laws may not reduce the country's poverty. It helps the workers who have jobs but increases unemployment. Research shows experienced workers received higher pay for less experienced workers lost their jobs.
- It could raise the cost of living in some areas. A higher minimum wage allows workers to pay more for housing. As a result, landlords could raise rents, creating inflation.

**Measures needed:**

- Increasing the ambit of the minimum wage system, it recommended deciding minimum wages on the basis of skills and split across geographical regions.
- With the government in the process of bringing the Code on Wages Bill in Parliament, the survey said the rationalisation of minimum wages proposed by the Bill should be supported.
- The code will bring together the Minimum Wages Act, 1948, the Payment of Wages Act, 1936, the Payment of Bonus Act, 1965 and the Equal Remuneration Act, 1976 into a single legislation.



- The survey suggested the government should notify a **“national floor minimum wage”** across five regions, after which States can fix their own minimum wages, but not lower than the floor wage.
- This would bring uniformity and make States “almost equally attractive from the point of view of labour cost for investment as well as reduce distress migration.”
- The proposed Code on Wages Bill should extend applicability of minimum wages to all employments/workers in all sectors and should cover both the organized as well as the unorganized sector.
- A mechanism for regular adjustment of minimum wages should be developed, with a national-level dashboard at the Centre that States can access and update.
- An easy to recall toll-free number to lodge complaints about non-payment of minimum wages should be publicised.

#### Conclusion:

- A simple, coherent and enforceable Minimum Wage System should be designed with the aid of technology as minimum wages push wages up and reduce wage inequality without significantly affecting employment.
- An effective minimum wage policy is a potential tool not only for the protection of low paid workers but is also an inclusive mechanism for more resilient and sustainable economic development

### Q) What are social stock exchanges? Discuss its need and potential in India. (250 words)

[Indianexpress](https://www.indianexpress.com)

#### Introduction:

- A social stock exchange (SSE) is a platform on which social enterprises, volunteer groups and welfare organisations will be listed so that they can raise capital.
- It will bring together social enterprises and impact investors on a common platform. Finance Minister announced that the government plans to create a social stock exchange (SSE) in the budget 2019. The SSE in India will be under the ambit of SEBI.

#### Body:

##### Need:

- Social enterprises are playing a very significant role in solving real problems in education, healthcare and financial inclusion.
- The Electronic Fundraising Platform acknowledges the problem of investment fundraising for such organizations
- It sends a positive signal that the government is bothered about the sector.
- It will help companies to have greater visibility and raise capital. For instance, if an entrepreneur can go to a single platform which he knows will be touched by a hundred investors, it becomes easier for him
- Listing on an exchange can be a viable alternative for impact startups to raise funding
- In India, the social impact startups are growing at 20 per cent annual rate while there are more than 400 such startups

##### Potential:

- The proposal has attracted much attention, and social entrepreneurs, among others, have said that the move can have a revolutionary effect on how they tap investors for capital.
- The exchange would help social and voluntary organisations which work for social causes to raise capital as equity, debt or a unit of mutual fund.
- It's good for the government to put in some resources in the creation of what should be viewed as a facilitating institution
- With the government distrustful of foreign donations to nonprofits, the exchange might help the sector generate more capital
- The proposal would be a radical experiment in a country characterised by stark inequality and rapid economic growth.
- If created, the exchange could provide new and cheaper sources of financing for social welfare projects, while showcasing India's independence from foreign aid as it seeks to enhance its position on the world stage.
- SSEs exist in several countries in various forms but there is no clarity about the Indian version yet on trading, tax benefit transferability and accountability of third parties

##### Social enterprises:

- A social enterprise is a revenue-generating business.
- Its primary objective is to achieve a social objective, for example, providing healthcare or clean energy.



- This in no way means that a social enterprise can't be highly profitable. In fact, most social enterprises look and operate like traditional businesses.
- The only catch is that the profit these entities generate is not necessarily used for payouts to stakeholders, but reinvested into their social programmes.
- **Forus Health**, a social enterprise manufacturing medical devices, with the larger vision of eliminating preventable blindness
- **ImpactGuru** is a donation-based crowdfunding startup serving NGOs, social enterprises, startups and individuals.

#### Global examples:

- **UK:** The Social Stock Exchange in London functions more as a directory connecting social enterprises and potential investors. Launched in 2013, it only accepts companies that pass its independent assessment on social impact.
- **Kenya:** The Kenya Social Investment Exchange, launched in 2011, connects vetted social enterprises with impact investors, both foreign and domestic. A listed social enterprise has to demonstrate social impact as well as financial sustainability beyond the funding period.
- **Canada:** Backed by the Ontario government, the SVX is an online platform that allows investments in Canadian companies and funds that have "a positive social or environmental impact". Retail investors are also allowed to participate.
- **Singapore:** The Impact Investment Exchange runs a social stock exchange in partnership with the Stock Exchange of Mauritius, which is open to limited accredited investors who want to invest.

#### Challenges:

- In a survey of Indian social enterprises by Brookings India, 57% identified access to debt or equity as a barrier to growth and sustainability.
- Lack of clarity of Social Enterprise in India.
- There is less clarity about how a stock exchange will help raise capital for "voluntary organisations".
- Social startups possibly lack the flexibility in raising capital from angel or venture capital investors, unlike a regular technology startup.

#### Way forward:

- The first thing the government needs to decide is how to distinguish between a social enterprise and a normal enterprise.
- It would be innovative if corporate social responsibility funds could be routed to social enterprises through the exchange
- This can help reduce misuse of CSR funds and help companies route funds through a more viable route

#### Conclusion:

- The Social stock exchange is a step in the right direction to help the cash starved social startups. This will further the cause of socio-economic development with much transparency and accountability.

**Q) Provide for an analysis of recently released Global Innovation Index, Discuss the need for innovation and government efforts to promote the same. (250 words)**

The hindu

#### **Why this question:**

Global Innovation Index 2019 has been released recently.

#### **Key demand of the question:**

The question aims to analyse the recently released Global innovation index and the performance made by our country and the efforts of the government in this direction.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Discuss in brief about GII.

##### **Body:**

Start with brief on findings of the report.





Discuss the salient features of the report – GII rankings are based on 80 indicators, from traditional measurements like research and development investments and international patent and trademark applications.

Theme for the year 2019 is – Creating Healthy Lives – The Future of Medical Innovation, which aims to explore the role of medical innovation as it shapes the future of healthcare.

It is published by a specialized agency of the United Nations – the World Intellectual Property Organization (WIPO) in association with Cornell University and graduate business school INSEAD.

Then list upon the performance of India and the key findings of the government initiatives in this direction.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- The Government of India has launched the Global Innovation Index (GII) in New Delhi. This is the first time that the GII is being launched in an emerging economy.
- The Department for Promotion of Industry and Internal Trade (DPIIT) of Ministry of Commerce and Industry, Government of India, World Intellectual Property Organization (WIPO) and Confederation of Indian Industry (CII) are co hosting the event. India has jumped five places to rank 52 in the Global Innovation Index 2019, up from the 57 it had in last year's rankings.

#### **Body:**

##### **Key Findings of Global Innovation Index 2019:**

- Public R&D expenditures, particularly in some high-income countries, are growing slowly or not at all.
- Global landscape of science, innovation, and technology has undergone important shifts over the last decades.
- Asian economies especially middle-income one, are rapidly contributing to global research and development (R&D) and international patenting rates via WIPO's International Patent System.

##### **Need for innovation in India:**

- Key drivers of economic performance and social well-being.
- It is important to inculcate scientific temper among masses in order to fight superstitions, distorted truth and religious fanaticism that has been crippling India
- Innovation and technological improvement has become essential to combat and adapt to climate change and promote sustainable development,
- It is imperative for combating national security threats ranging from cyber ware to autonomous military systems such as drones.
- Investing in research and providing adequate incentives leads to creation of jobs, especially for the pool of engineers and researchers in the society. Under the 'Make in India' program, the government has targeted to create 100 million jobs from the manufacturing sector by 2022.

##### **Government Efforts:**

- Various schemes have been introduced to improve the quality of research institutes, for the promotion of **technology business incubators (Atal Incubation Centres) and research parks** that promote innovative ideas until they become commercial ventures.
- **PM fellowship scheme** aimed at encouraging young, talented, enthusiastic and result-oriented scholars to take up industry-relevant research.
- **Ucchatar Avishkar Yojana:** It aims to promote industry-specific need-based research so as to keep up the competitiveness of the Indian industry in the global market.
- **Atal Tinkering Labs** ensure that dedicated workspaces are created for students to innovate and develop ideas that will go on to transform India.
- Platforms like **"Innovate India"** promote and recognise innovations happening across the nation by enabling citizens to share their innovation.
- **Unnat Bharat Abhiyan 2.0** to help bring transformational change in rural development processes by leveraging knowledge institutions to help build the architecture of an Inclusive India.
- **IMPRINT** India is aimed at adopting engineering and technology as the vehicle to addressing the societal needs and achieving national prosperity
- Forging technology and innovation partnerships with other nations **like India-Israel Innovation Bridge** will act as link between start-ups of India and Israel.
- **PRISM (Promoting Innovations in Individuals, Start-ups and MSMEs):** It is a scheme launched by DSIR (Department of Science & Industrial Research) to support individual innovators with financial grants.



- Various enabling policies like **Science, Technology & Innovation Policy 2013, National Intellectual Property Rights Policy, Technology Vision Document 2035 and Space Vision India 2025** have been framed.

#### Way forward:

- The Economic Survey recommends doubling national expenditures on R&D with most of the increase coming from the private sector and universities.
- Improve math and cognitive skills at school level
- 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.
- R & D should focus on technology and extension services that is directly related to common people
- Engage private sector, state government and Indian Diaspora.
- The private sector should be incentivised to undertake and support R&D through **CSR (Corporate Social Responsibility) funds**.
- Growing strength of India's economy and increasing anti-immigrant atmosphere in some Western countries has the potential to attract back scientific Indian Diaspora. Schemes like Ramanujan Fellowship Scheme, the Innovation in Science Pursuit for Inspired Research (INSPIRE) Faculty scheme and the Ramalingaswami Re-entry Fellowship, Visiting Advanced Joint Research Faculty Scheme (VAJRA) should be enhanced to leverage the scientific Diaspora

#### Topic: Land reforms in India.

**Q) What are the major land reforms of India? Why are land reforms needed in Indian economy? Discuss. (250 words)**

Indian economy by Dutta and Sundaram

#### Why this question:

The question seeks to examine the major land reforms in India and their need for the economy.

#### Key demand of the question:

The answer must discuss the major land reforms in India and their what are their contributions to the Indian economy.

#### Directive:

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### Structure of the answer:

##### Introduction:

Describe briefly the beginning of land reforms in India.

##### Body:

First explain what you understand by land reforms – Land reforms in India usually refer to redistribution of land from the rich to the poor. Land reforms are often connected with re-distribution of agricultural land and hence it is related to agrarian reforms too.

Start with a narration of Background and History of Land Reforms in India.

Explain the major land reforms that took place in India.

Its role in Indian economy – Equity – now the majority of land in India is enjoyed by a minority of landlords. The inverse relationship between land size and efficiency – the smaller the land, better will be the productivity and efficiency. Owner-cultivation is more efficient than share-cropping etc.

Then discuss the relevant challenges that need focus.

##### Conclusion:

Conclude with way forward.

#### Introduction:

- Land Reforms usually refers to redistribution of Land from rich to poor. Land reforms include **Regulation of Ownership, Operation, Leasing, sale and Inheritance of Land**.
- In an agrarian economy like India with massive inequalities of wealth and income, great scarcity and an unequal distribution of land, coupled with a large mass of people living below the poverty line, there are strong economic and political arguments for land reforms.

**Body:****The major land reforms in India:**

- The process of land reform after independence basically occurred in **two broad phases**.

**I. First phase:**

- The first phase also called the phase of institutional reforms started soon after independence and continued till the early 1960s focussed on the following features:
- Abolition of intermediaries like zamindars, jagirdars, etc.
- Tenancy reforms involving providing security of tenure to the tenants, decrease in rents and conferment of ownership rights to tenants
- Ceilings on size of landholdings
- Co-operativization and community development programmes.

**II. Second phase:**

- The second phase beginning around the mid- or late 1960s saw the gradual ushering in of the so-called Green Revolution and has been seen as the phase of technological reforms.
- **Digitisation of land records:**
  - Making land records available to all, to contain/check property frauds, became one of the objectives of the government of India in the late 1980s.
  - To address the same, the Digital India Land Records Modernisation Programme (DILRMP) was launched by the government of India in August 2008.
  - The main aim of the programme, was to computerise all land records, including mutations, improve transparency in the land record maintenance system, digitise maps and surveys, update all settlement records and minimise the scope of land disputes.
  - Digitisation would provide clear titles of land ownership that could be monitored easily by government officials, to facilitate quicker transactions. This will also reduce construction timelines and the overall cost for the developer, the benefits of which can be transferred to the consumer, making property prices more attractive.

**Need for the land reforms in India:**

- To make redistribution of Land to make a socialistic pattern of society. Such an effort will reduce the inequalities in ownership of land.
- To ensure land ceiling and take away the surplus land to be distributed among the small and marginal farmers.
- To legitimize tenancy with the ceiling limit.
- To register all the tenancy with the village Panchayats.
- To establish relation between tenancy and ceiling.
- To remove rural poverty.
- Proliferating socialist development to lessen social inequality
- Empowerment of women in the traditionally male driven society.
- To increase productivity of agriculture.
- To see that everyone can have a right on a piece of land.
- Protection of tribal by not allowing outsiders to take their land.

**Conclusion:**

- Land reform is the major step of government to assist people living under adverse conditions. It is basically redistribution of land from those who have excess of land to those who do not possess with the objective of increasing the income and bargaining power of the rural poor.
- The purpose of land reform is to help weaker section of society and do justice in land distribution. Government land policies are implemented to make more rational use of the scarce land resources by affecting conditions of holdings, imposing ceilings and grounds on holdings so that cultivation can be done in the most economical manner.

**Q) India is facing a problem of fragmented landholdings at present, with nearly 67% of Indian farmers possessing land holdings below 1 hectare. Under such conditions discuss the need for appropriate land reforms. (250 words)**

Indian economy by Dutta and Sundaram

**Why this question:**

The question is based on the theme of land reforms and in what way they are the need of the hour.

**Key demand of the question:**

The answer must discuss the burning issue of declining land area and the issue of fragmentation.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:****Introduction:**

Begin with facts substantiating prevalent conditions of land fragmentation.

**Body:**

Discussion should include the following:

- Start by bringing out the challenge of land fragmentation, discuss the reasons, concerns associated with it.
- Explain that the main objective of the land reforms programme is to do away with the existing inequalities in the system of landholding and to increase the agriculture. Thus, explain how land reforms can address the issue of fragmentation.
- Quote examples/case studies to justify better. Suggest cases where land reforms have addressed successfully such situations.

**Conclusion:**

Conclude that Changing the man-land relations and the man-man relations on land has been a concern for decision-makers and people of a country. Whenever there has been exploitation of landlords or the government's failure to frame the policies, peasants and people's movements targeted the oppressors and policy makers.

**Introduction:**

- The shrinking size of farms is a major factor responsible for low incomes and farmers distress. The average size of farm holdings declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16. The share of small and marginal farmers increased from 70% in 1980-81 to 86% in 2015-16. The average size of marginal holdings is only 0.38 hectares (less than one acre) in 2015-16. The monthly income of small and marginal farmers from all sources is only around ₹4,000 and ₹5,000 as compared to ₹41,000 for large farmers. The viability of marginal and small farmers is a major challenge for Indian agriculture.

**Body:****Need for the land reforms in India:**

- To make redistribution of Land to make a socialistic pattern of society. Such an effort will reduce the inequalities in ownership of land.
- To ensure land ceiling and take away the surplus land to be distributed among the small and marginal farmers.
- To legitimize tenancy with the ceiling limit.
- To register all the tenancy with the village Panchayats.
- To establish relation between tenancy and ceiling.
- To remove rural poverty.
- Proliferating socialist development to lessen social inequality
- Empowerment of women in the traditionally male driven society.
- To increase productivity of agriculture.
- To see that everyone can have a right on a piece of land.
- Protection of tribal by not allowing outsiders to take their land.

**Measures needed to achieve the land reforms:**

- Land records modernization/computerization- Digital India Land Records Modernisation Programme (DILRMP) has been launched.
- Appropriate land compensation- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 is meant to provide owners with rightful compensation.
- Land leasing- Model Agricultural Land Leasing Act, 2016 can help in this regard.
- Contract farming- Draft Model Contract Farming Act, 2018 has been released to strengthen rules and regulations regarding this.
- Consolidation of land holdings so that huge machineries can be utilized
- FDI in agricultural sector
- Co-operative farming



- Use of land banks and land pooling

**Conclusion:**

- Farmer's distress is due to low prices and low productivity. The suggestions, such as limited procurement, measures to improve low productivity, and consolidation of land holdings to gain the benefits of size, can help in reducing agrarian distress.
- The time has come to bring requisite changes in the relevant laws governing the cooperative sector with a view to encourage farmers in the context of changed techno-economic and business scenario to make the farming viable and vibrant enterprises. We need a long-term policy to tackle the situation.

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**Q) “Apart from enhancing and improving agricultural productivity, land reforms are key drivers of social equity”. Comment. (250 words)**

#### Reference

##### **Why this question:**

The question is straightforward and must discuss the role of land reforms in bringing social equity.

##### **Key demand of the question:**

Explain in detail the role of land reforms in enhancing Agri productivity of the country and also in what way they ensure social equity.

##### **Directive:**

**Comment**— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

##### **Structure of the answer:**

##### **Introduction:**

Discuss in brief the importance of land reforms.

##### **Body:**

Explain what are the effects of land reforms.

How does it bring increased Agri productivity?

What role do land reforms play in bringing social equity? – explain with example. Explain the following aspects –

1. Land equity: Marginalized farmers got ownership over more land area and thus increase in social status.
2. Credit access and increased food production > increase in income > filled the gap of income inequality.
3. Abolition of zamindari curtailed exploitative practices such as beggar, bonded labour.
4. Though land reforms had limited success due to loopholes in law, corruption, these reforms changed the shape of Indian agrarian system. Land reforms are still going on e.g. Benami Act, Computerizations etc.

##### **Conclusion:**

Conclude by suggesting importance of land reforms in social equity.

##### **Introduction:**

- Land reforms in India usually refer to redistribution of land from the rich to the poor. Land reforms are often connected with re-distribution of agricultural land and hence it is related to agrarian reforms too.
- Land reform legislation in India consisted of four main categories — tenancy reform, abolition of intermediaries, land ceiling, and land consolidation.

##### **Body:**

##### **Objectives of land reforms:**

- To enhance the productivity of land by improving the economic conditions of farmers and tenants so that they may have the interest to invest in and improve agriculture
- To ensure distributive justice and to create an egalitarian society by eliminating all forms of exploitation
- To create a system of peasant proprietorship with the motto of land to the tiller
- To transfer the incomes of the few too many so that the demand for consumer goods would be created.

##### **Land Reforms and Agricultural Productivity:**

- Earlier large tracts of wasteland belonging to zamindars/ big farmers remained uncultivated. These lands were given to landless labourers as a result of which there is increase in area under cultivation leading to food security.
- Equal distribution of land will encourage intensive cultivation resulting in increased agricultural production leading to higher production levels.
- Some farm management studies conducted in India testified that small farms yielded more production per hectare. It is so because family members themselves cultivate small farms.
- Even one hectare of land is also an economic holding these days on account of improvement in agricultural technique. Hence, small size of holding due to ceiling will not have any adverse effect on agricultural production.
- Atleast some of the Land owners shifted to direct ‘efficient’ farming in order to get ‘exemption’ from land ceiling.



- Consolidation of landholdings ensures that small bits of land belonging to the same small landowner but situated at some distance from one another could be consolidated into a single holding to boost viability and productivity.

#### **Land reforms and Social Equity:**

- In a land-scarce country with a significant section of the rural population below the poverty line, the case for ensuring that everyone has access to some minimum amount of land seems compelling from the point of
- In a rural economy, whoever controls land, controls the power.
- The tenancy laws have given the tillers protection from exploitation by providing them security of tenure and fixing maximum chargeable rents.
- Land ceiling reduced this power inequality among villagers.
- The intermediary rights have been abolished. India no longer presents a picture of feudalism at the top and serfdom at the bottom.
- Promoted spirit of cooperation among villagers.
- It will help develop cooperative farming

#### **Way forward:**

- Adoption of model land leasing law as suggested by Niti Ayog to aid in drawing private investment to agriculture.
- Promoting cooperative farming by establishing cooperatives at village level.
- Governments providing the farm equipment's and machineries on lease to small and marginal farmers to increase the productivity
- Achieving the convergence of MNREGA with farming to address the issue of farm labour crisis haunting agricultural sector.

#### **Conclusion:**

- Land reforms have upheld the socialistic directive principles of state policy which aims at equitable distribution of wealth. However, there have been challenges which need to be overcome to attain the true objectives of Land reforms.
- The manifold problems of our land are to be solved through the introduction of a suitable land policy.

**Q) Recent studies have established that women undertook 80 per cent of farm work in India though only 13 per cent of the land was owned by them, in the backdrop of the statement discuss the causes for policy paralysis in granting entitlements to women in agriculture and farm widows and how can it be addressed ? (250 words)**

[Indianexpress](https://www.indianexpress.com)

#### **Why this question:**

Raising the issue during Zero Hour, BJD's Cuttack MP Bhartruhari Mahtab cited an Oxfam report — published a decade ago — which stated that women undertook 80 per cent of farm work in India though only 13 per cent of the land was owned by them.

#### **Key demand of the question:**

The answer must analyse the policy paralysis that has led to failure in addressing the entitlement rights to women in agriculture. One has to analyse in detail the issues on ground and suggest how to tackle the issue.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Quote facts showing the scenario of agriculture in India and the gender aspect.

##### **Body:**

One has to explain what are the problems with respect to women in Indian farm sector, why is there a policy paralysis in granting entitlements to women in agriculture and farm widows needs to be addressed.

Discuss issues related to tenure security, and most importantly, the chasm between land 'ownership, accessibility to entitlements, and control,' are important challenges affecting the economic



empowerment of women in agriculture. One example here is that of proxy sarpanches or 'sarpanchpatis,' where the control is often vested with the husband of the elected woman representative under the aegis of Panchayati Raj Act (1993).

Suggest what needs to be done.

### **Conclusion:**

Conclude with way forward.

### **Introduction:**

- The Economic survey 2017-18 recognised and spoke of the need for women farmers to get access to land, water, credit, technology and training.
- According to Food and Agriculture Organization, if women farmers had the same access to resources as men, they would increase output by 20-30% which would mean a dramatic reduction in hunger. This could raise total the agricultural output in developing countries by up to 4%.

### **Body:**

#### **Role of women in farming on India**

- Swaminathan, the famous agricultural scientist describes that it was woman who first domesticated crop plants and thereby initiated the art and science of farming.
- Over the years, there is a gradual realization of the key role of women in agricultural development and their vital contribution in the field of agriculture, food security, horticulture, processing, nutrition, sericulture, fisheries, and other allied sectors.
- Agriculture in India is significantly dependent on women. Women make up about 33% of cultivators and about 47% of agricultural labourers in rural India. Overall, the percentage of rural women who depend on agriculture for their livelihood is as high as 84%.
- Women have played and continue to play a key role in the conservation of basic life support systems such as land, water, flora and fauna. They have protected the health of the soil through organic recycling and promoted crop security through the maintenance of varietal diversity and genetic resistance.
- The rate of women in poultry farming at household level is the central in poultry industry.
- Women farmers in India perform most of the big farming jobs, from sowing to harvesting, yet their access to resources is less than their male counterparts. Closing this gender gap is essential in order to accelerate the pace of growth in the agriculture sector.
- Maintaining the ancillary branches in this sector, like animal husbandry, fisheries and vegetable cultivation, depends almost solely on women.

### **Challenges faced:**

- **Land ownership issues:**
  - The biggest challenge is the powerlessness of women in terms of claiming ownership of the land they have been cultivating.
  - In Census 2015, almost 86% of women farmers are devoid of this property right in land perhaps on account of the patriarchal set up in our society.
  - Women have just a dismal 12.8% of holdings despite being crucial to the whole production chain from farm to market.
  - Despite a huge presence in farming, women in Uttar Pradesh own a little under 18% of the land, and in Kerala it is just 14%. In other words, women can labour on farms but cannot hope to own them. Since land is passed on through inheritance, it is usually handed down to male heirs.
  - Notably, a lack of ownership of land does not allow women farmers to approach banks for institutional loans as banks usually consider land as collateral.
  - As of now, women farmers have hardly any representation in society and are nowhere discernible in farmer's organisations or in occasional protests. They are the invisible workers without which the agricultural economy is hard to grow.
  - A declining size of land holdings may act as a deterrent due to lower net returns earned and technology adoption.
- **No political will:**
  - Unfortunately, the role of women in farming has got no mention at all among political parties and very little among policy-makers.
  - Not much focus on gender inclusiveness in agriculture.

**Measures needed:**

- Research worldwide shows that women with access to secure land, formal credit and access to market have greater propensity in making investments in improving harvest, increasing productivity, and improving household food security and nutrition.
- Provision of credit without collateral under the micro-finance initiative of the National Bank for Agriculture and Rural Development should be encouraged.
- Better access to credit, technology, and provision of entrepreneurship abilities will further boost women's confidence and help them gain recognition as farmers.
- The possibility of collective farming can be encouraged to make women self-reliant. Training and skills imparted to women as has been done by some self-help groups and cooperative-based dairy activities (Saras in Rajasthan and Amul in Gujarat).
- These can be explored further through farmer producer organisations. Moreover, government flagship schemes such as the National Food Security Mission, Sub-mission on Seed and Planting Material and the Rashtriya Krishi Vikas Yojana must include women-centric strategies and dedicated expenditure.

**Way forward:**

- Formal education, availability of economically viable agricultural machinery for women, training, extension services, social engineering, and gender budgeting is need of the hour.
- Gender budgeting would assess the quantity and adequacy of allocation of resources for women and establish the extent to which gender commitments are translated into budgetary commitments.
- Agricultural extension efforts should help women improve food production while allowing them to shift more of their labour to export production.
- The government plans to launch an awareness campaign looking at how Agricultural Science Centres (Krishi Vigyan Kendra) can play a significant role in empowering women farmers and shifting existing, biased perceptions of women's roles in agriculture.
- An 'inclusive transformative agricultural policy' should aim at gender-specific intervention to raise productivity of small farm holdings, integrate women as active agents in rural transformation, and engage men and women in extension services with gender expertise.
- Similarly, changes in legal, financial, and educational systems must be undertaken in order to enhance women's social and economic contributions to rural development in the long term.
- There is a need to examine carefully the implications of land tenure laws and regulations for women and educational policies and funding must be changed to reflect the very high social and economic returns to women's primary education and literacy.
- The differential access of women to resources like land, credit, water, seeds and markets needs to be addressed.

*Topic: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers*

**Q) Agriculture is possibly the most environmentally destructive human activity, high yields coupled with lower greenhouse gas emissions, which GM crops have been proven to provide, are absolutely essential for a sustainable future. Critically analyse. (250 words)**

[livemint](#)

**Why this question:**

The article argues for the benefits that GM crops have for India.

**Key demand of the question:**

The answer must weigh the pros and cons of GM crops and use of such technology in doubling farmer's income. One must justify in what way using GM crops is more of a boon than bane.

**Directive:**

**Critically analyze** – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.



### **Structure of the answer:**

#### **Introduction:**

Describe first the context of question.

#### **Body:**

The answer discussion should have the following aspects discussed in detail:

How do GM crops increase yield?

How do GMOs benefit farmers?

Can GMOs improve food security?

What are the roles of GMO in agricultural industry?

Explain if GM Crops Increase Farmer Profits and Environmental Sustainability?

Quote facts and figures from various reports and form a balanced and fair opinion.

#### **Conclusion:**

Conclude with a positive note.

#### **Introduction:**

- Agrarian distress in India is at its peak with very poor remuneration to farmers leading to increasing farmer suicides, protests and loan waivers. Farmers are now trying to find alternative solutions to their problems including the consideration of debated GM crops.
- Recently, in Maharashtra, the farmers' organisation Shetkari Sanghatana (SS) announced that its members would be planting genetically modified (GM) herbicide-tolerant (HT) Bt cotton. HT Bt cotton is not allowed in India, and growing any GM crop illegally attracts five-year imprisonment and a ₹1 lakh fine.

#### **Body:**

##### **Advantages of GM Crops other than pest resistance:**

- **Food Security:** Given the increased growth of global population and increased urbanisation, GM crops offer one of the promising solutions to meet the world's food security needs. DMH-11's yield is 25% higher than the best non-GM seeds available in India. However, activists went ballistic and the government has backed off.
- **Improved Stress Tolerance:** Genes that give greater tolerance of stress, such as drought, low temperatures or salt in the soil, can also be inserted into crops. This can extend their range and open up new areas for food production.
- **Faster Growth:** Crops can be altered to make them grow faster, so that they can be cultivated and harvested in areas with shorter growing seasons. This again can extend the range of a food crop into new areas or perhaps allow two harvests in areas where only one is currently practical.
- **More Nutritious Crops:** Plants and animals can be engineered to produce larger amounts of essential vitamins and minerals, such as iron, helping to solve nutrition problems in some parts of the world. They can also be altered to change the amounts of protein, carbohydrates, and saturated and unsaturated fats that they contain. This could lead to the production of foods designed specifically for a healthy diet for all consumers.
- **Resistance to Herbicides:** Crops can be modified to be resistant to specific herbicides, making it much easier to control troublesome weeds. Farmers can simply apply the weed killer to a crop field, killing the unwanted plants and leaving the food crop unaffected. For example, GM oilseed rapeseed – the source of canola oil – is resistant to one chemical that's widely used to control weeds.
- **Economic benefits:** GM crops can increase yield and thus income. Genetically modified foods have a longer shelf life. This improves how long they last and stay fresh during transportation and storage. India imported about ₹80,000 crore worth of edible oils last year, and the bill keeps growing.
- **Case study: Bt Brinjal:** Bt brinjal was approved by the GEAC in 2009 but, under pressure from activists, the government disallowed its planting. Bangladesh, using the same GEAC report, went ahead. Today, about 17% of the country's brinjal farmers grow Bt brinjal, which has reduced pesticide costs for GM crop farmers by 61%. The Bangladeshi Bt brinjal farmer's net returns per hectare are six times his non-Bt counterpart's per year.
- **Environmental Benefits:**
  - In 2017, 189.8 million hectares of biotech crops were planted in 24 countries (and consumed in 67).
  - To achieve the same yield standards, more than 300 million acres of conventional crops would have been needed.
  - According to UK consultancy firm PG Economics, the first 20 years of biotech crops (1996-2016) have seen a reduction of pesticide spraying by 671.2 million kg and the environmental footprint associated with pesticide use by 18.4%.





- The figures for 2016: The drop in release of greenhouse gas emissions was equivalent to removing 16.75 million cars from the roads; the direct global farm income benefit from GM crops was \$18.2 billion, equal to an average increase in income of \$102 per hectare.
- And in these 23 years of GM agriculture, there has not been a single authenticated health hazard case specific to it.

#### **Concerns/Challenges associated with GM Crops:**

- **Human Health Risks:**
  - Potential impact on human health including allergens and transfer of antibiotic resistance markers.
  - The impact of growing GM crops poses risks to human health as their resistance to antibiotics can turn medicines ineffective and may result in the formation of new toxins and allergens.
  - Toxins produced by GM crops can not only affect non target organisms but also pose the danger of unintentionally introducing allergens and other anti-nutrition factors in foods.
- **Bio safety concerns:**
  - They can reduce species diversity.
  - For example, Insect-resistant plants might harm insects that are not their intended target and thus result in destruction of that particular species.
  - Cross-pollination in GM crops paves the way for herbicide-resistant super weeds that can further threaten the sustenance of other crops and pests because of its uncontrolled growth
  - GM technology could also allow the transfer of genes from one crop to another, creating “super weeds”, which will be immune to common control methods.
  - Viral genes added to crops to confer resistance might be transferred to other viral pathogens, which can lead to new and more virulent virus strains.
- **Implications on Farmers and Consumers:**
  - Critics claim that patent laws give developers of the GM crops a dangerous degree of control over the food supply. The concern is over domination of world food production by a few companies
  - National Institute of Agricultural Economics and Policy Research’s anticipation that Bt brinjal’s high yield and increased shelf life will benefit consumers and farmers owing to cut in retail price of brinjals ignores the scenario that companies might charge premium prices for Bt brinjal seeds, in which case farmers may not benefit at all.
- **Economic Concerns:**
  - Introduction of a GM crop to market is a lengthy and costly process. It has not resulted in high yields as promised.
  - For instance, the highest yields in mustard are from the five countries which do not grow GM mustard — U.K., France, Poland, Germany and Czech Republic — and not from the GM-growing U.S. or Canada.
- **Inefficient Regulatory system:**
  - Seeing the lapses in the regulatory system and irregularities in the assessment of Bt brinjal (in terms of labelling and unapproved and illegal sowing of GM crops) Parliamentary Standing Committee on Agriculture and the Committee on Science & Technology, Environment and Forests recommended:
  - A thorough probe by a team of eminent independent scientists and environmentalists for commercialization of GM crops.
  - Endorsed labelling GM foods to protect a consumer’s right to know.
- **Ethical Concerns:**
  - Violation of natural organisms’ intrinsic values by mixing among species.
  - There have also been objections to consuming animal genes in plants

#### **Way Forward:**

- The government must take decisions on GM technologies on the basis of scientific evidence.
- Need to start cultivating an environment of openness and transparency to allay genuine fears
- The government should adopt a participatory approach to bring together all stakeholders to develop regulatory protocols that restore trust in the process.
- There is a significant uncertainty over their safety, so precautionary principle is that country shall wait till a broader scientific consensus is achieved.
- Need for better policy, pricing and to rationalize the input costs
- GEAC needs to be a transparent body. it should put it in the public domain that on what grounds it has approved GM mustard



- There has to be strong liability laws if there are any environmental hazards or if something goes wrong in future
- Agriculture is a state subject therefore, it is important for the Centre to take into consideration the views of State Governments as well.
- The Food and Agriculture Organization (FAO) has rightly pointed out in 2004, "Science cannot declare any technology completely risk free. Genetically engineered crops can reduce some environmental risks associated with conventional agriculture, but will also introduce new challenges that must be addressed".

**Q) Discuss the significance of ICT / E-technology in intensifying the reach of extension services to farmers in the country. (250 words)**

Reference

**Why this question:**

The question is direct and is about discussing the role of ICT in extending services to farmer communities of the country.

**Key demand of the question:**

Explain in detail role played by E- technology/ICT in aid of farmers.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**

Begin with brief on what are the ICT/e-technology services available for farmers in the country.

**Body:**

The application of Information and Communication Technology (ICT) in agriculture is increasingly important. E-Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in the rural domain, with a primary focus on agriculture. ICT promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment.

ICTs are most natural allies to facilitate the outreach of Agricultural Extension system in the country. Despite large, well-educated, well-trained and well-organized Agricultural extension manpower, around 60% of farmers in the country still remain un-reached, not served by any extension agency or functionary.

**Conclusion:**

Conclude that information per se is not enough, but appropriate communications systems are needed to ensure that information come to farmers in an effective, accurate and clear way.

**Introduction:**

- Extension and advisory services are relevant to smallholder farmers, who remain the bedrock of the agricultural and food supply chains in India.
- ICTs are very useful in agricultural extension and advisory services and in facilitating reaching out to small and marginal farmers.
- Extension and Advisory services play a crucial role in **promoting agricultural productivity, increasing food security, improving rural livelihoods.**

**Body:**

- **E-Agriculture** is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes.
- More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in the rural domain, with a primary focus on agriculture.

**Significance of ICT / E-technology in intensifying the reach of extension services to farmers in the country:**

- Improve the wellbeing of individuals and communities
- Change production systems so that they improve rural livelihoods and sustain the resource base



- Improve agriculture and the social, economic and political status of rural communities
- Improve the wellbeing of farm families
- Improve productivity and livelihoods for farmers
- Increase and improve farmers' incomes and productivity on a sustainable basis
- Enhance farmers' production
- Attain higher levels of efficiency in the farm enterprise
- Attain food security and improve rural livelihoods.

ICT tools can help in meeting the challenges in agricultural development in the following ways:

- **Land mapping:** Using satellite data and remote sensing, farmers can get real time information about soil moisture, water level etc. Soil quality assessment with help of remote sensing and tools for assessing the feasibility of crops.
- **Soil and Water Testing Laboratories:** These Testing Labs spreads across the country educate the farmers about various scientific tools for identifying superb soil and water for agricultural purposes
- **Land record maintenance:** This can also help in the measurement of the plots, land fragmentation etc.
- **Weather information:** Advanced information about adverse weather condition, so that farmers can take precautionary measures.
- **Credit and finance:** Information regarding agrifinance, agriclincs and agribusiness. Banking facilities like mobile banking, DBT of subsidies can be done easily.
- **Agri-Marketing:** Real time and near real times pricing and market information. E.g.: e-NAM
- It is as a powerful tool when combined with price incentives, input supply, credit, seed multiplication.
- **Agri-Price Support:** Market intervention scheme involving procurement through a notified agency like Commission for Agriculture Costs and Prices, Agricultural & Processed Food Products Export Development Authority (APEDA), and Marketing Research and Information Network (AGMARKNET) etc, can surely be of great help in assuring fair returns to farmers.
- **Advisory services:** Agriculture Information, Awareness and Education.
- **Government Initiatives:** Information dissemination about various government schemes.
- **Discussion portals:** Online Farmer Communities to discuss the trends, issues etc.
- **Allied sector information:** in order to help farmer sustain and increasing income through beekeeping, fishery, animal husbandry. Recently , Mushroom farming on stubble left is being promoted through information dissemination in Punjab
- It acts as an intermediary link between agricultural development institutions such as research institutes, universities, colleges of agriculture and target groups
- The agricultural extension services mainly concentrated on to strengthen the agricultural system by empowering farmers in terms of health, education, livelihood and income.

**Key Government initiatives** to promote use of ICT in agriculture include **National e-Governance Plan in Agriculture (NeGP-A)**, various **Touch Screen Kiosks**, **Krishi Vigyan Kendras**, **Kisan Call Centres**, **Agri-Clinics**, **Common Service Centers**, **mKisan**, **Kisan TV** and various other applications.

- In India ICT applications such as **Warana**, **Dristee**, **E-Chaupal**, **E-Seva**, **Lokmitra**, **E-Post**, **Gramdoot**, **Dyandoot**, **Tarahaat**, **Dhan**, **Akshaya**, **Honeybee**, **Praja** are quite successful in achieving their objectives.

**Conclusion:**

- The implementation of rural ICTs involves organizational and social change.
- Information is vital to tackle climate change effects: for this reason, a shift is needed in the agriculture sector to disseminate appropriate knowledge at the right time to the ones who are at the frontline in the battle: the farmers, in both developed and developing countries.

**Q) From both economic and environmental perspectives, cultivation of pulses is the most optimal choice.” Explain. (250 words)**

Ethics by Lexicon publications

**Why this question:**

The question is based on the premise of cultivation of pulses and its significance in the current times.

**Key demand of the question:**

Explain in detail the relevance of cultivation of Pulses to the agrarian system of the country.

**Directive:**

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:****Introduction:**

Discuss the context of the question.

**Body:**

Explain why pulses are the optimal choice and in what way they are the right choice from the economic and environmental standpoints.

List the benefits of cultivating pulses, Pulses are rich in proteins and found to be main source of protein to vegetarian people of India, can be grown on all types of soil and climatic conditions, being legumes fix atmospheric nitrogen into the soil, helpful for checking the soil erosion as they have more leafy growth and close spacing etc.

**Conclusion:**

Conclude by how they can act as a shock absorbent for farmers in distress and take care of both environmental and economic aspect.

**Introduction:**

- Pulses occupy an important place in Indian agriculture. They provide protein and fibre, and are a great source of vitamins and minerals such as iron, zinc and magnesium. In India, pulses are grown over an area of 2.38 crore hectares with a total production of 1.86 crore tonnes.
- The average yield of pulses in India is about 735 kg/hectare. Pulses are generally grown in irrigated as well as rainfed area and belong to **leguminaceae** family. Madhya Pradesh is the leading state in India in pulses, in terms of cultivated area and productivity.

**Body:****Environment benefits:**

- Pulse crops are important components of production systems that are resilient to climate change.
- Pulses are able to convert nitrogen in the atmosphere into compounds in the soil. This process is known as nitrogen fixation.
- Some (types) of pulses are also able to free soil-bound phosphorous. Both nitrogen and phosphorus are essential nutrients for growing plants.
- The ability to produce them naturally drastically reduces the need for synthetic fertilizers and pesticides while at the same time improving yields.
- The less fertilizers and pesticides applied, the lower the risk of environmental contamination and unintended effects on the environment.
- Including pulses in intercropping farming systems and cultivating them as cover crops not only reduces the need for synthetic fertilizers, but also helps reduce soil erosion, thus contributing to the creation of healthy soils.
- Healthy soils, are in turn, better able to retain moisture and facilitate the uptake of nutrients by plants.
- Pulses in general need lesser water compared to rice, wheat and sugarcane. This in turn helps in conserving the dwindling ground water resources and help the dry-land farming grow.
- The reduced need for synthetic fertilizers indirectly reduces the level of greenhouse gases released in the atmosphere.
- Fertilizers are energy intensive and a significant source of emissions. At the same time, pulses also promote higher rates of accumulation of soil carbon than cereals or grasses.
- Including pulses in intercropping farming systems and cultivating them as cover crops creates a more diverse environment at the field level.
- This, in turn, supports a broader range of insects and “wildlife” above ground and in the range of bacteria and fungi in the soil.
- The presence of this broader range of insects and microbial life provides for a more resilient “ecosystem” that helps keep harmful insects, diseases and pathogens in check, thus reducing the need (to) use pesticides.
- There are hundreds of different varieties of pulses and only a limited number of these are widely grown.
- It is from this diversity that climate-resilient varieties (which are adaptive) to changes in temperature and have the ability to grown in poor soils or under drought conditions can be derived.



- Since climate experts suggested that heat stress will be the biggest threat to bean production in the coming decades, the improved pulse varieties will be of critical importance, especially for low-input agricultural production systems.

#### Economic benefits:

- Pulses contribute to food security in a number of ways.
- They represent an important source of food.
- They can be a source of income for the farmer, simply by selling some of what has been produced.
- The possibility of further processing or value addition may be another source of revenue while also generating employment opportunities.
- The crop residues left after harvest may be used to feed livestock, further contributing to a diversified diet and potential source of income.
- Pulses production can help curb the import bill of the country which can be used for other socio-economic development.
- Minimum support price for pulses is expected to help push up their output and thereby contain food inflation

#### Way forward:

- New research efforts should be initiated to achieve a breakthrough in the productivity.
- Innovative ideas need to be implemented instead of conducting routine research and material evaluation.
- Scientists to work for development of shorter duration, widely adaptable and biotic and abiotic stress resistant varieties to boost the production of pulses.
- Modernization of pulse breeding programme, supporting genetic gains through transgenic technology, enhancing biological nitrogen fixation through development of super nodulating plant types and breeding short duration varieties for achieving self sufficiency in pulses.
- Extension workers and agriculture technology information centers should work more towards development and dissemination of newer technologies.

#### Conclusion:

- India need to produce 40-50 lakh tonnes of additional pulses for meeting the domestic requirement and this can be possible only if we develop high yielding short duration, drought and insect-pest resistance varieties of pulses.
- The important role that pulses can play in **sustainable crop production systems, in particular through their contribution to improved soil fertility and to agro-biodiversity** along with **providing a balanced and healthy diet as evidenced by their use by the World Food Programme and other food aid initiatives** makes it a naturally optimal choice.

**Q) Discuss the key features of Paramparagat Krishi Vikas Yojana (PKVY) and evaluate its contributions in promoting organic farming in India. (250 words)**

[Vikaspedia](https://www.insightsias.com/vikaspedia)

#### **Why this question:**

The question is about evaluating the scheme of Paramparagat Krishi Vikas Yojana (PKVY).

#### **Key demand of the question:**

The answer must discuss the key features, objectives and significant role played by Paramparagat Krishi Vikas Yojana (PKVY) in boosting the organic farming system of the country.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Describe in brief coming of Paramparagat Krishi Vikas Yojana (PKVY).

##### **Body:**

The body of the answer should discuss the following aspects:

Explain that Paramparagat Krishi Vikas Yojana is an elaborated component of Soil Health Management (SHM) of major project National Mission of Sustainable Agriculture (NMSA).

Discuss its implementation of the program and in what way it has contributed to organic farming and its development in India.





### Conclusion:

Conclude with its importance.

### Introduction:

- The Paramparagat Krishi Vikas Yojana (PKVY) – traditional farming improvement programme was launched in 2015. It is an extended component of Soil Health Management (SHM) under the Centrally Sponsored Scheme (CSS), National Mission on Sustainable Agriculture (NMSA).
- PKVY aims at supporting and promoting organic farming, reduction in dependence on fertilizers and agricultural chemicals, in turn, resulting in improvement of the soil health while increasing the yields.
- Organic food, thus produced will be linked with modern marketing tools and local markets. The revamped PKVY promotes organic farming through the adoption of organic village by cluster approach and Participatory Guarantee System of certification.

### Body:

#### Objective of the scheme:

- Promote organic farming among rural youth, farmers, consumers and traders.
- Disseminate latest technologies in organic farming.
- To utilise the services of experts from the public agricultural research system in India.
- Organise a minimum of one cluster demonstration in a village.

#### Contributions of PKVY to organic farming promotion:

- Groups of farmers would be motivated to take up organic farming under Paramparagat Krishi Vikas Yojana (PKVY).
- Fifty or more farmers will form a cluster having 50 acre land to take up the organic farming under the scheme.
- In this way during three years 10,000 clusters will be formed covering 5.0 lakh acre area under organic farming.
- There will be no liability on the farmers for expenditure on certification.
- Every farmer will be provided Rs. 20,000 per acre in three years for seed to harvesting of crops and to transport produce to the market.
- The produce will be pesticide residue free and will contribute to improving the health of the consumer.
- Organic farming will be promoted by using traditional resources and the organic products will be linked with the market.
- It will increase domestic production and certification of organic produce by involving farmers
- Adoption of Participatory Guarantee System (PGS) certification through cluster approach
- Adoption of organic village for manure management and biological nitrogen harvesting through cluster approach

However, challenges remain:

- The Centre's free organic certification programme "the Paramparagat Krishi Vikas Yojana" has not picked up as most States have failed to utilise the funds set aside for the scheme.
- A 2018 report on the implementation of PKVY highlights that all states, except Tripura, Odisha and Karnataka, have failed to utilise even 50 per cent of their funds under the scheme.
- While the Centre has increased allocation for the scheme by 44 per cent for the current year, corrective measures are needed to ensure that the states become responsible and contribute toward "organic India".

### Conclusion:

- With the increase in global health consciousness, organic food is set to knock every door and make its way in healthy kitchens worldwide. People the world over use organic food as a hygiene factor rather than a product by itself.
- Organic food is a holistic approach in the Indian environment which starts at the farm and ends at the fork of the consumer. The way forward is to support the change in a gradual manner. A holistic and community-driven approach, similar to the "Swachh Bharat" for "Swachh Food" needs to be undertaken.

**Q) Explain the different types of agriculture revolutions that took place post Independence in India. Also explain how these revolutions have helped in bringing food security in India ? (250 words)**

Indian geography by Majid Hussain, Indian economy by Dutt and Sundaram

### Why this question:

The question is straight forward and is about discussing the agrarian revolutions that India witnessed post-independence.



**Key demand of the question:**

The answer must discuss the contributions of Agrarian revolutions in India and role played by them in ensuring food security in India.

**Directive:**

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

**Introduction:**

Begin with brief on significance of important agrarian revolutions in India that started immediately after post-independence.

**Body:**

Discussion should include the following:

- India is primarily an agricultural economy and majority of people are still dependent on agriculture for their livelihood. After independence, development of agriculture has been assured by various revolutions supported by government.
- Green Revolution – This revolution led to tremendous rise in production of food grains, especially wheat, by use of high-yielding varieties of seeds, fertilizers and pesticide.
- White Revolution – Operation Flood (1970), an initiative of National Dairy Development Board has led to revolution in milk production in India. The world's largest dairy development programme transformed India from a milk deficient nation to world's largest milk producer.
- Blue Revolution – This revolution focused on management of fisheries sector and has led to phenomenal increase in both fish production and productivity from aquaculture and fisheries resources of the inland and marine fisheries.
- Other revolutions which are no less significant includes yellow revolution (oil seed production), golden fibre revolution (jute), golden revolution (horticulture), silver fibre revolution (Cotton) and red revolution (meat production).
- Then suggest their contributions/significance. And conclude that To further the momentum of these programmes and assure food security in long run in face of ever increasing population, there is an urgent need for an 'evergreen revolution' that should focus on all round development of the agriculture sector.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- India is primarily an agricultural economy and majority of people are still dependent on agriculture for their livelihood. After independence, development of agriculture has been assured by various revolutions supported by government.
- The Agricultural Revolution or Agrarian Revolution refers to the significant change in agriculture that occurs when there are discoveries, inventions, or new technologies that changes the production.

**Body:**

Revolutions	Contributions/significance
Green Revolution	<p>It stands for a major technological breakthrough in India based on:</p> <ol style="list-style-type: none"> <li>1. Improved seeds of high yielding varieties</li> <li>2. Adequate and assured supply of water for irrigation</li> <li>3. Increased and appropriate application of chemical fertilizers for increasing agricultural production.</li> </ol>
White Revolution	<p>It stands for remarkable increase in milk production and establishment of a national milk grid, removing regional and seasonal imbalances. Among the technological inputs are:</p> <ol style="list-style-type: none"> <li>1. Cross-breeding of indigenous cows with high milk yielding European breed</li> <li>2. Pasteurisation of milk for keeping it for a longer duration</li> <li>3. Collection of quality milk from members in rural areas</li> <li>4. Refrigerated transport system which helps sending milk to far-off metropolitan centres both by road and rail</li> </ol>



Blue revolution	It refers to big rise in catching of freshwater and marine fish.
Golden Revolution	Overall Horticulture development/Honey Production
Pink Revolution	It is a term used to denote the technological changes in the meat and poultry processing sector.
Yellow Revolution	It refers to remarkably steady and assured supply of Oil Seeds production.
Red Revolution	Meat and Tomato Production
Silver Fibre Revolution	Cotton Revolution

#### **Agricultural Revolution and Food Security:**

- These innovations in agriculture have lifted millions of people out of poverty by generating rural income opportunities for farmers, farm labourers, and also reduced prices for consumers. India has become self sufficient in food grain production with the help of green revolution.
- The exponential rise in milk production has led to nutritional security among the masses. Per capita availability of milk has reached all time high of 337gms/day.
- These steps have provided avenues for income diversification for farmers.

#### **Conclusion:**

- To further carry on the momentum of these programmes and assure food security in long run in face of ever increasing population, there is an urgent need for an 'evergreen revolution' that should focus on all round development of the agriculture sector.
- The concept of Rainbow revolution is an integrated development of crop cultivation, horticulture, forestry, fishery, poultry, animal husbandry and food processing industry is the need of the hour.

**Q) What do you understand by Cooperative farming? How does it contribute to Land reforms? Discuss its limitations and analyse why cooperative farming model has not been very successful in the country. (250 words)**

[epw](#)

#### **Why this question:**

The question intends to analyse the practice of co-operative farming and its contributions to land reforms.

#### **Key demand of the question:**

The answer must first discuss the concept of co-operative farming and then discuss its contributions to land reforms and analyse the limitations and challenges associated.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Begin with brief introduction on what you understand by co-operative farming.

##### **Body:**

Discussion should include the following:

Explain that co-operative farming is the practice of pooling of land and practicing joint agriculture.

Discuss its contribution to land reforms, quote examples, success stories where co-operative farming has acted as a game changer.

Explain the limitations/challenges encountered in inculcating the features of the co-operative farming. Then discuss in what way it can be addressed to make it a success story.

##### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- Co-operative farming is a voluntary organization in which the farmers pool their resources. The object of this organization is to help each other in agriculture for their common interests.
- In other word it is a co-operative among the farmers of limited means.

**Body:****Co-operative farming and land reforms:**

- In India, majority of the holdings are too small. About 76.4 per cent of the total holdings in India are below the size of 2 hectares and on these again 28.8 per cent of total operated area is engaged into these marginal and small holdings.
- Cultivation in such a small holding is uneconomic and unprofitable.
- Farmers retain their right to land.
- Cooperative farming enables them to consolidate their small units of land for better utilization.
- Solves the problem of sub-division and fragmentation of holdings.

**Other benefits:**

- **Use of Machinery:** A poor farmer cannot purchase the machinery but a cooperative society can easily purchase the various machines. The use of machines will not only reduce the cost of production but will increase the per acre yield.
- **Supply of Inputs:** A cooperative farming is in a better position to get the adequate and timely supply of essential agriculture inputs like fertilizer and seeds.
- **Creates Love and Brotherhood:** A cooperative farming society creates the brotherhood and love for the members because they work for their common interest.
- **Fair Price of the Product:** A co-operative farming society will bargain in the market and will sell the product at maximum price. The income of the individual farmer will increase.
- **Guidance and Training:** A co-operative society guides the farmer to increase their efficiency and production.

**Causes of failure of cooperative farming:**

- **Attachment with Land:** The farmers are not willing to surrender the rights of land in favour of the society because they have too much attachment with it.
- **Lack of Cooperative Spirit:** The spirit of cooperation and love is lacking among farmers. They are divided in various sections on cast basis. There is no unity among them, so they are not ready to become the member of the society.
- **Illiteracy:** In poor countries farmers are mostly illiterate and they are not ready accept any change in the cultivation process. Still some of them are using the old methods of cultivation.
- **Lack of Capital:** The co-operative farming societies are also facing the capital shortage problem and these are unable to meet the growing needs of agriculture. Credit facilities to these societies are also not sufficient.
- **Dishonesty:** The management of cooperative often turns out to be dishonest. The selfishness of the members make the cooperative farming society ineffective.
- **Loss of Independence:** Under co-operative farming, farmers face loss of independence in their farming operation which the farmers find it difficult to accept.
- **Re-Payment of Debt:** Sometimes debt is not repaid in time which creates many problems for the financial institutions. Some members do not realize their responsibility and it becomes the cause of failure.

**Measures needed:**

- The government must invest capital so that the cooperatives become capable to shoulder the responsibility of guaranteeing purchase of crops at remunerative prices, it's storage at Gram Sabha level, ensuring cheaper loans for rural families, providing food grains to poor families under PDS .
- **Kudumbashree of Kerala and AMUL model** are successful models of cooperatisation and there is need to learn from it.
- One must keep in mind the class character of cooperatives and they must be formed on class basis. Cooperative agrarian movement will resolve the questions of caste inequality, sex-based discrimination and environmental conservation.
- Agro-processing units may be installed so that their labour power may be deployed in productive activities other than agriculture.

**Conclusion:**

- The cooperative farming has been tried successfully in various countries like United Kingdom, Germany, France and Sweden. The agricultural cooperative movement would play a huge role in safeguarding democracy and it may play an inspirational role in mobilising the people in unorganized sector and the youth.



**Q) Discuss the role and contributions from agriculture towards India's goal of \$5 trillion economy. What measures need to be taken in agriculture to reach its goal. (250 words)**

The hindu

**Introduction:**

- The President of India spoke of India becoming a "Five Trillion Dollar" economy, last month. It was reiterated by the Prime Minister and was even discussed in the NITI Aayog Governing Council meet.
- India is, currently, a \$2.8 trillion economy; to reach the \$5 trillion mark by 2024, the economy would require nominal growth in dollar terms of over 12% a year. To reach \$ 5 Trillion, we need to shift our perspective from policy to projects.
- However, unless there are adequate investments reforms in primary sectors, steps taken to augment growth in other sectors would be futile.

**Body:**

**Role and contributions from agriculture towards India's goal of \$5 trillion economy:**

- **Agri-tourism:** The segments such as agro-processing, and exports, agri-startups and agri-tourism, where the potential for job creation and capacity utilisation is far less. Integrating the existing tourism circuit with a relatively new area of agri-tourism (as a hub-and-spoke model), where glimpses of farm staff and farm operations are displayed to attract tourists, would help in boosting the investment cycle and generate in-situ employment.
- **Education and research in agriculture:** It would serve as a stage to demonstrate resource conservation and sustainable use through organic, natural and green methods, and also zero budget natural farming.
- **Food processing:** according to united nations food and agriculture organisation (FAO), India is home to more than 190 million Indians going hunger daily and at the same time around \$ 14 billion (Rs 96,000 crore) food wastage in India due to lack of proper food storage facilities.
- **Live stock:** In India livestock considered as a supplement to farm income to farmer. But at present day livestock contribution to agriculture GDP is nearly 30%. And many of the livestock farmers earning more than traditional agriculture farmers. India is home to highest number of livestock population in the world, investment should make to utilise this surplus.
- **Foreign direct investment:** according to Invest India report, around 1.5 billion USD foreign investment came to food processing sector. So there is a huge potential to tap in Indian food processing industry.
- **Renewable energy:** investment in renewable energy generation on fallow farmland and in hilly terrain would help reduce the burden of debt-ridden electricity distribution companies and state governments and farmers no need to rely on Discom companies for power supply.
- **Private entities:** Farm business organisation is another source of routing private investment to agriculture. Linking these organisations with commodity exchanges would provide agriculture commodities more space on international trading platforms and reduce the burden of markets in a glut season, with certain policy/procedural modifications.

**Global Experiences:**

- An earlier experience of BRIC (Brazil, Russia, India and China) nations has shown that a 1% growth in agriculture is at least two to three times more effective in reducing poverty than similar growth in non-agricultural sectors.
- Public investment in agriculture research and development in terms of percentage share in agri GVA stands at 0.37%, which is fairly low in comparison to between 3% and 5% in developed countries.

**Measures needed:**

- Encouraging public and private investments to develop infrastructure like cold chains;
- Special attention for north-eastern, eastern and rain-fed states for augmenting scope of access to institutional credit;
- Rationalisation and targeting of input subsidies towards small and marginal farmers.
- Reform in land leasing laws to promote land consolidation and contract farming.
- Accelerating the pace of public investment in agriculture and ensure greater efficiency in capital use.
- Loans available through KCC are very low, so the government and RBI should work together to increase the loan amount.
- PPPs could help spur the development of the food processing industry, one of the newest sectors in Indian agriculture.





- present agriculture growth is in declining phase, to revive the agriculture growth need patient capital (as financial returns to investment are unlikely to materialize in the initial years.) like rural infrastructure development fund (RIDF)

#### Conclusion:

- Agriculture and its allied sectors are believed to be one of the most fertile grounds to help achieve the ambitious Sustainable Developmental Goals (SDGs). However, with the current pace of agriculture growth, India requires 'patient capital', as financial returns to investment are unlikely to materialise in the initial years.
- An inclusive business model facilitating strong investor-farmer relations should be created, with a legal and institutional framework for governance. Expanding institutions is essential to accommodate the developmental impacts of foreign agricultural investment.

### Q) Practice of Information, technology and communication in agriculture can achieve the triad of empowerment, enablement and expansion. Comment. (250 words)

Indian economy by Dutta and Sundaram

#### **Why this question:**

From the perspective of socio-economic and sustainability of the agricultural system, Information can be a valuable tool, in a sense that it's immaterial, so if we harness the information technology, we can produce more food with less input.

#### **Key demand of the question:**

The answer must bring out the significance of ICT in agriculture.

#### **Directive:**

**Comment**— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

#### **Structure of the answer:**

##### **Introduction:**

##### **Body:**

The relevance of ICT for Agricultural Development in general and for Agricultural empowerment and enablement in particular is extremely high for a country like India. E-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies in the rural domain, with a primary focus on agriculture.

##### **Conclusion:**

Technological empowerment is essential for evergreen revolution and E-agriculture has the potential to put India on the higher pedestal of 'Second Green Revolution' by making Indian agricultural sector self-sufficient. However, digital agricultural interventions need to be pro-poor i.e. technology should be economical and affordable in adoption and implementation.

#### **Introduction:**

- Information and Communication Technology (ICT) is used as an overarching term incorporating all modes of transmission like electronic devices, networks, mobiles, services and applications which help to disseminate information with the help of technology.
- In the recent years, ICT has proved to be extremely beneficial for farmers including small land holders, marginalized and poor farmers, and helped them in marketing, precision farming and improved profits.

#### **Body:**

##### **Role of ICT in Agriculture:**

In the context of agriculture, the potential of information technology (IT) can be assessed broadly under two heads:

- as a **tool for direct contribution to agricultural productivity**
- As an **indirect tool for empowering farmers to take informed and quality decisions which will have positive impact on the way agriculture and allied activities are conducted.**

##### **Direct benefits:**

- **Precision farming**, popular in developed countries, extensively uses ICT to make direct contribution to agricultural productivity. The techniques of remote sensing using **satellite technologies, geographical information systems, agronomy and soil sciences** are used to increase the agricultural output.



- This approach is capital intensive and useful where large tracts of land are involved. Consequently it is more suitable for farming taken up on corporate lines.

#### The indirect benefits of ICT

- It empowers Indian farmer in significant way and remains to be exploited. The Indian farmer urgently requires timely and reliable sources of information inputs for taking decisions.
- Access to technology is one of the most important enablers for smallholders to improve productivity sustainably. Innovative mechanisms for technology transfer are required to bring relevant tools, knowledge and knowhow to farmers.
- Market linkages are common weak points between the smallholders and formal supply chains. Intermediaries are required not only to aggregate production from small-scale growers, but also to provide support and services to ensure the quality and consistency of production.
- ICT applications can foster **dissemination of information on technology, market demand and price information; weather, pest, and risk-management information, best practices to meet quality and certification standards.**
- To bridge the information gap between the farmers and to build productive and competitive market, different ICT interventions support rural and under-developed markets to become efficient and productive.
- The rapid changes in the field of information technology make it possible to develop and disseminate required electronic services to rural India. The existing bottlenecks in undertaking the tasks need to be addressed immediately.

#### Challenges in spread of e-technology to farmers:

##### Mobile Connectivity:

- Even the masses have access to mobile connectivity, but the potential of the handsets are not yet tapped. This is largely because of the content delivered is often not directly related to their livelihood and environment. Since they need localised news and information directly delivered in their language to meet their daily needs.
- Affordability is a key issue for many potential users. Not everyone can afford handsets; innovative business models adopted by the firms and handsets at low price tag which work for voice and sms based services.
- Other challenge in disseminating agriculture related information is dynamic nature of information. Farming is not so linear but requires constant inputs at every stage where new technological inputs provide better crop outputs.

##### Internet Connectivity:

- **Haphazard development:**
  - It is observed that some initiatives have already been made to provide IT based services to farmers. However, duplication of efforts are witnessed as most of the services revolve around limited subjects.
  - Keeping in view the giant task involved, it is necessary to form a coordination mechanism to strive for a concerted effort to support farming community in the country. Such a coordination agency may only have advisory powers.
- **User friendliness:**
  - The success of the strategy depends on the ease with which rural population can use the content.
  - This will require easy language, training to farmers and intuitive graphics based presentation.
- **Local languages:**
  - Regional language fonts and mechanisms for synchronisation of the content provides a challenge that needs to be met with careful planning
- **Restrictions:**
  - Information content based on remote sensing and geographical information systems can provide timely alerts to the farmers and also improve the efficiency of administration.
- **Power Supply:**
  - In most of the rural India, power supply is not available for long hours. This will reduce the usefulness of the intended services.
  - Since almost entire country receives sunshine for most part of the year, it is useful to explore solar power packs for UPS as well as for supply of power.
- **Connectivity:**
  - Despite the phenomenal progress made in the recent years, the connectivity to rural areas still requires to be improved.
  - Reliable connectivity is a prerequisite for a successful penetration of IT into rural areas.



In India ICT applications such as **Warana, Dristee, E-Chaupal, E-Seva, Lokmitra, E-Post, Gramdoot, Dyandoot, Tarahaat, Dhan, Akshaya, Honeybee, Praja** are quite successful in achieving their objectives

#### Conclusion:

- The use of ICT in agriculture has grown rapidly in the past few years. It is increasingly being used to help managers make better decisions. However, IT and the problem facing decision makers are constantly changing.
- Thus, future information systems for research purposes will be significantly different than current systems because of these changes. IT has been one of the most aspired fields in today's world. Integrating IT with agriculture will help any country to regulate its overall economy and trade.

*Topic: Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.*

**Q) The progress in livestock sector of the country is directly related to a more balanced development of rural economy and upliftment of poorer sections of the society. Comment. (250 words)**

#### Reference

##### **Why this question:**

The question is straightforward and is about analysing the role of livestock sector on the rural economy.

##### **Key demand of the question:**

The answer must relate the growth of livestock sector and the impact it has on rural economy and life.

##### **Directive:**

**Comment**— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

##### **Structure of the answer:**

##### **Introduction:**

Begin with brief introduction on current status of livestock sector in India.

##### **Body:**

Explain that Animal Husbandry Sector plays a vital role in providing household nutritional security, increased income, and employment especially of women and in rural transformation. Animals provide a diverse range of output for cultivation, irrigation, transport; fibre and leather goods, manure for fertilizer and fuel besides direct production of milk, meat and eggs for human consumption. Livestock provide economic security and social status to the family. Thus, progress in livestock sector is directly related to a more balanced development of rural economy and upliftment of poorer sections of the society.

##### **Conclusion:**

Conclude with importance of livestock, its significant contribution to the agricultural GDP.

#### Introduction:

- India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community.
- It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

#### Body:

##### **Livestock resources in India:** (Source: 19th Livestock Census)

- World's highest livestock owner at about 512.05 million
- First in the total buffalo population in the world – 105.3 million buffaloes
- Second in the population of cattle and goats – 140.5 million goats
- Second largest poultry market in the world – production of 63 billion eggs and 649 million poultry meat.
- Third in the population of sheep (72 millions)
- Fifth in the population of ducks and chicken
- Tenth in camel population in the world.



### Role of livestock in farmers' economy

The livestock plays an important role in the economy of farmers. The farmers in India maintain mixed farming system i.e. a combination of crop and livestock where the output of one enterprise becomes the input of another enterprise thereby realize the resource efficiency. The livestock serve the farmers in different ways.

- **Income:** Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals. Cows and buffaloes if in milk will provide regular income to the livestock farmers through sale of milk. Animals like sheep and goat serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick persons, children education, repair of houses etc. The animals also serve as moving banks and assets which provide economic security to the owners.
- **Employment:** A large number of people in India being less literate and unskilled depend upon agriculture for their livelihoods. But agriculture being seasonal in nature could provide employment for a maximum of 180 days in a year. The land less and less land people depend upon livestock for utilizing their labour during lean agricultural season.
- **Food:** The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners. The per capita availability of milk is around 355 g / day; eggs is 69 / annum;
- **Social security:** The animals offer social security to the owners in terms of their status in the society. The families especially the landless which own animals are better placed than those who do not. Gifting of animals during marriages is a very common phenomenon in different parts of the country. Rearing of animals is a part of the Indian culture. Animals are used for various socio religious functions. Cows for house warming ceremonies; rams, bucks and chicken for sacrifice during festive seasons; Bulls and Cows are worshipped during various religious functions. Many owners develop attachment to their animals.
- **Gender equity:** Animal husbandry promotes gender equity. More than three-fourth of the labour demand in livestock production is met by women. The share of women employment in livestock sector is around 90% in Punjab and Haryana where dairying is a prominent activity and animals are stall-fed.
- **Draft:** The bullocks are the back bone of Indian agriculture. The farmers especially the marginal and small depend upon bullocks for ploughing, carting and transport of both inputs and outputs.
- **Dung:** In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man's cement).

### Challenges faced by Livestock sector in India:

- **Productivity:**
  - Improving productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50% of the global average.
- **Diseases:**
  - The Frequent outbreaks of diseases like Food and Mouth Diseases, Black Quarter infection, Influenza etc. continue to affect Livestock health and lower the productivity.
- **Environment:**
  - India's huge population of ruminants contributes to greenhouse gases emission adding to global warming. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Crossbreeding of indigenous species** with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent.
- **Limited Artificial Insemination services** owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- Livestock sector did not receive the policy and financial attention it deserved. The sector received only about 12% of the total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.
- The sector has been neglected by the financial institutions.
  - The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term). The institutional mechanisms to protect animals against risk are not strong enough.
- **Insurance:**
  - Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover. Livestock extension has remained grossly neglected in the past.



- Only about 5% of the farm households in India access information on livestock technology. These indicate an apathetic outreach of the financial and information delivery systems.
- Livestock derives a major part of their energy requirement from agricultural by-products and residues. Hardly 5% of the cropped area is utilized to grow fodder. India is deficit in dry fodder by 11%, green fodder by 35% and concentrates feed by 28%. The common grazing lands too have been deteriorating quantitatively and qualitatively.
- **Lack of access to markets** may act as a disincentive to farmers to adopt improved technologies and quality inputs.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are underdeveloped, irregular, uncertain and lack transparency. Further, these are often dominated by informal market intermediaries who exploit the producers.
- Likewise, **slaughtering facilities are too inadequate**. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20% of the sale price.

#### Way forward

- A national breeding policy is needed to upgrade the best performing indigenous breeds.
- Buffalo breeding ought to be given more attention, while poultry breeding should be focused on conservation.
- State governments should be encouraged to participate in national breeding policy implementation. Geographical information system-based analysis must be utilised to map production systems.
- Animal health care should become a priority, with greater investment in preventive health care.
- Private investment must also be encouraged. The government needs to create better incentive structures for investment in livestock.
- State governments should sponsor research and assessment of the market, along with highlighting investment potential.

#### Conclusion:

- With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society.
- Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

**Q) Discuss the importance of Public Distribution System in India and also explain the challenges involved and what reforms are required to overcome these challenges. (250 words)**

#### Reference

##### **Why this question:**

The question is about PDS – its importance, challenges and reforms required.

##### **Key demand of the question:**

The answer must discuss the significance of the PDS system for India and the challenges facing the system and suggest necessary reforms.

##### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

##### **Structure of the answer:**

##### **Introduction:**

Define what you understand by PDS.

##### **Body:**

Explain that the Public Distribution System (PDS) evolved as a system for distribution of food grains at affordable prices and management of emergency situations. Over the years, the term PDS has become synonymous with the term 'food security' and also an important part of Government's policy for management of food economy in the country.





Then move on to explain the growing significance of PDS, why is it so important with the aspect of food security.

Discuss the challenges associated and suggest what measures/reforms can be taken to make the PDS a success.

**Conclusion:**

Conclude by reasserting the need to have a robust PDS in place to ensure food secure and healthy India.

**Introduction:**

- The **Public Distribution System (PDS)** is an Indian food security system which evolved as a system for distribution of food grains at affordable prices and management of emergency situations.
- It distributes subsidized food and non-food items to India's poor. This scheme was launched in June 1947. It functions through a network of Fair Price Shops at a subsidized price on a recurring basis.

**Body:**

**Importance of PDS:**

- Food grains to the poor, at prices lower than the price of food grains at private shops.
- Food grains are directly purchased from farmers, assuring farmers with a greater price.
- Make goods available to consumers, especially the disadvantaged /vulnerable sections of society at fair prices.
- Rectify the existing imbalances between the supply and demand for consumer goods. Check and prevent hoarding and black marketing in essential commodities.
- Ensure social justice in distribution of basic necessities of life.
- Even out fluctuations in prices and availability of mass consumption goods.
- Support poverty-alleviation programmes, particularly, rural employment programmes, (SGRY/SGSY/IRDP/ Mid-day meals, ICDS, DWCRA, SHGs and Food for Work and educational feeding programmes.

**Challenges faced by PDS:**

**Procurement:**

- Open-ended Procurement: All incoming grains accepted even if buffer stock is filled creating a shortage in the open market.
- The recent implementation of Nation food security act would only increase the quantum of procurement resulting in higher prices for grains.
- The gap between required and existing storage capacity.
- The provision of minimum support price has encouraged farmers to divert land from production of coarse grains that are consumed by poor, to rice and wheat.

**Storage:**

- Inadequate storage capacity with FCI.
- Food grains rotting or damaging on the CAP or Cover & Plinth storage.
- The storage of foodgrains inculcates high carrying costs on the government.

**Allocation of food grains:**

- Identification of poor by the states is not fool proof. A large number of poor and needy persons are left out and a lot of fake cards are also issued.
- Illicit Fair Price shops: The shop owners have created a large number of bogus cards or ghost cards(cards for nonexistent people) to sell food grains in the open market.

**Transportation:**

- Leakage and diversion of food grains during transportation.
- Uneven distribution of Food generations, procurement and distribution. For example: north eastern states are very far from Punjab and Haryana, from where wheat is procured. To transport food grains from Punjab to far flung areas in North east will entail cost and time both.

**Other issues:**

- Many times, good quality food grains are replaced with poor quality cheap food grains.
- Public distribution system includes only few food grains such as wheat and rice, it does not fulfil the requirement of complete nutrition.
- Fair Price Shop owner gets fake Ration cards and sell the food grains in the open market.

**PDS Reforms undertaken by Government:**

- **Aadhaar Linked and digitized ration cards:** This allows online entry and verification of beneficiary data. It also enables online tracking of monthly entitlements and off-take of foodgrains by beneficiaries.



- **Computerized Fair Price Shops:** FPS automated by installing 'Point of Sale' device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family.
- **DBT:** Under the Direct Benefit Transfer scheme, cash is transferred to the beneficiaries' account in lieu of foodgrains subsidy component. They will be free to buy food grains from anywhere in the market. For taking up this model, pre-requisites for the States/UTs would be to complete digitization of beneficiary data and seed Aadhaar and bank account details of beneficiaries. It is estimated that cash transfers alone could save the exchequer Rs.30,000 crore every year.
- **Use of GPS technology:** Use of Global Positioning System (GPS) technology to track the movement of trucks carrying foodgrains from state depots to FPS which can help to prevent diversion.
- **SMS-based monitoring:** Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities
- **Use of web-based citizens' portal:** Public Grievance Redressal Machineries, such as a toll-free number for call centers to register complaints or suggestions.

#### Way forward:

- Primacy should be given to ensuring that the functioning of FCI is streamlined and fast paced as per recommendations of the Shanta Kumar Committee.
- 100 lakh ton silo storage capacity must be created in the country. For this, RITES has been assigned the task of changing the silo model and they will give their recommendations in 90 days to FCI.
- At present, there are 3 types of labourers in FCI namely Departmental, Daily Payment System (DPS) and No work no pay workers along with contractual labour. Government of India is deliberating to finish the 3 different arrangements and bring all workers of FCI under a single, uniform system which will bring stability of tenure and secured wages for all.
- To improve the usage of Information Technology in FCI, a Human Resource Management System (HRMS) must be implemented.

#### Conclusion:

- PDS has helped bring about the socio-economic justice by helping alleviate hunger, malnutrition, anaemia among poorest of the poor, BPL citizens, women and children. The use of ICT to reduce the touch-points will further increase the efficiency of PDS.

### Q) Discuss the effects of livestock farming on environment. (250 words)

Indian Geography by Majid Hussain

#### **Why this question:**

The question is direct and is about discussing the effects of livestock farming on environment.

#### **Key demand of the question:**

The answer must discuss the pros and cons of livestock farming on the environment.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

#### **Structure of the answer:**

##### **Introduction:**

Describe basics of livestock farming.

##### **Body:**

Explain in detail the equation between livestock farming and global warming

The conversion of forests into agricultural land and livestock ranches is one of the major causes of deforestation. It is being done to meet the rising demand for food. One to two acres of rainforests are cleared every second for animal rearing and agriculture. Another major concern is greenhouse gas emissions. Raising livestock generates 14.5 per cent of global greenhouse gas emissions that are very bad for the environment. Forests help lower the risks of sudden climate change and also tone down the impacts from natural disasters.

Discuss both pros and cons and conclude with what needs to be done to overcome the challenge.

##### **Conclusion:**

Suggest how the impact can be mitigated or reduces what can be other alternatives.



### Introduction:

- Livestock is used for meat, dairy products, eggs, fibre and leather, transport, and for manure to fertilize crops and for fuel. According to FAO 2006, the livestock sector accounts for 40 % of the world's agriculture-related gross domestic product (GDP).
- It employs 1.3 billion people and provides livelihoods for around 1 billion of the world's population living in poverty. However, it is also a major driver of climate change through the emissions of greenhouse gases such as carbon dioxide, CH<sub>4</sub>, and nitrous oxide.

### Body:

#### Effects of livestock farming on environment:

- Globally, the livestock sector contributes 14.5 % (7.1 billion tonnes CO<sub>2</sub>equivalent) of global anthropogenic greenhouse gas emissions. (FAO)
- Cattle are responsible for the most emissions, representing about 65% of the livestock sector's emissions.
- In terms of activities, feed production and processing (45%) and enteric fermentation from ruminants (39%) are the two main sources of emissions
- About 44% of livestock emissions are in the form of methane (CH<sub>4</sub>). Nitrous Oxide accounts for 29% and Carbon Dioxide 27%
- About 92 per cent of the fresh water is used for farming purposes, and 1/3rd of it is used for rearing livestock and manufacturing animal products.
- Ruminants such as cattle, sheep, buffalo, and goats produce methane, potent greenhouse gas that can contribute to global climate change, as part of their digestive process.
- Globally, ruminant livestock produce about 86 million metric tons of CH<sub>4</sub> annually.
- Animal manure produces anthropogenic CH<sub>4</sub> via anaerobic decomposition of manure and N<sub>2</sub>O via nitrification and denitrification of organic nitrogen in animal manure and urine.
- Livestock operations require a variety of external inputs (i.e., feed production, herbicides, pesticides, etc.). Carbon dioxide emissions originate from the expansion of feed crops and pasture into natural habitats.
- They also originate from the use of fossil fuel to manufacture fertilizer, and process and transport feed.
- The livestock sector includes direct and indirect (e.g. electricity) on-farm fossil fuel use, which is used for machinery operations, irrigation, heating, cooling, ventilation etc.
- Land-use changes, including expansion of pasture and arable land for feed crops generally occur at the expense of forested land.
- It is estimated that livestock-related land-use change produces 35 % of the total GHGs attributed to livestock.
- Post farm CO<sub>2</sub> emissions is related to the processing and transportation of livestock product between the production and retail point
- Overgrazing by livestock is one of the most important cause of land degradation and desertification. Such problem is prominent in Africa, Central Asia, north-eastern Australia, Pakistan, and Afghanistan.

#### Measures needed:

- **Improving Feed Quality and Digestibility:** measures should be taken for better grassland management, improved pasture species, changing forage mix and greater use of feed supplements.
- **Improving animal health and husbandry:** It is important to improve animal health through measures such as animal health management, extending the productive life of animals, and improving reproduction rates to reduce the number of animals kept otherwise rather than production.
- **Agroforestry:** Agroforestry should be practiced to help maintain the balance between livestock production, environmental protection and carbon sequestration to offset emissions from the sector.
- **Manure management:** It is important to adopt sound manure management to mitigate GHG emissions, reduce nutrient losses from livestock production systems and reduce other detrimental environmental impacts of livestock production such as air and water pollution
- **Grassland management:** It is important to improve grazing and grassland management to increase feed quality and carbon sequestration. Further, overgrazing should be halted to combat land degradation and desertification.
- **Awareness:** Raising awareness about impact of livestock/meat consumption on climate is important.
- **Policy:** Countries should develop sectoral mitigation policies that integrate other development objectives, and seek international support towards their implementation.

**Conclusion:**

- Livestock farming creates a huge carbon footprint and has a very high global warming potential. However, its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society.
- Thus, the need of the hour is a green, sustainable way of livestock farming which balances the needs of people and environmental conservation.

**Q) Though Economic contribution of livestock is today more than that of food grain crops, absence of policy focus has stifled the sector that caters to the poorest. India's livestock productivity is 20-60 per cent lower than the global average. Discuss the challenges and concerns associated with the growth of this sector and suggest what needs to be done. (250 words)**

Reference**Why this question:**

The question is based on the theme of Livestock sector of the country and the challenges and concerns associated with it.

**Key demand of the question:**

The answer must discuss in detail the challenges and concerns associated with the growth of livestock sector in the country.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:****Introduction:**

Describe the current status of livestock sector in India. Quote relevant facts/statistics depicting the contribution of livestock to the agricultural GDP.

**Body:**

The answer must discuss the following aspects:

First highlight the contribution of the sector to the agriculture sector of the country.

Then discuss specific challenges associated with the sector – Inadequate availability of credit, Poor accesses to organized markets deprive farmers of proper milk price, Limited availability of quality breeding bulls, Deficiency of vaccines and vaccination set-up, Due to industrialization and Urbanization Majority of grazing lands are either degraded or encroached, Diversion of feed and fodder ingredients for industrial use.

**Conclusion:**

Conclude with way forward by suggesting measures to overcome the above mentioned challenges.

**Introduction:**

- India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households.
- Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

**Body:****Livestock resources in India:** (Source: 19th Livestock Census)

- World's highest livestock owner at about 512.05 million
- First in the total buffalo population in the world – 105.3 million buffaloes
- Second in the population of cattle and goats – 140.5 million goats
- Second largest poultry market in the world – production of 63 billion eggs and 649 million poultry meat.
- Third in the population of sheep (72 millions)
- Fifth in the population of ducks and chicken
- Tenth in camel population in the world.



### Challenges faced by Livestock sector in India:

- Livestock sector did not receive the policy and financial attention it deserved. The sector received only about 12% of the total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.
- The sector has been neglected by the financial institutions.
  - The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term). The institutional mechanisms to protect animals against risk are not strong enough.
- **Insurance:**
  - Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover. Livestock extension has remained grossly neglected in the past.
  - Only about 5% of the farm households in India access information on livestock technology. These indicate an apathetic outreach of the financial and information delivery systems.
- **Lack of access to markets** may act as a disincentive to farmers to adopt improved technologies and quality inputs.
- **Productivity:**
  - Improving productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50% of the global average.
- **Diseases:**
  - The Frequent outbreaks of diseases like Food and Mouth Diseases, Black Quarter infection, Influenza etc. continue to affect Livestock health and lower the productivity.
- **Environment:**
  - India's huge population of ruminants contributes to greenhouse gases emission adding to global warming. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Crossbreeding of indigenous species** with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent.
- **Limited Artificial Insemination services** owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- Livestock derives a major part of their energy requirement from agricultural by-products and residues. Hardly 5% of the cropped area is utilized to grow fodder. India is deficit in dry fodder by 11%, green fodder by 35% and concentrates feed by 28%. The common grazing lands too have been deteriorating quantitatively and qualitatively.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are underdeveloped, irregular, uncertain and lack transparency. Further, these are often dominated by informal market intermediaries who exploit the producers.
- Likewise, **slaughtering facilities are too inadequate**. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20% of the sale price.

### Measures needed:

- A national breeding policy is needed to upgrade the best performing indigenous breeds.
- Buffalo breeding ought to be given more attention, while poultry breeding should be focused on conservation.
- State governments should be encouraged to participate in national breeding policy implementation. Geographical information system-based analysis must be utilised to map production systems.
- Animal health care should become a priority, with greater investment in preventive health care.
- Private investment must also be encouraged. The government needs to create better incentive structures for investment in livestock.
- State governments should sponsor research and assessment of the market, along with highlighting investment potential.

### Conclusion:

- With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario.





- Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society.
- Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

**Q) Subsidies are often criticised that instead of offering solutions to the problems they themselves become a problem. In the light of the above statement discuss the issues surrounding the subsidy system in India. (250 words)**

[Timesofindia](https://www.timesofindia.com)

**Why this question:**

The question is based on the theme of Subsidies.

**Key demand of the question:**

The answer must evaluate in what way subsidies often fail to achieve their actual intent and end up becoming a problem in themselves.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**

Begin with brief on what you understand by subsidies.

**Body:**

Discussion should include the following:

Paint a picture of the history of subsidies as a concept that evolved in India since independence and that the basic objective of the public distribution system in India is to provide essential consumer goods at cheap and subsidized prices to the consumers so as to insulate them from the impact of rising prices of these commodities and maintain the minimum nutritional status of our population.

Explain the associated challenges, advantages and disadvantages.

Discuss in detail the problems of public distribution system in India.

**Conclusion:**

Conclude with way can be done to overcome the issue and make the concept work .

**Introduction:**

- A subsidy, often viewed as the converse of a tax, is an instrument of fiscal policy. It literally implies coming to assistance from behind. However, their beneficial potential is at its best when they are transparent, well targeted, and suitably designed for practical implementation.
- Subsidies are helpful for both economy and people as well. Subsidies have a long-term impact on the economy; the Green Revolution being one example.

**Body:**

A welfare state without subsidies cannot be imagined. Governments have to extend subsidies to achieve objectives of socio- economic policy. By this, they aim at

- Making basic necessities affordable to poor people through extension of consumer services.
- To prepare a foundation of various economic sectors in which private sector can participate later. When economy is at lower stages of development, it is often unviable and unaffordable for private sector to step in production. This is mainly because there are limited resources with private investors and there are informational externalities/uncertainties.
- In such case government do handholding by supporting private sector by extending subsidies and withdrawing them when private sector becomes competitive.

Subsidies should be aimed at specific development objectives. On achievement of these objectives subsidies should be phased out. It is only then that subsidies can go well with an undistorted market economy.

**Issues surrounding the subsidy system in India:**

- **Misuse of subsidies:** The subsidies that are provided by the government seldom reach the small farmers. They are mostly snatched by the large farmers or the manufacturers.



- **Distortion of trade:** Input subsidies distort trade by increasing net exports of input intensive commodities while decreasing net exports of commodities which require relatively few inputs. Many countries like Australia, US and UK have challenged the subsidies on wheat, sugarcane etc. which they claim are distorting trade.
- **Increased financial burden:** The expenditure on subsidies has doubled in the last decade leading to widening fiscal deficit of the country. It is driven primarily by subsidies in fertilizer and electricity. Most of the expenditure made on subsidies goes into the wrong hands and thus perpetuates their requirement as the position of farmers does not improve.
- **Uneven distribution:** Unevenness is rife across regions, crops and differing farm sizes. For example-it is alleged that subsidies have benefitted more to the north Indian states as compared to south and north eastern states.
- **Flawed policies:** Hostile policies have compounded the problems as no major fertilizer plants have come up in the last many years. A huge fraction of urea requirements is still met with imports.

#### Instances of misuse of subsidies:

- In case of food subsidy, PDS suffers from considerable leakage and apart from a low coverage of poor; the magnitude of benefit derived by the poor is very small.
- In case of electricity, the subsidy rates have been rising for both agriculture and domestic sectors because the unit cost has been rising faster than the relevant tariff-rate. Also, there is considerable variation in the level of per capita electricity subsidy indicates that, in the richer States, the per capita subsidy is substantially higher as compared to that in the poorer States.
- In case of public irrigation, water has a very high marginal productivity when used in conjunction with HYV of seeds, chemical fertilisers, power and other related inputs. It is the richer farmers who may derive relatively larger benefits because of their capacity to use these allied inputs.
- Subsidies to elementary education form about half of the total subsidies on general education. However, this is not true for all individual States: the share of elementary education is lowest in the high income States and the highest in the low income States (Goa, Punjab and West Bengal actually give higher subsidies to secondary education than primary education). A negative correlation between the level of per capita income and the share of subsidies to elementary education is thus discernible. Most subsidies to higher education accrue predominantly to the better-off sections of society as they have an overwhelming advantage in competing out prospective candidates from the poorer sections in getting admission to courses that are characterised by scarcity of seats.
- For subsidies of health, the greater emphasis on curative health care expenditure often reflects a bias towards the better-off people whereas preventive health care expenditure with much larger externalities would clearly be of greater help to the economically weaker sections of the society.

#### Way forward:

- Reducing the overall scale of subsidies
- Making subsidies as transparent as possible using JAM trinity
- Using subsidies for well defined economic objectives
- Focusing subsidies to final goods and services with a view to maximising their impact on the target population at minimum cost
- Instituting systems for periodic review of subsidies
- Use of technology like Direct Benefit Transfer to the beneficiaries' bank account, Aadhar Enable Payment System etc.

#### Conclusion:

- Subsidies are meant for poor people and they shall ensure equitable redistribution of resource. Subsidies extended to rich are regressive. They help in keeping poverty intact and create inefficiencies in economy which culminates in inflation and corruption.
- Rationalization of subsidy regime will improve markets in India which will then attract more investment. This in short, can turn the wheel of a virtuous economy which creates more employment and attacks poverty at its roots.

**Q) What is Public Distribution System (PDS)? discuss its basic objective in India and explain how has coming of Aadhaar changed the functionality of PDS. (250 words)**

#### Reference

##### Why this question:

The question is to evaluate What is public distribution system what is its importance and in what way the Aadhaar has changed the mode of functionality of the PDS.



### **Key demand of the question:**

The answer must discuss in detail the concept of PDS, effects of Aadhar on the modalities of its working and how over a period of time it has only gotten better and that there is still scope for improvement.

### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

### **Structure of the answer:**

#### **Introduction:**

In short explain what is meant by public distribution system.

#### **Body:**

The answer should have the following dimensions covered:

What is meant by public distribution system?

What are the drawbacks of public distribution system?

What is the basic objective of public distribution system in India?

How has Aadhaar changed the mode of working of the system – pros and cons.

What are the advantages, challenges etc.

#### **Conclusion:**

Conclude with way forward.

### **Introduction:**

- The **Public Distribution System (PDS)** is an Indian food security system which evolved as a system for distribution of food grains at affordable prices and management of emergency situations. It distributes subsidized food and non-food items to India's poor.
- This scheme was launched in June 1947. It functions through a network of Fair Price Shops at a subsidized price on a recurring basis.

### **Body:**

The objectives of the Public Distribution System are as follows:

- To protect the low income groups by guaranteeing the supply of certain minimum quantities of food grains at affordable price.
- Ensuring equitable distribution.
- Controlling the price rise of Essential Commodities in the open market.

### **Aadhar and functionality of PDS:**

- **Aadhaar as an identifier:**
  - People belonging to marginalized sections of the society often do not have a valid proof of identity. As a result, they miss out on availing social benefits provided by the government. Aadhaar has been successful in solving this problem.
  - One of the quintessential properties of Aadhaar is its uniqueness. It is an identification that a person can carry for a life time and potentially use with any service provider thus, fundamentally becoming a pro-poor identification infrastructure.
- It provides a single view of beneficiary data and information, aiding in streamlining policy decisions for the state
- **Social benefits delivery services:**
  - Enables State Governments to directly transfer benefits to beneficiary accounts under various schemes.
- **Beneficiary Identification:**
  - Helps in sanitizing the State's/Department's databases and uniquely identifying beneficiaries by removing ghost/duplicate identities
- **Demographic and development planning:**
  - Enables valuable anonymized demographic data to help development planning at State, District and local government levels.
- **Preventing leakages:**
  - Welfare programs, where beneficiaries need to be confirmed before service delivery, also stand to benefit from UIDAI's verification service.
  - Examples of such usages include subsidized food and kerosene delivery to Public Distribution System (PDS) beneficiaries.



- This usage would ensure that services are delivered to the right beneficiaries only.

**However,** the use of Aadhaar-based biometric authentication (ABBA) in the public distribution system has its own share of challenges:

- ABBA requires not only Aadhaar seeding, but also successful fingerprint authentication at the ration shop every month. That, in turn, requires a functional Point of Sale (PoS) machine, adequate connectivity, and reasonably smooth fingers. Despite some alleged safeguards, the system is far from perfect
- Evidence from Jharkhand suggests that ABBA is of little use in reducing PDS corruption.
- Neither seeding nor the ABBA can stop quantity fraud.
- If PDS dealers give people less than their due, biometric authentication does not help.
- Cases of deaths due to hunger as people could not collect rations because of a biometric mismatch at the PDS shop.
- Disenfranchisement of the elderly and the disabled, as ABBA requires beneficiaries to visit the PDS outlet personally for fingerprint authentication.
- **Seeding issues:**
  - When benefits are paid through Aadhaar-enabled means such as the Aadhaar Payments Bridge System (APBS), the first step is to seed the list of beneficiaries with the corresponding Aadhaar numbers. Seeding is a tedious operation and it has to be done each time a new scheme is inducted. Those who have failed to comply are simply removed from the lists
  - Seeding often creates inconsistencies between ration-cards database and the Aadhaar database.
  - Many poor people do not know the rules of Aadhaar seeding and biometric authentication.
- **Inclusion errors** increase the financial burden of the state, exclusion errors can often leave poor families vulnerable to hunger.
- **Deprivation of poor:**
  - Poor people often find themselves deprived of their rights in the process. For instance linking one's pension or ration card or bank account with Aadhaar is a tedious process as data-entry errors are common.
  - And even without such errors, Aadhaar linking often fails because a person's demographic details in the Aadhaar database do not match the corresponding details in her job card or ration card.
  - The government failed to address these issues as job cards, ration cards and pensions have been mass-cancelled in many states

#### Way forward:

- Inconsistencies need to be resolved for successful Aadhaar seeding.
- It is essential to deal with issues of duplication, use less disruptive methods than Aadhaar such as food coupons, smart cards, and last-mile tracking
- Using other technology to curb corruption like computerisation, SMS alerts, online availability of official records, toll-free help lines and so on.
- It is imperative that the Union Government enact a privacy legislation that clearly defines the rights of citizens consistent with the promise of the Constitution.
- The government should factor in privacy risks and include procedures and systems to protect citizen information in any system of data collection. It should create institutional mechanism such as Privacy Commissioner to prevent unauthorised disclosure of or access to such data.
- Our national cyber cell should be made well capable of dealing with any cyber attack in shortest time.

#### Conclusion:

- PDS has helped bring about the socio-economic justice by helping alleviate hunger, malnutrition, anaemia among poorest of the poor, BPL citizens, women and children. The use of ICT to reduce the touch-points will further increase the efficiency of PDS.

*Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc., Investment Models.*

**Q) The global automobile industry is striding forward to move away from fossil fuels. Do you think India become a world leader in electric vehicles industry? Critically analyse the issues and challenges in front of Indian automobile industry to shift to electric vehicles. (250 words)**

The hindu

**Why this question:**

To push the adoption of electric mobility in the country, government think-tank NITI Aayog has proposed the establishment of giga factories in India for the manufacture of lithium-ion batteries in the next couple of years.

**Key demand of the question:**

The answer must evaluate the current automobile industry scenario in India and the challenges before it in shifting to the electric mobility generation technology.

**Directive:**

**Critically analyze** – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

**Structure of the answer:****Introduction:**

In short explain the current automobile industry scenario in India.

**Body:**

The answer must analyse the global trends of electric mobility, its importance, then explain what are the issues or challenges for Indian automobile industry to move away from current fossil fuel based system to electric mobility system. One has to discuss in detail the bottlenecks and suggest way forward as to what needs to be done and how far can India achieve in this direction.

**Conclusion:**

One can conclude with government’s efforts in this direction.

**Introduction:**

- Electric vehicles (EVs) are automobiles that run on electricity only. They are propelled by one or more electric motors powered by rechargeable battery packs. Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.
- To push the adoption of electric mobility in the country, government think-tank NITI Aayog has proposed the establishment of giga factories in India for the manufacture of lithium-ion batteries in the next couple of years.

**Body:**

- India definitely has the potential to be a global leader in EVs and the government is making strong push in favour of the electric vehicles or the e-vehicles. Government is also encouraging or sometimes even forcing auto industry to shift towards the e-vehicles. While e-vehicles have their benefits over normal vehicles, the topic of e-mobility seems to be missing from the agenda of the government.
- E-vehicles reduce the localized pollution and are important in the cities like Delhi, Pune, Lucknow etc. Such vehicles would also reduce the dependence on the petroleum, import of which has adverse effect on Indian economy. E-vehicles are also instrumental in reducing the emission of green-house gases and many health hazards

**Issues and challenges involved:**

- **Price Volatility:**
  - The first has to do with policy volatility. E-mobility is a nascent industry in India and most of the developing countries. Capital costs are high and the payoff is uncertain.
  - Inconsistencies remain. For instance, while electric vehicles are taxed at 12% under the goods and services tax (GST), batteries were taxed at 28% until recently. This has now been lowered to 18% but the discrepancy still exists.
- **Lack of policy certainty: Cannot frame in Isolation:**
  - The lack of policy certainty spills over into perhaps the single most important element of enabling e-vehicle usage: charging infrastructure.
  - Lack of attention on building charging infrastructure.
- **Local and Private Investment results in Low Cost production Technology:**
  - Localization is another tricky area, as the strife caused by the rupee’s depreciation has shown.
  - India does not have any known reserves of lithium and cobalt, which makes it entirely dependent on imports of lithium-ion batteries from Japan and China.
- **Short Driving Range and Speed**
  - Most of these cars have range about 50-100 miles and need to be recharged again.





- **Battery Recharge Issues**
  - An electric car takes about 4-6 hours to get fully charged. Therefore there is a need for dedicated power stations as the time taken to recharge them is quite long.
- **Silence as Disadvantage**
  - Silence can be a bit disadvantage as people like to hear noise if they are coming from behind them
  - An electric car is however silent and can lead to accidents in some cases.
- **Limited seating capacity**
  - They are not meant for entire family and a third person can make journey for other two passengers bit uncomfortable.
- **Not Suitable for Cities Facing Shortage of Power**
  - Cities already facing acute power shortage are not suitable for electric cars.
  - The consumption of more power would hamper their daily power needs.
- **High cost**
  - The primary reason for the current high prices of EVs is the expensive battery

#### Way forward:

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.
- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.

#### Conclusion:

- Environment-friendly EVs will reduce air pollution and thus contribute to the fight against climate change. As per **NITI Aayog's report** EVs will help in cutting down as much as 1 Gigatonne (GT) of carbon emissions by 2030. The government should have a role.
- Instead of trying to pick winners, the government should focus on building an enabling business environment that supports research and innovation.

### Q) Discuss the prospects for ports in India. What are the issues and challenges with Indian Ports ? Examine. (250 words)

Indian geography by Majid Hussain

#### Why this question:

The question is based on the policy perspective with respect to the investments in the defense sector and in what way FDI brings in self-reliance and Indigenization.

#### Key demand of the question:

The answer must discuss the importance of FDI in defense, trace its evolution And analyse in detail its implications.

#### Directive:

**Analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

#### Structure of the answer:

##### Introduction:

Discuss first the importance of investments in defense sector in general.

**Body:**

The body of the answer to have the following aspects covered in detail :

Explain the evolution of FDI in Defence Sector.

Then discuss the associated advantages (Transparency, Quality Products, Reduction of Reserves, Positive Performance Pressure on Public Sector Enterprises, Employment Opportunities etc.) and disadvantages (Security Concerns, Competition for Domestic Private Industry, Overbearing Presence of Foreign Companies etc.)

Then focus on to explaining the Implications of FDI in Defense on Self-Reliance and Indigenization.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- India by virtue of being a peninsular country with a long coastline has the natural advantage of developing ports. There are 13 major ports in the country; 6 on the Eastern coast and 6 on the Western coast. Further there are about 200 non-major ports.
- The 12 major ports in the country have a combined total capacity of 1,065 million metric tonnes (MMT), while the capacity at non-major ports is roughly 700MMT. Currently 95% of India's trade by value and 70 % by volume take place through maritime transport.

**Body:****Major Ports of India:****Issues and challenges with Indian Ports:**

- High turnaround times:** Ports in India suffer from high turnaround times for ships. For example, in Singapore, average ship turnaround time is less than a day. However, in India, it is over two days.
- Port congestion:** Port congestion due to container volume, shortage of handling equipment and inefficient operations is a major concern. Example: In Nhava Sheva port
- Sub-optimal Transport Modal Mix:** Lack of requisite infrastructure for evacuation from major and non-major ports leads to sub-optimal transport modal mix
- Limited Hinterland Linkages:** There is inefficiency due to poor hinterland connectivity through rail, road, highways, coastal shipping and inland waterways. This in turn increases the cost of transportation and cargo movement
- Lengthy inspection and scrutiny:** Though customs operations in India are rapidly going paperless and converting to digital, inspections and scrutiny continue to be lengthy for cargo and other shipping operations.
- Inadequate infrastructure and Technology Issues:**
  - Lack of adequate berthing facility, number of berths, sufficient length for proper berthing of the vessels at the Non-Major Ports is another problem.
  - Most Non-Major Ports do not have proper material handling equipment in place which could facilitate a quick turnaround
  - Most Indian ports lack of equipment for handling large volume
  - Further many ports also lack adequate navigational aids, facilities and IT systems
- Issues with Regulations:**
  - The major problem with regulation is that major and non-major ports fall under different jurisdictions. Further, the regulatory framework is rigid.
  - Foreign-flagged vessels are not allowed to ship cargo from one Indian port to another as that remains a protected turf for domestic shippers
  - Land acquisition and environmental clearances are some specific challenges for non-major ports.
- Issues with PPP Model:**
  - Most port PPPs impose strict limits on what private operators are allowed to do, usually in terms of the types of cargo they are allowed to handle.





- Until recently, Other problems were related to tariff regulation and absence of dispute resolution mechanism
- **Environmental impact:**
  - During the operation of ports, spillage or leakages from the loading and unloading of cargo and pollution from oil spills are common due to poor adherence to environmental laws and standards.
  - The water discharged during the cleaning of a ship and the discharge of ballast water is a threat to marine ecosystems
  - Dredging causes environmental problems (increased sedimentation) affecting local productivity of the local waters and its fisheries.
- **Social impacts of Port Development:**
  - Most port projects and development results in displacement (such as Gangavaram Port in Andhra and Mundra in Gujarat).
  - Besides displacement, the other important concern expressed by fishing communities is the restriction of access to fishing grounds around a port.
- **Manpower and Labour Issues:** Lack of adequate training, falling manpower quality, opposition to reform are major issues
- **Unhealthy Competition:** Analysts have cited the concerns over development of multiple ports in close vicinity handling similar cargo as it might lead to ports competing for the same cargo arrivals.

#### Measures needed:

- Environmental clearances, Tariff norms, land acquisition etc. need to be standardized and implemented for the port sector so as to boost foreign investments
- It is important to provide rail and road connectivity to major and minor ports in order to ensure seamless multimodal transport and improve efficiency
- Priority should be given on expanding capacity and improving operational efficiency. Emphasis should be placed on installing advanced cargo handling processes, scalability in processes and mechanisation of port operations.
- Technologies like big data and advanced GPS navigation systems should be optimally used for better functioning of ports
- The regulatory regime should be made less complex and less rigid. Further, there should be vertical integration of all stakeholders (for example: environment, rail/road transport etc.) for holistic development of ports in India
- With regards to ports, **Vijay Kelkar committee on PPP** recommended review of role and need of Tariff Authority for Major Ports (TAMP), review of MCA, quicker clearances, rationalized leases and stamp duties
- Port modernisation and new port development, port connectivity enhancement, port-linked industrialisation and coastal community development under the Sagarmala project has an immense scope for reduction in transportation and logistics costs and boosting export competitiveness.
- **Niti Aayog in its Three Year Acton Agenda (2017-2018)**, recommended the following:
  - Increase competition through easing cabotage
  - Increase the capacity of and eliminate discriminatory provisions for Indian vessels
  - Explore creating deep-water ports or barges for ports with low drafts
  - Facilitate minor/non-major port connectivity to hinterland areas

#### Conclusion:

- Sagarmala project has to be devised to reduce logistics cost and strengthen India's EXIM industry. Thus, in order to achieve higher economic growth and higher efficiency levels, the trade-GDP ratio needs to increase substantially.
- Improvement in the efficiency of ports and expansion of their capacity is essential for promoting the growth of trade and export competitiveness.

**Q) Despite proper implementation to providing access to clean cooking fuel, the Ujjwala Yojana seems to have hit a roadblock with respect to affordability. Analyse the issue and provide for an assessment on the feasibility of further expansion of this programme. (250 words)**

[Reference](#)

**Why this question:**

The question is about analysing the success of the Ujjwala Yojana.

**Key demand of the question:**

The answer must discuss in detail the progress made by Ujjwala yojana in achieving access to the cleaner cooking fuel and to what extent it will be right to proceed with the program further.

**Directive:**

**Analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

**Structure of the answer:****Introduction:**

Begin with brief intro on the program intent – Ujjwala Yojana aims at providing clean cooking fuel to BPL families. The scheme aims at providing access to the under privileged sections of the society.

**Body:**

Discussion should include the following:

Explain why there are doubts about the question of affordability with respect to the program.

List the various causes like – cost involved, Black marketing, Lack of door delivery of cylinders is also adversely impacting refilling of cylinders in rural areas. Thus, one must detail on the aspects of the logistics hinderances and lack of penetration of the scheme and suggest solutions to overcome the same.

**Conclusion:**

Conclude that one aspect alone should not decide success or failure and that with suitable corrections and fixes the program can still achieve its mandate.

**Introduction:**

- Pradhan Mantri Ujjwala Yojana (PMUY) is a scheme of the Ministry of Petroleum & Natural Gas for providing LPG connections to women from **Below Poverty Line (BPL) households**. India is home to more than 24 Crore households out of which about 10 Crore households are still deprived of LPG as cooking fuel and have to rely on firewood, coal, dung – cakes etc. as primary source of cooking.
- The PMUY has helped the spread of LPG cylinders predominantly in the urban and semi-urban areas with the coverage mostly in middle class and affluent households. It aims to safeguard the health of women & children by providing them with a clean cooking fuel – LPG, so that they don't have to compromise their health in smoky kitchens or wander in unsafe areas collecting firewood.

**Body:****Achievements:**

- The oil ministry's Petroleum Planning and Analysis Cell (PPAC) estimates that LPG coverage in India (the proportion of households with an LPG connection) has increased from 56% in 2015 to 90% in 2019. There is a significant increase in eastern states, with 48% of the beneficiaries being SC/STs.
- The government reports show that around 80% of the beneficiaries have been refilling cylinders, with average per capita consumption being 3.28 cylinders.
- PMUY has resulted in an additional employment of around 1 Lakh and provide business opportunity of at least Rs. 10,000 Crore in last 3 Years to the Indian Industry.
- The scheme has also provided a boost to the 'Make in India' campaign as all the manufacturers of cylinders, gas stoves, regulators, and gas hose are domestic.
- PMUY reduces these ill-effects by providing clean fuel and cutting out on drudgery. Increased use of cooking gas will shrink the incidence of tuberculosis in India, based on the statistics from the latest National Family Health Survey (NFHS-4) on TB prevalence.
- PMUY has helped in reducing the drudgery for women. The time saved can be used in socio- economically productive activities like **Self-Help Group activities**.
- The **World Health Organisation** hailed PMUY as decisive intervention by the government to facilitate the switch to clean household energy use, thereby addressing the problems associated with Indoor Household Pollution.

However, given the **scale** of the scheme there are some **implementation shortcomings** of the scheme

**Cost issues:**

- Consumers were paying market price for refills till the loan repayment for stove and first refill was made. This led to some consumers not going in for such refills.



- **Economic Burden:** The **increased monthly expenditure** has shied many consumers away from LPG and lured them back to firewood and cow-dung cakes.
- The **CEEW study** across Uttar Pradesh, Madhya Pradesh, Jharkhand, Bihar, West Bengal and Odisha found people were unwilling to pay upfront Rs.900-1,000 for a 14 kg refill.
- A **CRISIL Study** shows that of those surveyed, 86% said they had not shifted from biomass to LPG because the price of installing a connection was too high. Almost the same number – 83% – said the price of refills was too high.

#### Administrative issues:

- The government claims that around 80% of the beneficiaries have been refilling cylinders, with average per capita consumption being 3.28 cylinders. But there are implementation issues with the scheme in Madhya Pradesh, for instance.
- Aadhar seeding also faces issues caused by data discrepancies, especially where the spelling of names is concerned as a result of which applicants can find themselves unable to register for the scheme.

#### Logistic issues:

- Lack of LPG cylinder bottling plants near rural areas and connectivity issues especially in the tribal areas.
- Last-mile connectivity and delivery still poses a great challenge.

#### Safety and Behavioural issues:

- Safety has been another concern about distribution of LPG connection, especially to BPL families. Lack of awareness and safety amenities in beneficiary households have increased the likelihood of accidents.
- Cow-dung cakes lying around the house all the time. Hence, LPG cylinders are used on special occasions or during some kind of emergency or when it's entirely too hot to burn wood.
- The CRISIL report also noted that 37% of households in rural areas procure cooking fuel for free.
- **Agency:** Most rural women do not have a say in determining when a refill is ordered, even though the connection is in their name.

#### Way Forward:

- **Increase Affordability:** A case in point is state-run fuel retailers introducing a 5kg refill option to make purchases affordable.
- **Increase Accessibility:** Gas Agencies should be set up within 10km radius, especially in the rural and remote areas to increase accessibility.
- **Increase Availability:** Alternatives like Gas-grid and piped connections in cities and areas near the bottling plants can free up the cylinders for other areas.
- **Promote 'Give it up':** The initiative of the government to persuade the well-off to give up the LPG subsidies has added to the corpus of PMUY. Similar initiatives can be promoted.
- **Encourage Private Players** to set up LPG franchises at rural areas.
- **Sensitization and Education** of safe use of LPG through **LPG Panchayats, NGO's etc.**

#### Conclusion:

- PMUY is a novel scheme having twin benefits of women empowerment as well as environmental conservation.
- Ironing out the implementation issues can reap the envisioned benefits and lead to a sustainable future in energy consumption.

### Q) The issue of paused infrastructure projects in India, is an indicator of market and regulatory failure. Discuss. (250 words)

#### Reference

##### Why this question:

The question is pertaining to the hurdles infrastructure in India are facing due to market failures and regulatory failures.

##### Key demand of the question:

The answer must discuss what are the issues with respect to infrastructure projects in India, what are the causes of such issues and what needs to be done.

##### Directive:

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.





### **Structure of the answer:**

#### **Introduction:**

Begin with brief intro on infrastructure projects and their significant contribution in the growth and development of the country.

#### **Body:**

Discussion should include the following:

Explain that India has an enormous infrastructure gap, but it can be bridged by cooperation between the public and private sectors.

Discuss the challenges infrastructure projects are facing due to market and regulatory failures like corruption, political and regulatory risk, access to financing and macroeconomic instability.

Suggest what needs to be done to overcome these bottlenecks.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- Infrastructure is a key driver of the overall development of Indian economy. It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a “**multiplier effect**” on economic growth across sectors.
- The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

#### **Body:**

- The critical role of finance in economic growth is widely acknowledged and developing well-functioning financial markets has become a central focus of economic policies across the world.
- A new World Bank study suggests that investing in infrastructure in regions with basic financial development can help these regions overcome barriers to economic growth.
- According to Economic Survey 2018, India will need about USD 4.5 trillion in the next 25 years for infrastructure development.

#### **Challenges faced by infrastructure projects in India:**

- **Political and regulatory risk:** it has many facets. There are various categories of approvals required across the project cycle at every stage, right from the pre-tendering stage to post-construction. They include community opposition on an investment, changes to asset-specific regulations and breach of contract terms. In the case of India, denial of payments from the government that go against contractual agreements seem to be perceived as highly likely to influence future investment decisions.
- **Land acquisition:** Several projects have been stalled or delayed due to land acquisition. There are multiple reasons that lead to delays in land acquisition. One primary reason has been resistance from farmers or local communities whose land is being acquired. Large road and energy projects can take several months to be awarded and if processes are not clear and impartial enough, investors hardly mobilize resources to bid.
- **Environmental Impact Assessment:** Environmental safeguards and guidelines are evolving, which are similar to the scale and complexity of infrastructure projects. While new projects need to comply with these regulations, even a project under construction may sometimes need to comply with revised standards midway through the execution stage.
- **Access to financing:** It touches upon the core feature of infrastructure: its long-term payback period. It affects financiers and investors who are looking for long-term and steady returns. After the global financial crisis though, long-term lending is not easy to get, India not being an exception.
- **Capacity of private players:** another emerging challenge for the achievement of large infrastructure projects is the capacity of the private sector to undertake or implement such projects.

#### **Measures needed:**

- **Land acquisition:** by relaxing transfer regulations for land it owns, the government has taken a positive step. This should resolve the delay of projects by procedural issues, and complement the guidelines to resolve land issues. The government is expected to follow up with land acquisition policies or guidelines for project authorities and sponsoring agencies
- **Fast-track policy and regulation reforms for enhanced implementation:** Sponsoring agencies need to make a concerted effort to develop strong performance management systems to drive timely execution of This includes defining performance standards for nodal agencies and creating a transparent and accurate tracking mechanism as well as performance-linked incentives and penalties.



- **Dispute resolution:** Given the extremely slow pace of Indian courts, this can be a long-drawn process. The government may also consider setting up single quasi-judicial authority for all the infrastructure sectors. This authority would have statutory powers to resolve disputes between the authorities and private developers.
- **Eliminate Regulatory Cholesterol:** A large number of projects are delayed due to delayed regulatory approvals or clearances from different agencies. Government agencies often function independently, and there is no incentive or obligation to cooperate with project authorities to expedite the approval process. To eliminate this issue, a Performance Review Unit should be given powers to gather information from nodal agencies on clearances and incentivise or regulate this.
- **Facilitating funds:** Setting up of Infrastructure Debt Funds (IDFs) and reduction in 'withholding tax' on the interest paid on these bonds are some other positive measures that are expected to facilitate the flow of long-term debt into infrastructure projects
- **Private-Public Partnerships:** Allowing the private sector into some former fully government-owned infrastructure sectors, such as telecommunications and domestic civil aviation, has produced exemplary results. Early experience with private involvement in these areas is generally positive, but outcomes under contracts need careful monitoring.
- **Independent authorities and facilitators:** The government has set up a Project Monitoring Group (PMG) to track frozen projects and remove bottlenecks. Any project in infrastructure can be referred to the group for resolution. The PMG has already been successful in resolving more than 200 of the projects referred to it, worth nearly 30% of the value of all projects, according to the World Bank.

#### Conclusion:

- If proper effort is made in expanding education, health facilities, and physical infrastructure and improving their quality by increasing budgetary allocation and improving governance, it will go a long way in reducing poverty, improving human development, and reviving and sustaining high rates of economic growth in India.

### Q) Public investment, especially in the railways, can play an important role to revive growth and promote Make in India. Discuss. (250 words)

[Indianexpress](https://www.indianexpress.com)

#### **Why this question:**

The question intends to examine the role of Railways as a transport system in reviving the growth scenario.

#### **Key demand of the question:**

The question is about discussing the role of public investments in Railways to revive growth and promote the flagship program of Make in India.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

In brief explain the role played by railways in the economic growth and development.

##### **Body:**

The answer should explain the significance of public investments in Railways, in what way such investments will boost modernization of Indian railways.

The crux of the answer should focus on significance of Railways as a transport system in aiding the economic growth of the country.

##### **Conclusion:**

Conclude by suggesting way forward.

#### **Introduction:**

- Indian Railways (IR) has been the **prime movers of the nation**. IR is the **second largest railway system in the world** under single management. IR has historically played an important integrating role in the socio-economic development of the country.
- Despite reforms, the efficiency of service delivery is stumbling block in overall progress. Railway Minister recently rejected opposition's allegation that the government is working to privatise the national transporter, but said the ministry will invite investments for new technology, lines and projects in national interest.

**Body:**

Potential areas where private participation can be done:

- Indian railway is suffering from low investments, poor capacity, congestion, low speeds, and poor conditions of railway stations.
- The budgetary resources are not sufficient to make up for the investments required.
- PPP approach can be used to transform the railway in different areas comprising from ticketing, station construction and upkeep, rolling stock manufacturing, signalling etc.
- **The Bibek Debroy Committee**, which was set up to suggest ways to mobilise resources for the Indian Railways and restructure the Railway Board, has favoured privatisation of rolling stock: wagons and coaches.

**Benefits of private investment in Railways:**

- Opens opportunity for returns from investment in Rail Projects.
- Augmentation of railway infrastructure and decongestion of the railways.
- Ensure timely availability of Rail Infrastructure to the beneficiaries viz. Port, Industry and States.
- Better maintenance and efficiency in implementation of projects.
- The PPP projects in case of airports have shown that this mode greatly helps in improving quality of services.
- It leads to simplification of cost recovery for the money spent by the government in setting up the infrastructure. It would be profitable as the government would charge the operator
- The move would foster competition and hence lead to overall betterment in the quality of services.

**Challenges:**

- **Coverage Limited to Lucrative Sectors:** An advantage of Indian Railways being government- owned is that it provides nation-wide connectivity irrespective of profit. This would not be possible with privatisation since routes which are less popular will be eliminated, thus having a negative impact on connectivity. It will also render some parts of the country virtually inaccessible and omit them from the process of development.
- **Fares:** Given that a private enterprise runs on profit, it is but natural to assume that the easiest way of accruing profits in Indian Railways would be to hike fares, thus rendering the service out of reach for lower income groups.
- **Affects socio-economic development:** This will defeat the entire purpose of the system which is meant to serve the entire population of the country irrespective of the level of income
- **Accountability:** Private companies are unpredictable in their dealings and do not share their governance secrets with the world at large. In such a scenario it would be difficult to pin the accountability on a particular entity, should there be a discrepancy.

**Way forward:**

- Link increase in passenger fares to better passenger services
- Create a separate company for railway infrastructure
- Open access for any new operator who wishes to enter the market for operating trains
- Separate suburban services and run them as joint ventures with state governments.
- Private entry into running both freight and passenger trains in competition with Indian Railways
- Separation of rail track from rolling stock

**Conclusion:**

- High costs and lower returns, policy uncertainty, absence of a regulator to create a level playing field, the lack of incentives for investors and procedural or operational issues have significantly restricted private sector participation.

## **Q) Infrastructure expansion has witnessed noteworthy stimulus in India in the recent times. Discuss. (250 words)**

Indian economy by Dutta and Sundaram

**Why this question:**

India requires a huge corpus of investment in order to cope up for its infrastructure deficits. The sector has witnessed moderate growth recently and the government has also initiated various steps to boost investment in infrastructure sector.

**Key demand of the question:**

The answer must detail about the status of infrastructure growth in India and bring out in detail the impetus received by the sector recently.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:****Introduction:**

In few lines bring out the current state of India's infrastructure sector, in what way it drives the economy.

**Body:**

Discussion should include the following:

First highlight the present stimulus that the sector is witnessing in India, what are the various provisions in terms of laws, policies, programs that the sector is gaining prospects from.

Explain what are the present infrastructure gaps existing currently, in what way these gaps can be addressed.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- Infrastructure is a key driver of the overall development of Indian economy.
- It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a “**multiplier effect**” on economic growth across sectors. The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

**Body:****Significance of Infrastructure expansion:**

- Infrastructure development helps in **poverty reduction** due to its high employment elasticity leading to huge job creation capabilities.
- It also has the **trickle-down effect** as better transportation infra can lead to access to education, health and other basic necessities.
- **Increasing the manufacturing growth** as there is better connectivity, easier movement of goods and services, facilitating private investments
- **It reduces the regional and inter-state disparities** and leads to a balanced economic growth by regional equality.
- Infra sector **has huge spill-over effects** on other sectors of economy. It **has money-multiplier** effect too.
- **Better quantity and quality of infrastructure** can directly raise the **productivity of human and physical capital** and in turn growth of nation

**Stimuli for Infrastructure in India:**

- **Market Size**
  - Foreign Direct Investment (FDI) received in Construction Development sector from April 2000 to June 2018 stood at US\$ 24.87 billion, according to the Department of Industrial Policy and Promotion (DIPP).
  - The logistics sector in India is growing 10 per cent annually and is expected to reach US\$ 215 billion in 2019-20.
- **Investments**
  - India has a requirement of investment worth Rs 50 trillion in infrastructure by 2022 to have sustainable development in the country. India is witnessing significant interest from international investors in the infrastructure space. Some key investments in the sector are listed below.
  - In June 2018, the Asian Infrastructure Investment Bank (AIIB) has announced US\$ 200 million investment into the National Investment & Infrastructure Fund (NIIF).
  - Indian infrastructure sector witnessed 91 M&A deals worth US\$ 5.4 billion in 2017
- **Government Initiatives**
  - The Government of India is expected to invest highly in the infrastructure sector, mainly highways, renewable energy and urban transport.
  - Announcements in Union Budget 2018-19:
  - Massive push to the infrastructure sector by allocating Rs 5.97 lakh crore for the sector.
  - Rs 16,000 crore towards Sahaj Bijli Har Ghar Yojana (Saubhagya) scheme. The scheme aims to achieve universal household electrification in the country.



- Rs 4,200 crore to increase capacity of Green Energy Corridor Project along with other wind and solar power projects.
- Allocation of Rs 10,000 crore to boost telecom infrastructure.
- A new committee to lay down standards for metro rail systems was approved in June 2018. As of August 2018, 22 metro rail projects are ongoing or are under construction
- The Government of India is working to ensure a good living habitat for the poor in the country and has launched new flagship urban mission, the Pradhan Mantri Awas Yojana (Urban).
- In May 2018, construction of additional 150,000 affordable houses was sanctioned under Pradhan Mantri Awas Yojana (PMAY), Urban.

However, there are still **challenges which need to be tackled**.

- **Delay in Implementation and execution:** While issues around land acquisition and the time required for approvals have seen improvement over the years, India needs to ensure that such problems continue to receive constant attention.
- **Environmental Impact Assessment:** Environmental safeguards and guidelines have proven to be one of the major reasons for delay in infrastructure projects, like roads and ports.
- Given the complexity of infrastructure assets, a “**one size fits all**” solution will not work. Different models of **PPP ownership** like Hybrid Annuity, BOT needs to be tried.
- The **capital investments in infra projects are huge**, with the **NPA crisis** seen across public sector banks, credit availability has become difficult. This has in turn lead to **twin-balance sheet syndrome** with the infrastructure companies also defaulting on their payments.
- **Regulatory issues: Lack of co-ordination between various Government agencies** affecting the ease of doing business due to delayed clearances and objections.
- **Absence of a proper dispute resolution mechanism** between private players and government agencies leading to pendency of cases in courts as well as the assets in limbo.
- **Poor pre-construction planning:** Due to the already adverse effect of various impediments like land acquisition, statutory approvals, delayed financial closure, etc. the pre-construction phase of infrastructure projects is pretty long.
- Other challenges include **Geographical** as some regions are unsuitable for infra projects, **Ethnic**, etc.

#### Conclusion:

- If proper effort is made in expanding education, health facilities, and physical infrastructure and improving their quality by increasing budgetary allocation and improving governance, it will go a long way in reducing poverty, improving human development, and reviving and sustaining high rates of economic growth in India.

**Q) Do you agree that the much of the current crisis facing Indian railways is originating from the fragmented structure of the rail bureaucracy? Critically analyse. (250 words)**

#### Reference

##### **Why this question:**

The question aims to analyse the issues and concerns marring the Indian railways system specifically in the domain of bureaucracy.

##### **Key demand of the question:**

Explain in detail the various issues concerning the Indian railways system in what way the issues can be addressed.

##### **Directive:**

**Critically analyse** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

##### **Structure of the answer:**

##### **Introduction:**

Highlight the current state of railway affairs in India.

##### **Body:**

Explain the following points in detail –

Discuss first how railways have come far ahead in time.





Explain specific issues that still surround it despite dedicated policies and programs in place.  
 Quote the reasons due to which the issue still persists, in what way they can be resolved.  
 Discuss the idea of third service cadre — the Indian Railways Management Service, the idea is that the IR management service — drawing talent from the technical and logistics services etc. as solutions to the existing problems.

#### **Conclusion:**

Conclude by suggesting way forward.

#### **Introduction:**

- Indian Railways (IR) has been the **prime movers of the nation**. IR is **the second largest railway system in the world** under single management. IR has historically played an important integrating role in the socio-economic development of the country.
- Railways has been crying out for help for decades. Despite the huge allocation of funds that it gets each year, the lifeline of India continues to suffer.

#### **Body:**

- Extra information:** The Indian Railways — that runs 19,000 trains including 12,000 passenger trains to carry 24 million passengers each day on its 65,000 km tracks — confronts big challenges. Its networks are clogged, with approximately 492 of the total of 1219 sections — 40 percent of all sections — running at over 100 percent of above-line capacity. From 1950 to 1916, passenger and freight traffic grew by 1,344 percent and 1,642 percent respectively, while the network increased by a mere 23 percent

#### **Bureaucratic hurdles:**

- Bureaucratic culture** with high opaqueness and snail's rate progress.
- Officials engaged in furthering cadre goals; rather than working to fulfil the organisational goals
- Multiple recruitment techniques:** With a bench strength of over 13 lakh, the Indian Railways — the world's fourth largest rail network — has drawn personnel from three different entry points (through UPSC, direct recruitment or from the now-defunct Rail Training Institute at Jamalpur)
- Fragmentation:** IR is split up into five technical cadres (Indian Railway Service of Signaling Engineers, Indian Railway Service of Mechanical Engineers, Indian Railway Service of Mechanical Engineers) and three non-technical services (Indian Railways Traffic Service, IR Accounts Services and IR Personnel Service).
- Cadres such as the IRSS and the IRPS — that had a critical role in the early decades of the country's Independence in the absence of a domestic rail industry — continue to retain an elaborate structure despite a much reduced role.
- The IR's rolling stock has graduated from the simple steam engine machines to complex technological products, but the 29 workshops continue to be engaged in antiquated practices.

#### **Other crises faced by IR:**

- Subsidised passenger tariff** due to political incentives. This leads to an increase in freight rate which adds to inflation.
- Declining passengers in the upper classes as they have started preferring bus for short haul and flight for the longer haul. Nearly a third of passenger revenue comes from AC class passengers who constitute just 1.3 per cent of the total number of passengers travelling in a year.
- The **share of roads in freight transport is more** than half in India; while in China, it is only 30%. As more highways are getting built rapidly, the share of roads in freight transport is increasing at accelerating rate.
- Freight contributes nearly two-thirds of Indian Railway's revenue and coal transport alone contributes to half of that. Decreasing dependency on coal compounded by increasing thrust on renewable energy has crippled railway revenue.
- Regional air connectivity scheme UDAN is further going to increase Indian Railway's operational cost. India, recently, became the third-largest aviation market in the world after China and the US.
- Lack of funds:** In China, annual investment in railways is about Rs. 9 to 10 lakh crore whereas it is Rs. 40,000 crore a year in India. Over 80 percent of this budget goes towards wages and salaries.
- Unfilled vacancies** at the lower level (track men, line men, technicians).
- Railways diverting from core issues of railway safety and operation and is diverting to populist needs like wifi, catering, etc.

#### **Measures needed to tackle bureaucratic hurdles:**

- Reduce red tape and bring in efficiency. A mechanism for departments to flourish and voice their genuine concerns is what is needed for enhancing co-ordination.
- Use of new techniques for assessing aptitudes, capabilities and cohesion are to be developed.



- Ultimately, appropriate powers should be vested in the DRMs, GMs and the Railway Board for hassle free decision making.
- Streamlining by amalgamation of eight existing railway services — besides the Railway Protection Force (RPF) and the Railway Medical Services (RMS) into two verticals: The Indian Railways Technical Service and the Indian Railways Logistics Service
- a third service cadre like Indian Railways Management Service must be put in place
- Bureaucratic reform — or the proposal to unify cadres — might well be a desired objective.
- To adopt a policy of a unified or a two-cadre system with retrospective effect
- The long-awaited plan of setting up an independent tariff and safety regulator — called the **Rail Development Regulator** — remains to be put to effect
- A **Corporate Accounting System** — to replace the conventional accrual-based accounting system.

#### Other measures:

#### Bibek Debroy Committee on Restructuring of Indian Railways:

- Need for the creation of separate tariff regulator so as to keep railway away from politics.
- Railway's recruitment should be done by single entity instead of UPSC, SSC
- Further needs to decentralize railway operation to increase efficiency.
- Need to decrease cross subsidization by keeping a balance between freight and passenger fare.
- Railway budget should be merged with the annual budget.
- Shifting towards online procurement and auctioning.

#### Conclusion:

- Indian Railways needs to learn from ISRO in target driven goals, team spirit, Research and Development, transparency, speed and active collaboration with the private sector. "Process, structural and cultural reforms" are the needs of the hour to resuscitate the IR.

### Q) Examine how 'smart grids' can be a solution to India's power woes. Discuss the challenges and issues involved in its implementation. (250 words)

[livemint](#)

#### **Why this question:**

The question is to examine the concept of smart grids.

#### **Key demand of the question:**

The answer must discuss the concept of smart grids, the challenges and issues involved in implementing the same and in what way it can address the power woes of the country.

#### **Directive:**

**Examine** – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

#### **Structure of the answer:**

##### **Introduction:**

Discuss in brief the current power scenario of the country with some statistical data.

##### **Body:**

Explain that Smart grid (SG) is emerging as a new facet of power industry. It incorporates numerous advanced technologies to deal issues prevailing with conventional electric networks. Though capable to resolve many of these issues, SG is still facing challenges in deployment. These challenges are associated with adaption of emerging technologies, socio-economic issues, lack of policies and awareness.

##### **Conclusion:**

Conclude with what needs to be done and how the concept can be put to use effectively to deal with the power problems of the country.

#### **Introduction:**

- Smart grid is an electricity grid that is used to deliver electricity using two way technology to enable communication between consumers and utility.
- Smart grid manages electricity demand in a reliable, efficient and sustainable manner.
- In May 2015, Government approved the National Smart Grid Mission (NSGM) -an institutional mechanism for planning, monitoring and implementation of policies and programs related to Smart Grid activities.

**Body:****Potential of Smart Grids:**

- A smart grid involves a network of sub-stations, transformers, and electric lines that help in delivering electricity from power plant to business offices and homes.
- Similar to the internet, a smart grid also involves the use of computers, automation, controls, and new technologies working in conjunction with each other.
- The key advantage of smart grid technology is its ability to create stability between electricity demand and supply.
- The smart grid enables increased, predictability and control of generation and demand through consumer involvement, thus bringing flexibility in both generation and consumption, enabling the utility to better integrate intermittent renewable generation and reducing costs of peak power.
- A smart grid is cost-effective, responsive, and engineered for reliability of operations.

**Challenges and issues involved in its implementation:**

- **Policy and regulation:** The current policy and regulatory frameworks were typically designed to deal with the existing networks and utilities.
- **High capital and operating costs:** Capital and operating costs include large fixed costs linked to the chronic communications
- **Benefits are constrained by the regulatory framework:** When calculating the benefits, organizations tend to be conservative in what they can gather as cash benefits to the shareholders. For example, in many cases, line losses are considered to be put onto the customer and as a result any drop in losses would have no net impact on the utility shareholder.
- **Technology maturity and delivery risk:** Technology is one of the essential constituents of Smart Grid which include a broad range of hardware, software, and communication. In some cases, the technology is well developed; however, in many areas the technologies are still at a very initial stage of development and are yet to be developed to a significant level.
- **Lack of awareness:** Consumer's level of understanding about how power is delivered to their homes is often low.
- **Access to affordable capital:** Funds are one of the major roadblocks in implementation of Smart grid.
- **Cyber security and data privacy:** With the transition from analogous to digital electricity infrastructure comes the challenge of communication security and data management; as digital networks are more prone to malicious attacks from software hackers, security becomes the key issue to be addressed, concerns on invasion of privacy and security of personal consumption data arises. The data collected from the consumption information could provide a significant insight of consumer's behavior and

**Way forward:**

- Creating frameworks that allow risk to be shared between customers and shareholders, so that risks and rewards are balanced providing least aggregate cost to the customer.
- Consumers should be made aware about their energy consumption pattern at home, offices.
- Policy makers and regulators must be very clear about the future prospects of Smart Grids.
- Utilities need to focus on the overall capabilities of Smart Grids rather than mere implementation of smart meters. They need to consider a more holistic view.

**Conclusion:**

- Indian utilities are still lagging far behind when compared to other countries. Smart Grids will play a vital role to help utilities in accomplishing this mission.
- So, the utilities will need to invest heavily in new hardware, software, business process development, and staff training.
- Further there would be high investment in home area networks and smart appliances by the customers. Achieving the broader view of Smart Grid will require complex task prioritization and right set of policies and regulations to be in place.

**Q) Infrastructure is the backbone of India Economy. Discuss the measures taken by the government to boost infrastructure development in the recent Budget. (250 words)**

[Economictimes](https://economictimes.com)



### **Why this question:**

The question aims to analyse the role played by infrastructure development in growth and development of the country.

### **Key demand of the question:**

The answer must analyse the measures taken by the government to boost infrastructure development in the recent Budget.

### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

### **Structure of the answer:**

#### **Introduction:**

Begin with brief write up on present state of infrastructure in India.

#### **Body:**

Discussion should include the following:

Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country.

Discuss the recent allocations made in the Budget and explain the significance.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- Infrastructure is a key driver of the overall development of Indian economy. It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a “**multiplier effect**” on economic growth across sectors.
- The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

#### **Body:**

##### **Significance of Infrastructure expansion:**

- Infrastructure development helps in **poverty reduction** due to its high employment elasticity leading to huge job creation capabilities.
- It also has the **trickle-down effect** as better transportation infra can lead to access to education, health and other basic necessities.
- **Increasing the manufacturing growth** as there is better connectivity, easier movement of goods and services, facilitating private investments
- **It reduces the regional and inter-state disparities** and leads to a balanced economic growth by regional equality.
- Infra sector **has huge spill-over effects** on other sectors of economy. It **has money-multiplier** effect too.
- **Better quantity and quality of infrastructure** can directly raise the **productivity of human and physical capital** and in turn growth of nation

##### **Measures in recent budget to boost infrastructure:**

- **National Common Mobility Card:** India's first indigenously developed payment ecosystem for transport, based on National Common Mobility Card (NCMC) standards.
- **Ease of Travelling:** Inter-operable transport card runs on RuPay card and would allow the holders to pay for bus travel, toll taxes, parking charges, retail shopping.
- **Roadways:**
  - Massive push given to all forms of Physical Connectivity via: Bhartamala (road and highways project) and Sagarmala projects (national water port development connectivity scheme), Pradhan Mantri Gram Sadak Yojana (PMGSY), Jal Marg Vikas and UDAN Schemes, Industrial Corridors and Dedicated Freight Corridors.
  - State road networks to be developed in 2nd phase of Bharatmala project.
  - National Highway Programme (NHP) to be restructured to ensure a National Highway Grid, using a financeable mode



- **Waterways:**
  - **Jal Marg Vikas Project:** Under it Navigational capacity of Ganga to be enhanced through multi modal terminals at Sahibganj and Haldia and a navigational lock at Farakka by 2019-20.
  - **Ganga Waterways:** 4 times increase in next 4 years estimated in cargo volume on Ganga, leading to cheaper freight and passenger movement and reducing import bill.
- **Railways:**
  - For Railway Infrastructure during 2018-2030, Rs.50 lakh crore investments is needed.
  - Public-Private-Partnership (PPP) proposed for development and completion of tracks, delivery of passenger freight services and rolling stock manufacturing.
  - 657 kilometres of Metro Rail network has become operational across India.
- **e-vehicles:**
  - Outlay of Rs. 10,000 crore for 3 years approved for Phase-II of FAME (Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles) Scheme
  - Upfront incentive proposed on purchase and charging infrastructure, to encourage faster adoption of Electric Vehicles (EV).
  - Under FAME Scheme only advanced-battery-operated and registered e-vehicles to be incentivized
- **Aviation:**
  - Policy interventions to be made for development of Maintenance, Repair and Overhaul (MRO), to achieve self- reliance in aviation segment
  - Government will be laying a Regulatory roadmap for making India a hub for aircraft financing and leasing activities from Indian shores.
- **Power:**
  - To be provided to states at affordable rates ensured under 'One Nation, One Grid' and package of power sector tariff and structural reforms to be soon announced.
  - Undesirable duties on captive generation or open access sales for industrial as well as other bulk power consumers to be removed under Ujjwal DISCOM Assurance Yojana (UDAY).
  - Blueprints to be made available for water grids, gas grids, i-ways, and regional airports
- **Gas:**
  - Implementing HLEC (High Level Empowered Committee) Recommendations which is- Addressing low utilization of gas plant capacity due to paucity of Natural Gas;
  - Retirement of old & inefficient plants.
- **Housing:**
  - Model Tenancy Law to be finalized and circulated to all states in country
  - To promote rental housing appropriate reform measures are to be taken up
  - For public infrastructure and affordable housing on land parcels held by Central Government and Central Public Sector Enterprises (CPSEs), a joint development and concession mechanisms to be used

#### Infrastructure financing:

- There is a need to mobilise alternative financing resources through an effective asset monetisation strategy.
- Credit Guarantee Enhancement Corporation to be set up in FY 2019-2020
- To deepen the market for long term bonds Action Plan to be put in place with focus on infrastructure
- Proposed transfer/sale of investments by FIIs (Foreign Institutional Investor)/FPIs (Foreign portfolio investment) (in debt securities issued by IDF-NBFCs) to any domestic investor within specified lock-in period
- To enable securities exchange (or stock exchange) to allow AA rated bonds as collaterals
- **Social stock exchange:**
  - Electronic fund raising platform under regulatory ambit of SEBI (Securities and Exchange Board of India)
  - Listing social enterprises and voluntary organizations
  - To raise capital as debt, equity or units like a mutual fund
- **Annual Global Investors Meet** to be organized by Government in India, using National Infrastructure Investment Fund (NIIF) as an anchor to get all three sets of global players (pension, insurance and sovereign wealth funds).
- The statutory limit for FPI investment in a company is suggested to be increased from 24% to sectoral foreign investment limit. Also, option to be given to the concerned corporate to limit it to a lower threshold
- FPIs to be permitted to subscribe to listed debt securities issued by Real estate investment trusts (REITs) and Infrastructure investment trusts (InvITs).





- **NRI-Portfolio Investment Scheme Route** is proposed to be merged with FPI Route.
- Cumulative resources garnered through new financial instruments such as InvITs, REITs as well as models like Toll-Operate-Transfer (ToT) exceed Rs. 24,000 crore

#### Conclusion:

- If proper effort is made in expanding education, health facilities, and physical infrastructure and improving their quality by increasing budgetary allocation and improving governance, it will go a long way in reducing poverty, improving human development, and reviving and sustaining high rates of economic growth in India.

### Q) Examine the developments of Waterways in India through Joint Ventures under private participation. What are the challenges faced by the authorities in this regard? Discuss. (250 words)

Ethics by Lexicon publications

#### **Why this question:**

The question is direct and intends to evaluate the conditions of waterway transport and its contribution to the economy and transport sector of the country.

#### **Key demand of the question:**

Explain in detail the nuances of developments of Waterways in India, associated challenges, prospects and way ahead.

#### **Directive:**

**Examine** – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

In brief list down facts related to waterways in India, its prospects. India with a extensive network of rivers, canals, lakes has approximately 14500 km of navigable waterways.

##### **Body:**

Explain the following aspects –

First list down the prospects of waterways in India.

Discuss the possible challenges the sector can face – geographical, political, investments etc.

Explain the significance of public-private partnership in realizing the true potential of it.

##### **Conclusion:**

Conclude by suggesting way ahead.

#### **Introduction:**

- Rivers, lakes, canals, backwaters and reservoirs primarily constitute the source for inland waterways. A stretch of water, not part of the sea, over which craft of a carrying capacity not less than 50 tonnes can navigate when normally loaded is called navigable inland waterway.
- As per the National Waterways Act, 2016, 111 have been declared as National Waterways (NW). These waterways pass through 24 states and two union territories, with an approximate total length of 20274 km. These proposed waterways will pass through nearly 138 river systems, creeks, estuaries and related canal systems of India.

#### **Body:**

##### **Potential of IWT in India:**

- **Cost savings:**
  - Fuel and Energy Efficient: It is fuel-efficient compared to the other modes of transport, rail and road. For example, the Integrated National Waterways Transportation Grid Study states that one litre of fuel will move 24 tons through one kilometre on road, 85 on rail and 105 km on inland water transport. Further, 1 HP can 150 kg on road, 500 kg on rail and 4000 kg on water.
  - Cost of developing waterways is much lower than rail & road.
  - Reduces transportation and transition losses



- **Environment Friendly:**
  - Least fuel consumption per tonne-km
  - Carbon dioxide emission is 50% of trucks
  - Negligible land requirement as compared to rail and road transport
- **Supplementary Mode:**
  - Reduces pressure on road and rail
  - Reduces congestion and accidents on road
- **Optimal Modal Mix:** It will provide optimal modal mix by converging river transport with other modes
- **Better connectivity:** It helps create seamless interconnectivity connecting hinterlands along navigable river coasts and coastal routes. Further, riverine routes are likely to play a crucial role in connecting the north-eastern states to the mainland
- Inland Waterways hold huge potential for domestic cargo transport, cruise, tourism and passenger traffic.
- Development of inland waterways will help in the generation of job opportunities

#### **Need for Private partnership in development of Waterways in India:**

- Achieving infrastructure investment of 5% of GDP requires considerably more private sector contribution.
- Private sector participation in infrastructure delivery helps deliver tangible benefits.
- The private sector has also delivered efficiently—both on project execution as well as
- Private participation enhances public accountability.
- Public private partnership (PPPs) brings back trust in public utilities that execute them, improve service delivery and bridge resource gaps.
- Reviving the stalling private sector investments is crucial to accelerate the infrastructure build-up that India needs, aspires for, and deserves.

#### **Challenges faced:**

- **Regulatory challenges**
  - There is lack of modal integration of and detailed mapping of waterways and industrial clusters and also lack of integration of hinterland coastal shipping with international maritime traffic.
  - Lack of level playing policy (waterways were not on the national horizon for planning and connectivity for long time) among different modes of transport.
  - Lack of uniformity in legal and administrative issues as inland waterways move through more than one state.
- **Political challenges**
  - Inter-linking of rivers is a major issue, which is yet to materialize.
- **Financial challenges**
  - Under investment by the government.
  - Private sector participation in MRO is dismal.
  - Construction of dams/barrage to increase depth of navigation faces challenges of economic viability.
- **Geographical challenges:**
  - Increased siltation: Reduced navigability due to siltation, as in the Bhagirathi-Hooghly and in the Buckingham Canal.
  - Reduced waterflow: Reduced flow due to diversion of water for irrigation, for instance, in the Ganga which makes it difficult even for steamers to ply.
  - Geographical constraints: There are problems in smooth navigation because of waterfalls and cataracts, as in Narmada and Tapi.
- **Technical challenges:**
  - Inadequate depth: Lack of inadequate depth of waterways for commercial movement of cargo is a major concern. Also quality of water flow is becoming poorer progressively.
  - Inadequate air draft: Multiple bridges with low vertical clearance obstruct the passage of bigger vessels. E.g.: It is faced in NW3.
  - Shortage of IWT vessels: Due to its capital incentive nature India lacks in vessel building
  - Lack of terminals: It inhibits door-door connectivity to end users.
  - Lack of navigation infrastructure: Rudimentary infrastructure coupled with non-availability of water round the year is an impediment for operation of waterways.
  - Shortage of MRO facilities: There is severe shortage of Maintenance, Repair, Overhaul facilities for inland water transport vessels.

**Measures needed:**

- **Private Partnership:**
  - The government should focus on developing navigation, channel operation and maintenance, and external connectivity infrastructure.
  - Private players can undertake terminal development, cargo and passenger handling, and building low-draft vessels and related repair facilities.
  - Capable creditworthy public institutions are an essential prerequisite to attract private investment.
  - Expediting creation of a PPP think-tank institution as recommended by the **Kelkar committee** could help.
  - Create supply-side enablers to deepen the infrastructure financing ecosystem
  - Stalled projects need to be dealt with steadfastly to nurse private developers and financial institutions to health. Building certainty and capacity to implement the Insolvency and Bankruptcy Code will be crucial.
  - Allied guarantee instruments to strengthen bond markets and expeditious deployment of capital under the National Investment and Infrastructure Fund are facilitations that can help.
  - Transparency and effective policies will be crucial. Project-wise analysis is required to determine as to who is better placed to take care of the three essential components of each project, i.e., Build, Operate and Finance.
- **Industrial Incentives:**
  - The Government can mandate/incentivise industries in the proximity of national waterways to use this mode for a portion of their shipments.
  - Public sector entities such as Food Corporation of India, power plants and refineries can be similarly mandated.
- **Sustainable transport model:**
  - For synergy, the government can promote industrial corridors along riverbanks and foster waterways-based industrialisation.
  - This will not only ensure captive IWT cargo, but also tackle erosion of riverbanks as industries will tend to protect the land allotted to them.
- **Promoting tourism:**
  - Along with passenger terminal development, the government needs to offer financial support to ferry operators to improve safety, and facilitate insurance coverage.
  - The Centre and States need to join hands to package and market river tourism in a big way to trigger a virtuous cycle.

**Conclusion:**

- Thoughtful policies and infrastructure development using the PPP model can give a boost to the cheapest transport mode.
- A holistic and concerted effort can change India's transportation landscape, de-congest arterial roads, and even improve quality of life across geographies.

**Q) National urban transport policy highlights on moving people instead of moving vehicles. Discuss critically the success of various policies of the government in this regard. (250 words)**

**Why this question:**

The question intends to evaluate the policies of the government with respect to urban transport and in what way such policies have been successful in achieving the mandate of moving people and not just vehicles.

**Key demand of the question:**

The answer must discuss the vision of the National Urban Transport Policy (NUTP) and in what way its ambitions are in the right direction. Discuss various government policies in this direction.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



### **Structure of the answer:**

#### **Introduction:**

Begin with brief introduction of the National Urban Transport Policy .

#### **Body:**

Discussion should include the following:

The policy is to be critically analyzed vis-a-vis its achievement, challenges and various plans of the government.

Provide for a detailed perspective of public transport, explain that the need of the hour is to emphasize more on the movement of public transport and its facilitation; whereas, the government makes attempt for smoothening the roads and facilitation of vehicles, not necessarily the public transports.

List down government policies and programmes in this direction with recent examples.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- The Government formulated a National Urban Transport Policy (NUTP) in April, 2006 which envisages safe, affordable, quick, comfortable, reliable and sustainable urban transport systems, establishment of quality focused multi-modal public transport systems that are well integrated, providing seamless travel across modes, land use transport integration, introducing intelligent transport systems for traffic management etc.

#### **Body:**

- The objective of this policy is to ensure safe, affordable, quick, comfortable, reliable and sustainable access for the growing number of city residents to jobs, education, recreation and such other needs within our cities.

The positive impact of the policy can be seen in more number of people using public transport.

- Encouraging integrated land use and transport planning in all cities so that travel distances are minimized and access to livelihoods, education, and other social needs, especially for the marginal segments of the urban population is improved, however the interest of every section and region of the society should be addressed.
- Bringing about a more equitable allocation of road space with people, rather than vehicles, as its main focus.
- Establishing effective regulatory and enforcement mechanisms that allow a level playing field for all operators of transport services and enhanced safety for the transport system users.
- Building capacity (institutional and manpower) to plan for sustainable urban transport and establishing knowledge management system that would service the needs of all urban transport professionals, such as planners, researchers, teachers, students,

#### **Challenges to the policies:**

- However, various strategies of the Government like BRT, JNNURM, etc have not solved many of the problems.
- **Unprecedented Transport Growth:** According to Niti Aayog, the number of registered motor vehicles has increased from 5.4 million in 1981, to 210 million in 2015. This rapid growth in demand in the absence of widespread public transport system has caused a rapid increase of private car ownership in India.
- **Inadequate Public Transport:** According to government data, there are about 19 lakh buses in the country and only 2.8 lakh of them are run either by state transport undertaking or under stage carriage permits.
- Further, a CSE study points out that the share of public transport is expected to decrease from 75.5% in 2000-01, to 44.7 per cent in 2030-31, while the share of personal transport will be more than 50%
- **Urban Pollution:** According to a WHO study 14 out of the top 15 most polluted cities in the world belong to India. Vehicular pollution has been one of the major contributors to rising urban air pollution in Indian cities along with other factors such as construction activity, road dust and industrial activity.
- **Urban Congestion:** Major Indian cities like Delhi, Mumbai, Kolkata and Bengaluru are ranked among world's most congested cities. For example: Average speed for vehicles in Bengaluru is reported as 17 km/h. These high levels of congestion have huge economic implications in the form of reduced productivity, fuel waste, and accidents. Further, there is an acute shortage of parking spaces both on and off the streets in the urban centres.
- **Road safety:** Traffic injuries and fatality: According to the Report 'Road Accidents in India-2016', road accidents in India have decreased by around 4.1% in 2016 from 2015. However, fatalities resulting from these accidents have risen by about 3.2%. The major reasons for traffic crashes include poor quality of roads, poor traffic management, unsafe and overcrowded vehicles and unsafe driving behaviour.
- **Equity Issues:** Unplanned urbanization in India has led to gentrification (as per upper and middle socio-economic class) of city centres and lower income groups are forced to live in peripheral suburbs which have increased their cost and time they allocate to commute. Most of the lower income groups and urban poor fail



to afford private transport and even public transport are high for them. For example, a CSE study ranks Delhi Metro as the second most unaffordable metro (after Hanoi in Vietnam) with lower income group people spending nearly 22% of their monthly transport on Delhi Metro fares.

- **Mobility for women:** Safety or the lack thereof, is the single biggest factor constraining women's mobility. According to Action Aid UK, 79% of women in major Indian cities reported being harassed on streets.

#### Way forward:

- To address the institutional challenges there is a need for better cooperation among different transport agencies, departments, and ministries as well as better coordination of transport and land-use policies. Further, there should be adequate funding to address various issues plaguing public transport infrastructure
- To address the issues of urban congestion and urban air pollution, it is important to augment mass and share transit capacity and discourage use of private cars by enforcing restraint measures through parking policy, low emissions zones approach, tax measures and congestion pricing.
- Further, policies toward enhancing public transport should promote inclusive access to mobility.
- Well engineered, safe infrastructure for travel should be ensured. Further, there is an urgent need to address the issue of low woman mobility by ensuring women safety through gender-sensitive transport policies, dedicated seats/ coaches and emergency helplines.
- There should be focus on enhancing non-motorised transport. Focus should be to encourage use of non-motorised transport for short distances. Further, Pedestrian zones, bike lanes should be made to ensure safety to commuters. For example, well designated Bike-lanes and bike-sharing solutions have promoted use of bicycles as a mean of transport in cities like Amsterdam and Paris.
- Commuters should be provided with multiple modes of connectivity. To ease out travelling, a single smart card can be provided. For example, London's Oyster "smart" card enables a commuter to change from one mode to another with minimal loss of time or effort.

#### Conclusion:

- There is a need for more equitable allocation of road space with people, rather than vehicles. Besides intelligent transport systems should be introduced and institutional mechanism for enhanced coordination between agencies and between agencies and people should be established.
- There is a need for 3C Framework (Clean, Convenient and Congestion free) for transforming mobility in India

### Q) What do you understand by a low carbon transport system ? Discuss the prospects India holds in transitioning to a low carbon transport system. (250 words)

#### The hindu

##### **Why this question:**

The question is based on the theme of low carbon transport system and significance of the same.

##### **Key demand of the question:**

The answer must discuss in detail the prospects of having a low carbon transport system and the positive effects of it on the economy, environment and other aspects of the country.

##### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### **Structure of the answer:**

##### **Introduction:**

Define what is low carbon transport system.

##### **Body:**

Explain the following dimensions in detail:

What is low carbon transport?

What can humans do to be sustainable in transportation?

Is public transport sustainable?

Why is sustainable transport important?

Explain how all of it rests on accessing public service, choosing rapid transit over car driving and supporting electric vehicle transition etc.

Discuss Indian scenario and what needs to be done.

##### **Conclusion:**

Conclude with way forward.





### Introduction:

- Low carbon transport system can be defined as mobility that results in substantially lower levels of carbon emissions and can be considered as the ultimate goal for transport policy, planning as well as research.
- The idea of low carbon transport system rests on accessing public service, choosing rapid transit over car driving and supporting electric vehicle transition.
- **Global Carbon Project** reports that India's carbon emissions are rising more than two times as fast as the global rise in 2018.

### Body:

#### Need for low-carbon transport system in India:

- **Urbanisation:** With the exponential growth of the population, need for transportation arises, where present transportation is mostly relying on fossil fuels, so the need for low-carbon transportation is imminent.
- **Economic growth:** Cities are referred to as the "engines of economic growth". Despite having only about 30% of the total population, nearly 62-63%, of India's Gross Domestic Product (GDP) comes from the urban areas. With increasing growth in future, there is a need for low-carbon growth.
- **Pollution:** As per a WHO study, fourteen out of the top fifteen most polluted cities in the world belong to India. Polluted air significantly reduces the quality of life and increases the risk of diseases such as lung cancer, stroke, heart disease, and chronic bronchitis.
- **Losses:** As per the World Bank, India's welfare losses due to air pollution are currently estimated at 7.7% of GDP (PPP adjusted). By going low carbon emission vehicles huge amount of expenditure will be saved on pollution related health problems.
- **Congestion:** As per a WEF study, the number of Million-plus urban agglomerations has increased from 35 (2001) to 53 (2011). By 2030, the number is expected to grow to 87. Major Indian cities are now consistently ranked amongst the world's most congested cities. These high levels of congestion have huge cost in the form of reduced productivity, fuel waste, and accidents.
- **Two-wheelers:** The two-wheeler sales in India have grown at a CAGR of ~8% during FY14-18 period with FY18 witnessing a 14.8% Year-on-Year growth. The faster growth in two-wheeler sales is mainly due to rising income levels, growing infrastructure in rural areas and rising trend of scooterization.
- **Discretionary spending:** As Indian economy continues to grow at fastest pace the disposable income in India is also witnessing rapid improvement, which in turn is leading to faster rise in discretionary spending. This led to increase in purchase of premium vehicles. Premium vehicles run on more fuel per kilometer, so there is need to improve the fuel efficiency in this segment.

#### Prospects for India:

- Reducing the CO2 emissions of road transport leverages multiple co-benefits, for example improving air quality and increasing physical activity, which are critical for well-being, particularly in urban areas.
- Prevent Premature Deaths.
- The economic cost associated with mortality from air pollution is large, amounting to several % of GDP for many countries which can be addressed through a low carbon transport system.
- It provides strong economic development.
- Decreased Local Environment Damages.
- Low-carbon transport can improve energy security for individuals, businesses and national economies.

#### Challenges involved towards transition to LCTS:

- The way cities are built and the design of public transit are critical for low-carbon mobility systems.
- Unprecedented Transport Growth, i.e. rapid growth in demand in the absence of widespread public transport system has caused a rapid increase of private car ownership in India.
- Gaps in government Laws and regulations.
- Poor Institutional Framework.
- Human Resource Challenges which is Lack of urban transport skills amongst city and state officials is a major challenge in effectively implementing transport project.

#### Measures needed:

- Mayors and Town planners should organise cities around public transport and cycling, thereby improving mobility for many, while limiting car use.
- Uptake of non-motorised transport which can be a sweet spot of sustainable development, resulting in both lower emissions and better public health.
- The expansion of public transport in the form of large capacity buses, light rail transit, and suburban rail or metro is a feasible option for transport sector.



- India should double down on its strategy to transition to **electric two and three-wheelers**.
- Use of communication and information technologies can help avoid or reduce the need to travel.
- City managers should ensure that existing urban areas provide short routes and fast access to schools, hospitals and jobs.
- **NITI Aayog Recommendations** which calls for a 3C Framework (Clean, Convenient and Congestion free) for transforming mobility in India.

#### Conclusion:

- India is one of the world's largest producers and consumers in two- and three-wheelers and Indian companies can take a leading role in switching to electric vehicles. This will also help in transforming India's vision of 'Make in India'.
- Providing access to public service, choosing rapid transit over a car driving in cities and supporting the rise of electric two and three-wheelers will help drive India to a modern and low-carbon transport system fit for the 21st century.

**Q) Discuss the critical role that development of the Blue Economy can play in nation building. Explain the prospects with possible challenges in implementation of the same. (250 words)**

[Indianexpress](https://www.indianexpress.com)

#### **Why this question:**

The article talks about the mention of blue economy in the recent budget that was passed by the parliament.

#### **Key demand of the question:**

The answer must bring out the significance, prospects and potential the blue economy holds for India.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

#### **Structure of the answer:**

##### **Introduction:**

Begin with brief intro on what you understand by blue economy.

##### **Body:**

Discussion should include the following:

The concept was introduced by Gunter Pauli in his 2010 book- "The Blue Economy: 10 years, 100 innovations, 100 million jobs".

It is the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

It advocates the greening of ocean development strategies for higher productivity and conservation of ocean's health.

List down the possible merits of blue economy.

What are the policies and programmes that are required to be undertaken to make the blue economy contribute to the GDP (take hints from the article.)

##### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- "Blue Economy" refers to strategic and sustainable use of Marine Resources for the development of Economy and the well-being of human.
- **Gunter Pauli's book, "The Blue Economy: 10 years, 100 innovations, 100 million jobs"** (2010) brought the Blue Economy concept into prominence. It offers "Green Approach" to meet the aspirations of mankind.
- India is endowed with a vast coastline of approximately 7500 Km and hence better placed to harness the "potential of oceans" – **with an Exclusive Economic Zone (EEZ) of 2.02 mn. sq.km**. It is an upcoming **sunrise sector**.

**Body:****Potential of Blue economy in India:**

- **Economy:**
  - Blue economy, through sustainable use of oceans, has great potential for boosting the economic growth by providing opportunities for income generation and jobs etc.
  - It can support food security, and diversification to address new resources for energy, new drugs valuable chemicals, protein food, deep sea minerals, security etc.
  - At least 3-5% of global GDP is derived from oceans
- **Socio-Economic Development:**
  - Blue economy presents India with an unprecedented opportunity to meet its national socio-economic objectives as well as strengthen connectivity with neighbours.
  - Blue Economy can help in focusing on livelihood generation, achieving energy security, building ecological resilience, and improving health and living standards of coastal communities.
  - Blue economy would reinforce and strengthen the efforts of the Indian government as it strives to achieve the SDGs of hunger and poverty eradication along with sustainable use of marine resources by 2030.
- **Environmental Benefits:**
  - Mangroves and other vegetated ocean habitats sequester 25 percent of the extra CO<sub>2</sub> from fossil fuels, i.e., Blue Carbon.
  - Protection of coastal communities from disasters like floods and storms.
  - A Sustainable Blue Economy can help to achieve commitments under UN's Sustainable Development Goals 2030, Paris climate agreement 2015 and the UN Ocean Conference 2017
- **Renewable Energy:**
  - Sustainable marine energy can play a vital role in social and economic development.
  - As energy sources on the surface are limited, in the near future the dependency on marine resources will increase, which will require more human resource to be deployed in the field of environment engineering and marine resource protection
- **Mineral Wealth:**
  - According to ISA there are vast reserves of Poly-metallic Nodules, sulphides, cobalt rich ferro-manganese crust( rich in cobalt, bismuth, iron, lead, platinum).
  - ISA has notified two major areas "Clarion-Clipperton fracture zone" and Central Indian Ocean Basin.
  - India has already signed a contract and entered in the league with Japan, USA, China
- **Fisheries:**
  - Sustainable fisheries can generate more revenue, more fish and help restore fish stocks.
- **Maritime Transport:**
  - Over 80% of international goods traded are transported by sea.
  - Marine services sector could serve as the backbone of its blue economy and help India become 10 trillion dollar economy by 2022.
  - Indian Ocean is a major conduit of trade with as much as 80% of global oil trade happening through it.
- **Tourism:**
  - Ocean and coastal tourism can bring jobs and economic growth.
- **Climate Change and Bio-diversity:**
  - Oceans are an important carbon sink (blue carbon) and help mitigate climate change.
  - Oceans protect biodiversity, keep the planet cool, and absorb about 30% of global CO<sub>2</sub> emissions.
  - Oceans cover three-quarters of the Earth's surface, contain 97% of the Earth's water, and represent 99% of the living area on the planet.
- **Waste Management:**
  - Better waste management on land can help oceans recover.

**Challenges associated:**

- **Threat of sea borne terror:**
  - Piracy and armed robbery, maritime terrorism, illicit trade in crude oil, arms, drug and human trafficking and smuggling of contraband etc.



- **Natural Disasters:**
  - Every year tsunamis, cyclones, hurricanes typhoons etc leave thousands of people stranded and property worth millions destroyed.
- **Man-Made disasters:**
  - Oil spills, climate change continue to risk the stability of the maritime domain.
- **Impact of climate change:**
  - Threats of both slow-onset events like sea-level rise and more intense and frequent weather events like cyclones.
  - Long-term climate change impacts on ocean systems like changes in sea temperature, acidity, and major oceanic currents.
- **Marine pollution:**
  - In form of excess nutrients from untreated sewerage, agricultural runoff, and marine debris such as plastics.
  - Deep sea mining can cause long term irreversible ecological damage to marine ecosystem.
- **Geopolitical issues:**
  - Geopolitical tussle between in various regions like South China Sea, Indian Ocean Region etc. and undermining International Laws like UNCLOS limits the countries from achieving the full potential of Blue Economy.
- **Overexploitation of marine resources:**
  - Illegal, unreported, and unregulated extraction of marine resources.
  - FAO estimates that approximately 57 percent of fish stocks are fully exploited and another 30 percent are over-exploited, depleted, or recovering.
- **Unsustainable development near marine areas:**
  - Physical alterations and destruction of marine and coastal habitats & landscapes largely due to coastal development, deforestation, & mining

#### Way Forward:

- India should look to adopt the sustainable approach of balancing economic benefits with sustainability for meeting the broader goals of growth, employment generation, equity and protection of environment.
- We need to come up with technology to explore the minerals deep down at seabed.
- India must focus on **marine ICTs, and transport (shipping) and communication services**, and the **creation of a knowledge hub** for marine research and development.
- An **effective response mechanism to address humanitarian crises and natural disasters** should be made for the evolving Indian Ocean security strategy.
- India should not look at its oceans as just water bodies, but as global stage for continued economic, social, and cultural dialogue.
- Ever increasing marine pollution must be abated and India's vow to curb plastic pollution must be pursued relentlessly.
- Tackling the Global warming and submergence of low lying islands as part of Paris Climate deal agreement and initiatives like FIPIC.

### Q) Designing a sustainable and inclusive transport systems in urban India is the need of the hour. Elucidate. (250 words)

[Livemint](#)

#### **Why this question:**

The article talks about Carpooling as an idea that needs regulatory intervention in India. Forcing us to think over the need to design a sustainable and inclusive transport systems in urban India.

#### **Key demand of the question:**

The answer must provide for detailed analysis of inclusive and sustainable urban transport system in India.

#### **Directive:**

**Elucidate** – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.



### Structure of the answer:

#### Introduction:

Discuss the context of the question briefly.

#### Body:

The answer must capture the following aspects –

First highlight the benefits of having such a system; Densification reduces mobility needs and enhances public transport. Large cities use public transport more, but lack non-motorized transport. The amount of transport increases with city size (by population). The household income is the single largest determinant of the amount of transport. Indian cities need investments in public and non-motorized transport infrastructures and disincentives of private modes.

Then discuss need for inclusive and sustainable urban transport, what needs to be done to achieve the same.

Suggest solutions ranging from carpooling, mass rapid transport system etc.

#### Conclusion:

Conclude with way forward.

#### Introduction:

- India is a country with the second largest road network in the world. Out of the total stretch of 5.4 million km of road network, almost 97,991 km is covered by national highways.
- Traffic congestion has increased dramatically in India. Congestion and the associated slow urban mobility can have a huge adverse impact on both the quality of life and the economy.

#### Body:

##### Problems faced by Urban Transport in India:

- **Unprecedented Transport Growth:** According to Niti Aayog, the number of registered motor vehicles has increased from 5.4 million in 1981, to 210 million in 2015. This rapid growth in demand in the absence of widespread public transport system has caused a rapid increase of private car ownership in India.
- **Inadequate Public Transport:** According to government data, there are about 19 lakh buses in the country and only 2.8 lakh of them are run either by state transport undertaking or under stage carriage permits.
- Further, a CSE study points out that the share of public transport is expected to decrease from 75.5% in 2000-01, to 44.7 per cent in 2030-31, while the share of personal transport will be more than 50%
- **Urban Pollution:** According to a WHO study 14 out of the top 15 most polluted cities in the world belong to India. Vehicular pollution has been one of the major contributors to rising urban air pollution in Indian cities along with other factors such as construction activity, road dust and industrial activity.
- **Urban Congestion:** Major Indian cities like Delhi, Mumbai, Kolkata and Bengaluru are ranked among world's most congested cities. For example: Average speed for vehicles in Bengaluru is reported as 17 km/h. These high levels of congestion have huge economic implications in the form of reduced productivity, fuel waste, and accidents. Further, there is an acute shortage of parking spaces both on and off the streets in the urban centres.
- **Road safety:** Traffic injuries and fatality: According to the Report 'Road Accidents in India-2016', road accidents in India have decreased by around 4.1% in 2016 from 2015. However, fatalities resulting from these accidents have risen by about 3.2%. The major reasons for traffic crashes include poor quality of roads, poor traffic management, unsafe and overcrowded vehicles and unsafe driving behaviour.
- **Equity Issues:** Unplanned urbanization in India has led to gentrification (as per upper and middle socio-economic class) of city centres and lower income groups are forced to live in peripheral suburbs which have increased their cost and time they allocate to commute. Most of the lower income groups and urban poor fail to afford private transport and even public transport are high for them. For example, a CSE study ranks Delhi Metro as the second most unaffordable metro (after Hanoi in Vietnam) with lower income group people spending nearly 22% of their monthly transport on Delhi Metro fares.
- **Mobility for women:** Safety or the lack thereof, is the single biggest factor constraining women's mobility. According to Action Aid UK, **79% of women in major Indian cities reported being harassed on streets.** Overcrowding in public transport adds to insecurity and safety issues with a large number of women complaining about harassment in public transport across major Indian cities like Delhi and Mumbai.

##### Measures needed:

- Any solution if expected to be successfully implemented will definitely require effort and planning on a huge scale. This is especially for when we are coming up with plans which can reach the entire country.





- **Corruption will have to be curbed**, and it will be extremely vital that the raw material is of the highest quality are used for the longevity and strength of the roads.
- **Road pricing system**: people should be charged based on the length of the road and the duration for which they use the road. This will be difficult to implement and will require huge technological investment to become possible.
- **Improvement in public transport** and additional schemes like BRT. The Bus Rapid Transport is implemented in some cities like Pune, and it can be very helpful if implemented correctly.
- People should **try and use carpooling and bike pooling** as much as possible. Use of bicycles for smaller distances also improves individual health along with reducing pollution and road congestion.
- **Strict and stringent measures against traffic violators**. A regulation in the traffic rules and fines levied for breaking them.
- **Metro** can play a huge role in improving the traffic issues to a great extent. If Nagpur metro becomes successful, it will pave the way for implementation in other cities as well which can be very beneficial.
- **Increase in the use of CNG and electric vehicles** and providing relief to those who use the same.
- **Well engineered, safe infrastructure** for travel should be ensured. Further, there is an urgent need to **address the issue of low woman mobility by ensuring women safety** through **gender-sensitive transport policies**, dedicated seats/ coaches and emergency helplines.
- There should be **focus on enhancing non-motorised transport**. Focus should be to encourage use of non-motorised transport for short distances. Further, Pedestrian zones, bike lanes should be made to ensure safety to commuters. For example, well designated Bike-lanes and bike-sharing solutions have promoted use of bicycles as a mean of transport in cities like Amsterdam and Paris.
- Commuters should be provided with **multiple modes of connectivity**. To ease out travelling, a single smart card can be provided. For example, London's Oyster "smart" card enables a commuter to change from one mode to another with minimal loss of time or effort.

#### Conclusion:

- It's time that city leaders and officers in India recognize the benefits of sustainable mobility and incorporate well-defined strategies and policies into their own public agendas.
- The future of their economies and their citizens depends on it.

*Topic: Science and Technology- developments and their applications and effects in everyday life*

**Q) What do you understand by 5G technology? What are its benefits? Explain the various challenges involved in adopting the same. (250 words)**

Reference

Economictimes

#### **Why this question:**

The question is in the backdrop of recent debates over the Huawei's role in the 5G network rollout in India continues. This comes at a time when the government has made its intentions clear to start with the 5G trials soon.

#### **Key demand of the question:**

Explain in detail the 5G technology, its benefits and applications and what are the challenges currently India is facing in implementing it.

#### **Directive:**

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

#### **Structure of the answer:**

##### **Introduction:**

Explain in brief what you understand by 5G technology.

##### **Body:**

Explain the following points –

5G – It is the next generation cellular technology that will provide faster and more reliable communication with ultra-low latency.

Its benefits – It will revolutionize the mobile experience; consumers will be able to download data heavy content such as 8K movies and games with better graphics in just a few seconds. But once 5G



becomes commercial, users will be required to change their current devices in favor of 5G-enabled ones.

However, it is likely that the primary use of the technology will go beyond delivery of services on personal mobiles devices.

Discuss the various fields of applications for such technology.

Discuss the various challenges being faced in incorporating the technology in India.

#### **Conclusion:**

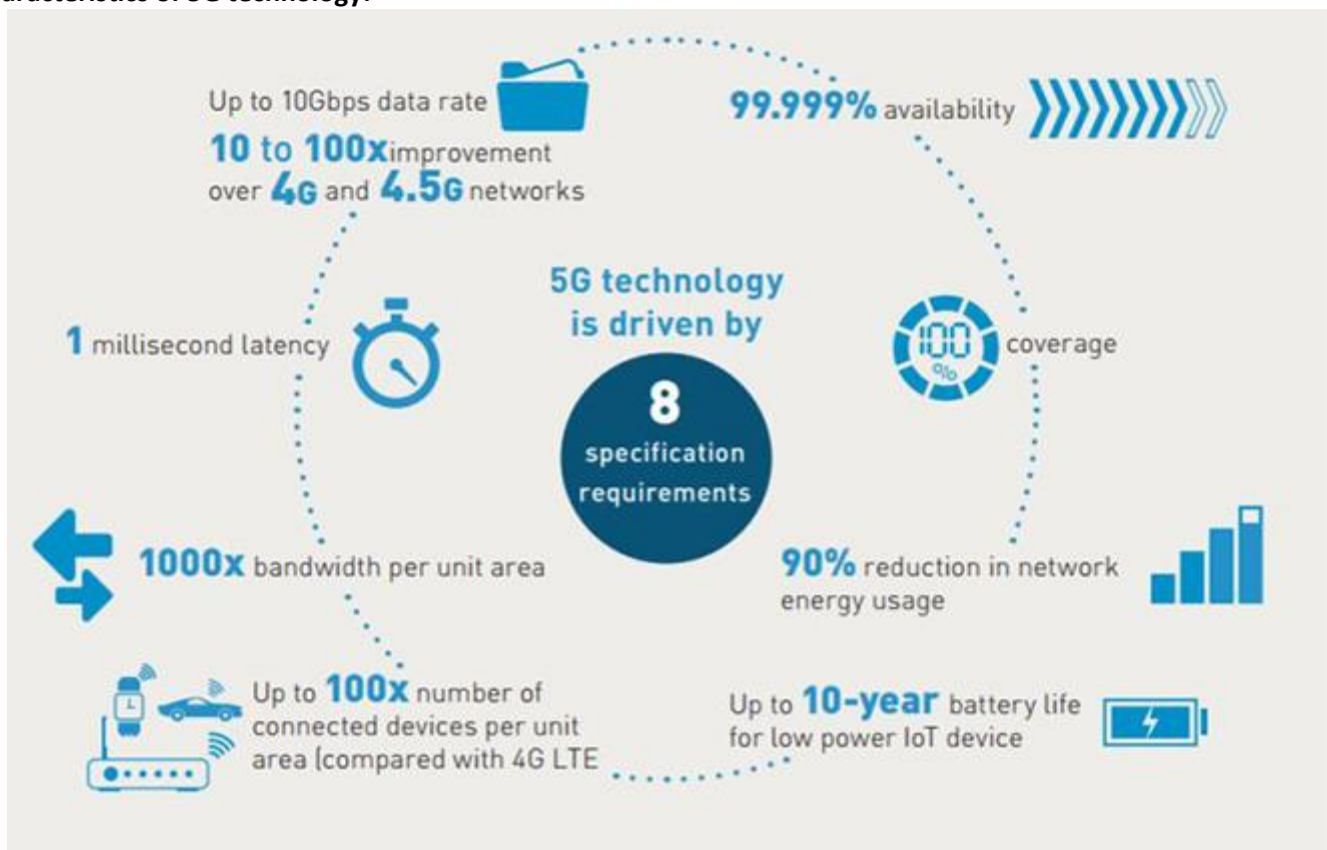
Conclude by reasserting the significance of such a technology.

#### **Introduction:**

- 5G is **the fifth generation mobile network**. It's a unified platform which is much more capable than previous mobile services with more capacity, lower latency, faster data delivery rate and better utilisation of spectrum. The standards for the usage of 5G are defined and driven by 3rd Generation Partnership Project (3GPP).

#### **Body:**

##### **Characteristics of 5G technology:**

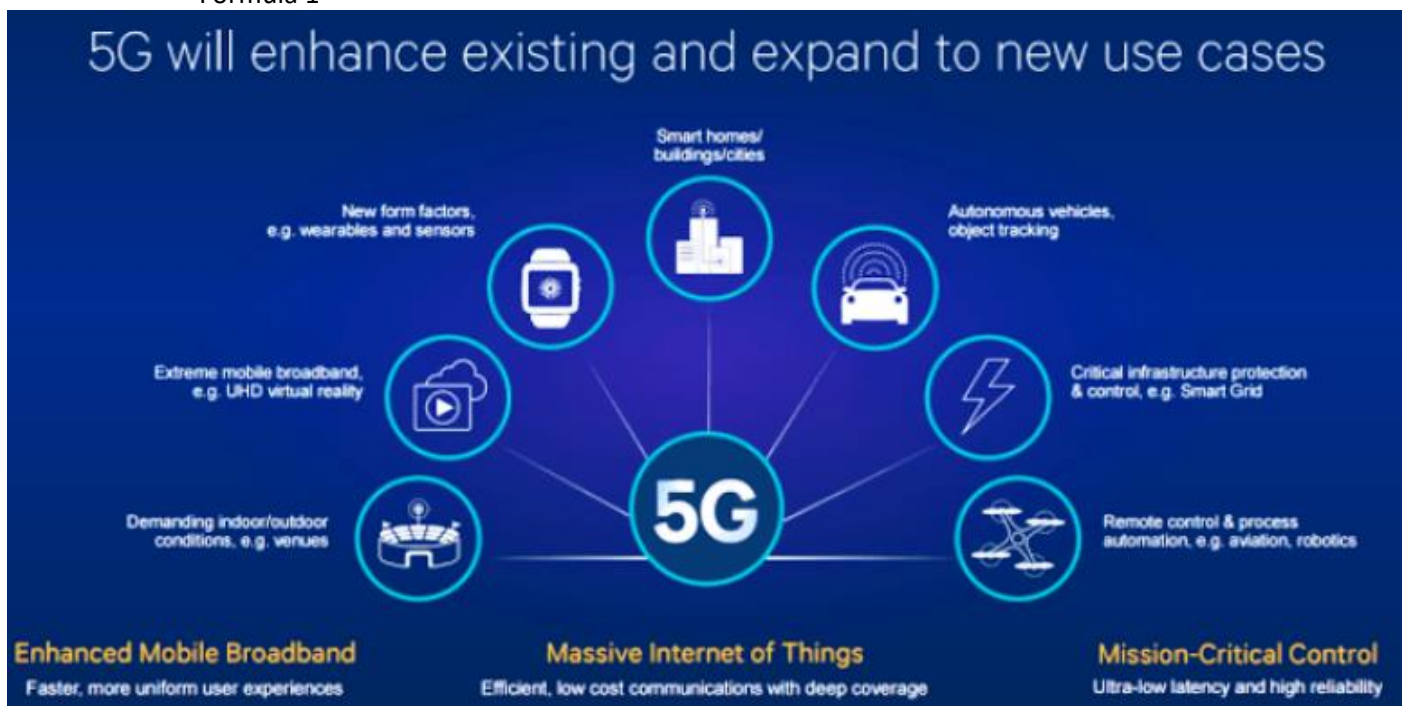


##### **The potential advantages it offers:**

- Industry 4.0:**
  - The manufacturing industry is going through a digital revolution.
  - Within the context of Industry 4.0, manufacturers are becoming more efficient through the application of automation and data exchange to their existing factory processes to enable better integrated workflows and smarter manufacturing.
  - Industrial IoT technologies are streamlining and simplifying many manufacturing processes in revolutionary ways.
- Mixed reality (MR) applications:**
  - The MR Apps comprise **augmented reality (AR) plus virtual reality (VR) apps**.
  - Beyond the consumer market (think Pokémon Go), interesting applications are also likely to be found in **industrial and medical contexts**.
  - Remote medical procedures, engineering, public safety and field-service applications are all strong use case opportunities for the application of low latency 5G services.
- Sports and entertainment:**
  - A combination of VR and AR with ultra high-fidelity enabled by 5G could transform the way fans interact in these events.



- Motorsports is ideal for VR in particular: equipped with their mobile device or headset, fans could be served information like lap or technical information about cars as they race on the track in a sport like Formula 1



- **Fixed wireless access:**
  - Fixed wireless access could also be used to bring high bandwidth digital services to under-served rural areas.
  - Mobile operators will then be able to compete with wireline, satellite and cable companies, offering new revenue streams and faster RoI.
- **Autonomous vehicles:**
  - The idea that much of the car, if not all of it, is controlled not by the driver but by technology.
  - 5G is critical to realize this as it will offer the connectivity and speed needed to deliver vast amounts of data to one another as well as other objects simultaneously.
  - 5G can provide a completely seamless mobile experience is a must so that cars can stay constantly connected.

**Challenges** present to adapt to 5G are:

- **Frequency allocation:** Indian operators have **far less spectrum** in comparison to international operators. The **high investment cost** which makes telecom companies unsure about Return on Investment.
- **Network investment:** In India, the telecom sector is **facing capital augmentation issues** which need to be resolved.
- **Non-availability of funds for investment:** Many of the Indian operators are also **weighed down by debt**.
- **Regulatory restrictions:** Faster rounds of new technology introduction when prior technology investments have not been recouped add further complexity.
- **Technical Challenges:** Designing IT architecture that can be deployed globally, while still allowing for localized technology to cater for different regions is a challenge.

**Way forward for India:**

- Need to align Digital India with 5G technology.
- Incentivize design and manufacture of 5G technologies, products and solutions in India.
- Allocate funds and incentivise local technology and telecom firms to develop their internal capacities which would in turn help 5G technology succeed in the country
- Promote 5G start-ups that enable this design and manufacturing capabilities.
- Promote generation of IPR backing the above designs.
- Manufacture of 5G chipsets, this may require massive investments.
- Appropriate test-beds and technology platforms to enable and help Indian technical ecosystem to have an edge in 5G.
- Accelerated deployment of next generation ubiquitous ultra-high broadband infrastructure with 100% coverage of 10 Gbps across urban India and 1 Gbps across Rural India.



- Coverage, reliability, and scalability must be optimized and seamless mobile networks will require a unified management policy to ensure consistent standards

#### Conclusion:

- The **World Economic Forum** predicts that by 2023 there will be a staggering 9.1 billion mobile subscriptions.
- 5G will act as the catalyst for Digital India—a watershed moment in digital transformation.
- India is at the cusp of a next generation of wireless technology 5G. It provides an opportunity for industry to reach out to global markets, and consumers to gain with the economies of scale. It can help in better service delivery, faster access to services and deeper penetration of digital services.

**Q) Discuss India's achievements in the field of Space and Technology. How far has the application of this technology helped India in its socio-economic development? Explain. (250 words)**

#### Reference

##### *Why this question:*

India successfully launched its second moon mission Chandrayaan-2 recently from its most powerful rocket with a plan to land the rover on the unexplored lunar south pole.

##### *Key demand of the question:*

The answer must discuss in detail India's achievements in the field of Space and Technology and in what way it has impacted the socio-economic development of the country.

##### *Directive:*

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

##### *Structure of the answer:*

##### *Introduction:*

write a few introductory lines about the recent achievements made by the Indian space agencies.

##### *Body:*

Discuss in detail how ISRO has achieved numerous milestones lately and has proved to harness space technology for national development. Relate how these achievements have direct link on the socio-economic development of the country.

##### *Conclusion:*

Conclude by reasserting significance of the same.

#### Introduction:

- India is one of the front runners in space technology. It has been hailed as one the most successful programmes. From India's first satellite Aryabhata (1975) to the development of indigenous cryogenic engine India has made significant advances with little help and no technology sharing from developed countries.
- With the multi dimensional applications space technology ensures, India is moving in the right direction.

#### Body:

Over the last few years, the Indian Space Research Organisation (ISRO) took giant leaps forward, one success after the other.

- **Chandrayaan 2:** India successfully launched its second lunar mission Chandrayaan-2 a week after it halted the scheduled blast-off due to a technical snag. India hopes the \$145m (£116m) mission will be the first to land on the Moon's South Pole.
- **INSAT:** The system is a network of satellites that facilitates **communication and broadcasting** across the south Asian region. It ushered in a revolution in India's television and radio broadcasting, telecommunications and meteorological sector.
- Created **Polarized Satellite Launch Vehicle (PSLV)** to make cost effective launch system. This has also increased international space collaboration by launching satellites of other nations at low costs.
- **Chandrayaan 1:** It has launched Chandrayaan 1 lunar probe mission in 2008.
- **Mangalyan:** ISRO has launched **Mars Orbiter Mission** in 2013 and created history by launching Mangalyan (mission spacecraft) into the Mars orbit in maiden attempt.
- **ASTROSAT:** It has launched first space observatory in 2015 to become fourth agency to do so after NASA, Roscosmos and ESA.





- **Scramjet:** Supersonic Combusting Ramjet has been launched by ISRO. This system works on Air-breathing Propulsion System which uses atmospheric oxygen to burn the fuel in the rocket.
- **RLV-TD:** ISRO demonstrated its **Reusable Launch vehicle** space shuttle RLV -TD to launch satellites around earth orbit and re-enter into the atmosphere.
- **104 satellites:** ISRO has created history by launching 104 satellites in one go.
- **Crew Escape module:** ISRO has test-launched Crew Escape Module paving the way for manned space mission Gaganyaan.

Besides, **NAVIC** (Indian Regional navigation satellites system) and **South Asia Satellite** are other missions which are a remarkable example of international coordination in the space arena. ISRO is preparing for its missions of **Aditya (Solar Mission)** and **Gaganyaan (Manned Space Mission)**.

#### Contributions to Socio-Economic Development:

- Acreage and production estimates for the principal crops such as wheat, rice, sorghum, cotton, mustard, and groundnut using Forecasting Agriculture Output using Space Agrometeorology and land based observations (FASAL). **Precision farming using IRNSS. Agro Metrological (AGROMET) Towers** to measure soil temperature, soil moisture, soil heat and net radiation, wind speed, wind direction, pressure and humidity.
- **Wasteland mapping, watershed development and monitoring as well as help in fisheries sector for augmentation of income.**
- **Survey of various mineral and natural resources** have been made possible through remote sensing.
- Management of these resources, their development conservation and formulation of various policies are affectively done with the use of information derived through remote sensing.
- It plays a vital role in **delivering cyclone warnings** and is used in search and rescue operations. Various meteorological services including information about monsoon, climate flood, cyclonic activities etc are provided through the technologies.
- It has developed **communication technology** in India.
- They have proved very useful in **spread of education**. Even in remote areas, the expertise educations have been made possible through the talk back channels of INSAT-3D satellite.
- They have helped in **environment conservation programmes** estimation of agricultural production and water resources information's.
- **Introducing telemedicine** via satellite for making speciality treatment accessible to people in remote areas of India. Places around Bangalore, Kolkata and Tripura are networked with a hub using VSAT terminals.
- The concept of "Gramsat" satellites have emerged to provide the basic requirements of villages.
- **Village Resource Centers** located at coastal tracts are being provided with near real time information on satellite derived Potential Fishing Zones (PFZ). Information pertaining to inland fisheries, aquaculture, etc., is also provided through VRCs as relevant.
- Another application of satellite communication is **Satellite Aided Search and Rescue (SAS&R)**, as a part of India's commitment to the International COSPAS- SARSAT programme for providing alerts and position location services for aircraft and ships in distress.
- Commercialization of space launching technologies by **ANTRIX** has resulted into economic gain.
- Apart from these various uses, the space programme has helped in social cultural and scientific consolidation and harmony.

#### Conclusion:

- Over the last four and half decades, the Indian space programme has made impressive progress through well integrated, self-reliant programs.
- Through its space technology programme, India is promoting a knowledge based society which has led to social, economic and political transformation.

*Topic: Awareness in the fields of IT, Space, Computers, robotics, nanotechnology, biotechnology and issues relating to intellectual property rights.*

**Q) The utility of the DNA Technology (Use and Application) Regulation Bill could be of enormous abet in many areas yet bereft of safeguards. Critically analyse. (250 words)**

#### Reference

*Why this question:*





The Lok Sabha has passed the DNA Technology (Use and Application) Regulation Bill, 2018 that allows regulated use of DNA technology to establish the identity of certain defined categories of persons, including offenders, suspects, and undertrials.

**Key demand of the question:**

The answer must explain the advantages and concerns associated with the bill.

**Directive:**

**Critically analyze** – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

**Structure of the answer:**

**Introduction:**

Begin with brief highlights of the bill.

**Body:**

Discussion should include the following:

Explain what was the need for such a legislation and what is its significance.

Bring out the key features of the bill and analyse both pros and cons.

Explain the benefits such as – By providing for the mandatory accreditation and regulation of DNA laboratories, the Bill seeks to ensure that with the proposed expanded use of this technology in the country. There is also the assurance that the DNA test results are reliable and the data remain protected from misuse or abuse in terms of the privacy rights of our citizens.

Then explain the associated concerns.

**Conclusion:**

Conclude with need for a balanced vision towards such aspects.

**Introduction:**

- With DNA technology being relied upon worldwide in crime investigations, identification of unclaimed bodies, or determining parentage, India has been attempting for several years to pass legislation on use of DNA technology to support and strengthen the justice delivery system.

**Body:**

**Key Highlights of Proposed Bill**

- **Purpose:**
  - It allows law enforcement agencies to collect DNA samples, create DNA profiles and special databanks for forensic-criminal investigations. It states that all DNA data, including DNA samples, DNA profiles and records, will be only used for identification of the person and not for any other purpose.
- **DNA profiling board:**
  - It creates DNA Profiling Board (DPB) that will be final authority that will authorise creation of State-level DNA databanks, approve the methods of collection and analysis of DNA-technologies. It makes accreditation and regulation mandatory for DNA laboratories.
- **DNA banks:**
  - It allows government to set up DNA data banks across India to store profiles. These banks will maintain national database for identification of victims, accused, suspects, undertrials, missing persons and unidentified human remains.
- **Penalty:**
  - It also empowers government to impose jail term of up to 3 years and fine of up to Rs. 1 lakh on those who leak information stored in such facilities. It prescribes similar punishment for those who seek information on DNA profiles illegally.
- **Use of DNA Data:**
  - Under the Bill, DNA testing is allowed only in respect of matters listed in the schedule to the Bill (such as, for offences under the Indian Penal Code, 1860, for paternity suits, or to identify abandoned children).
- **DNA Data Bank:**
  - The Bill provides for the establishment of a National DNA Data Bank and regional DNA Data Banks, for every state, or two or more states.
  - The National Data Bank will store DNA profiles received from DNA laboratories and receive DNA data from the regional Banks.



- Every Data Bank will be required to maintain indices for the following categories of data: (i) a crime scene index, (ii) a suspects' or undertrials' index, (iii) an offenders' index, (iv) a missing persons' index, and (v) an unknown deceased persons' index.
- **Protection of information:**
  - It also ensures that the data remain protected from misuse or abuse in terms of the privacy rights of citizens.
  - Under the Bill, the Board is required to ensure that all information relating to DNA profiles with the Data Banks, laboratories and other persons are kept confidential. DNA data may only be used for identification of the person.
  - However, the Bill allows for access to information in the Data Bank for the purpose of a one-time keyboard search. This search allows for information from a DNA sample to be compared with information in the index without information from the sample being included in the index.
- **Retention of DNA Data:**
  - The Bill states that the criteria for entry, retention or removal of the DNA profile will be specified by regulations.
  - However, the Bill provides for removal of the DNA Data of the following persons:- (i) of a suspect if a police report is filed or court order given, (ii) of an undertrial if a court order is given, (iii) on request, of persons who are not a suspect, offender or undertrial from the crime scene or missing persons' index.
  - Further, the Bill provides that information contained in the crime scene index will be retained.
- **DNA Laboratories:**
  - Any laboratory undertaking DNA testing is required to obtain accreditation from the Board. The Board may revoke the accreditation for reasons including, failure to: (i) undertake DNA testing, or (ii) comply with the conditions attached to the accreditation. If the accreditation is revoked, an appeal will lie before the central government or any other authority notified by the central government.
- **Obligations of DNA Laboratories:**
  - Under the Bill, every DNA laboratory is required to perform various functions, including: (i) following standards for quality assurance in collection, storing, testing, and analysis of DNA samples, and (ii) depositing DNA samples with the Data Bank.
  - After depositing the sample for ongoing cases, the Laboratory is required to return the biological sample to the investigating officer. In all other cases, the sample must be destroyed and intimated to the concerned persons

#### Challenges with the bill:

- The draft statute, not only disregards the serious ethical dilemmas that are attached to the creation of a national DNA database, but also, contrary to established wisdom, virtually treats DNA as infallible, and as a solution to the many problems that ail the criminal justice system.
- This Bill fatally ignores the disproportionality of the DNA bank that it seeks to create, and the invasiveness of its purport and reach.
- It also conflates its objectives by allowing the collection of DNA evidence not only in aid of criminal investigations but also to aid the determination of civil disputes.
- Importantly, while consent is not required before bodily substances are drawn from a person accused and arrested for an offence punishable with either death or imprisonment for a term exceeding seven years, in all other cases a person refusing to part with genetic material can be compelled to do so if a Magistrate has reasonable cause to believe that such evidence would help establish a person's guilt. Therefore, there's no end to the state's power in coercing a person to part with her DNA.
- In Justice K.S. Puttaswamy (Retd) v. Union of India declared that the Constitution recognizes a fundamental Right to Privacy. But, it is unclear whether the proposed bill is compatible with the Right to Privacy or not.
- The Bill's failure to place sufficient checks on the use of DNA evidence collected in breach of the law makes the process altogether more frightening.
- The Schedule lists civil matters where DNA profiling can be used. This includes "issues relating to the establishment of individual identity." DNA testing carried out in medical or research laboratories can be used to identify an individual. It is unclear if the Bill intends to regulate such laboratories.
- The Bill requires the consent of the individual when DNA profiling is used in criminal investigations and identifying missing persons. However, consent requirements have not been specified in the case of DNA profiling for civil matters.



- DNA laboratories are required to share DNA data with the Data Banks. It is unclear whether DNA profiles for civil matters will also be stored in the Data Banks. Storage of these profiles in the Data Banks may violate the right to privacy.
- DNA laboratories prepare DNA profiles and then share them with DNA Data Banks. The Bill specifies the process by which DNA profiles may be removed from the Data Banks. However, the Bill does not require DNA laboratories to remove DNA profiles. It may be argued that such provisions be included in the Bill and not left to regulations.

#### Way Forward:

- DNA profiling should be undertaken exclusively for the identification of a person and should not be used to extract any other information.
- The state must show that there exists a legitimate reason for extracting DNA evidence and that the extent and scope of such extraction do not disproportionately contravene a person's right to privacy.
- To enact the law in its present form would only add a new, menacing weapon to the state's rapidly expanding surveillance mechanism. The government should not allow the benefits of science and technology to be privileged over the grave risks in allowing the unrestricted access to deeply personal material.
- Maintenance of strict confidentiality with regard to the keeping of records of DNA profiles and their use should be considered a priority.

**Q) Do you agree instituting a framework which would enable full utilization of new ideas and innovation towards achieving self-reliance in defence sector is the need of the hour? Discuss the key features of Mission Raksha Gyan Shakti (MRGS) aimed in this direction. (250 words)**

#### Reference

##### *Why this question:*

In a major boost to Mission Raksha Gyan Shakti, a MOU was signed between the Intellectual Property Facilitation Cell (IPFC), Department of Defense Production, Ministry of Defense and National Research Development Corporation (NRDC), Ministry of Science and Technology.

##### *Key demand of the question:*

The question intends to analyse the importance of instituting a framework which enables full utilization of new ideas and innovation towards achieving self-reliance in defense sector.

##### *Directive:*

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### *Structure of the answer:*

##### *Introduction:*

In brief discuss the significance of intellectual property rights and their importance for Defense sector.

##### *Body:*

Discussion should have the following aspects:

Key features of Mission Raksha Gyan Shakti- it was launched with the aim to inculcate IP culture in Indian defense manufacturing ecosystem.

Explain the significance of IPR in defense domain and in what way it helps in achieving self-reliance.

##### *Conclusion:*

Conclude with way forward.

#### Introduction:

- The Department of Defence Production had instituted a framework titled 'Mission Raksha Gyan Shakti' which aims to provide a boost to the Intellectual Property Rights culture in indigenous defence industry.
- In a major boost to Mission Raksha Gyan Shakti, a MOU was signed between the Intellectual Property Facilitation Cell (IPFC), Department of Defence Production, Ministry of Defence and National Research Development Corporation (NRDC), Ministry of Science and Technology.

#### Body:

##### **Key features of MRGS:**

- As part of the ongoing initiatives to enhance self-reliance in defence, the Mission Raksha Gyan Shakti aims to provide a boost to the IPR culture in indigenous defence industry.



- It aims to achieve the goal of self-reliance in defence sector to generate Intellectual Property in India and marks a departure from the culture of seeking Transfer of Technology (ToT) from foreign sources.
- Design or IP accounts for over 50% of the cost. In some cases it is 70-80%. Indigenisation can result in cost savings of about 50-70%.
- To achieve ambitious targets of training 10,000 personnel of Ordnance Factories (OFs) and Defence Public Sector Undertakings (DPSUs) on IPR.
- To facilitate filing of at least 1,000 new IPR applications.
- The Directorate General of Quality Assurance (DGQA) has been entrusted with the responsibility of coordinating and implementing the programme.

#### **Need for framework to achieve self-reliance:**

- The IPR has emerged as a key ingredient of an ecosystem which stimulates innovation and ingenuity.
- Our knowledge and creativity have often not been utilized to its full potential due to lack of awareness on modern legal framework for protection of IP rights so it is need of the time to aware about IPR (Intellectual Property Rights).
- India has accumulated several technologies gained through Transfer of technology (ToT) agreements but for any design adjustments in the platforms, the original manufacturer has to be consulted.
- Further, it helps in safeguarding the national security secrets.
- India is the second largest arms importer in the world. It helps reduce the national spending on imports of arms and defence technology.
- It would also help earn some forex by selling the indigenously designed and developed defence equipments.
- India's aim to generate 2-3 million additional jobs in manufacturing industry and a boost to MSMEs can be achieved.

#### **Measures needed:**

- To boost indigenization, DRDO needs to be given more autonomy like space and atomic energy departments
- With opening up of 100% FDI in defence sector, giving private players an opportunity would bring in the money as well as competition to the Defence PSUs.
- Setting up of the planned defence industrial corridors.
- Robust Defence Diplomacy, for which a cadre of defence diplomats should be created so that new co-ordination with world can bring new idea and innovations.
- Setting up of a Defence Export Organization to promote export of defence equipments.
- Instituting an Independent Audit addressing issues of inefficiency and accountability, this shall help in keeping the flow of ideas and innovation.
- Setting up an aerospace university, can help in bringing new ideas and innovations

#### **Conclusion:**

- With recent trends such as globalization, emergence of new technologies, and emerging economies have elevated the importance of IPR protection, both politically and commercially, and has become a global commerce issue.
- IPRs are critical to incentivizing innovation, which, in turn, is key to sustaining economic growth and increasing living standards. IPRs in defence sector will give a natural advantage to a nation. MRGS is a step in the right direction.

**Q) Chandrayaan 2 is yet another audacious attempt being made by ISRO in the field of space research. Examine the distinctiveness and significance of such a mission. (250 words)**

Livemint

#### **Why this question:**

The question is to evaluate the distinctness and significance of Chandrayaan 2 mission.

#### **Key demand of the question:**

The answer must discuss in detail the objectives of the mission and what factors make it significant for India.

#### **Directive:**

**Examine** – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.



### Structure of the answer:

#### Introduction:

Start with the fact that Chandrayaan-2 is all set for 3.84 lakh km voyage.

#### Body:

Chandrayaan-2, which is the first Indian moon landing mission, is all set to head on its 3.84 lakh km voyage to the moon in the early hours of Monday, July 15, 2019.

The Indian Space Research Organization (ISRO) has scheduled the launch of its lunar probe, by a GSLV MkIII rocket, from the country's Sriharikota spaceport for 2.51 a.m.

A sequel to Chandrayaan-1, which was launched in 2008 and only orbited the moon at a distance of 100 km, Chandrayaan-2 entails the first attempt by any nation to make a landing on the moon's mineral rich south pole.

Explain that If ISRO achieves the feat in its first attempt, it will make India only the fourth country to soft-land on the lunar surface.

#### Conclusion:

Conclude by reasserting its significance.

#### Introduction:

- Chandrayaan-2 is India's second lunar exploration mission after Chandrayaan-1, developed by the **Indian Space Research Organisation**. It involves the three modules: the Orbiter, Lander (Vikram) and Rover (Pragyan) to conduct various scientific experiments on lunar surface.

#### Body:

##### Objectives of the mission:

- Push the **boundaries of scientific knowledge to unravel the mysteries of this universe**.
- Unleash innovation by throwing challenges at the youth of the country, and **spurring future research and development**.
- Explore economic possibilities by **strengthening ISRO's alliance** with the industry.
- Engaging with the general public by motivating the youth to undertake real life applications of science and technology.
- Expanding **India's footprint in space** as Moon is the perfect test-bed for proving technologies required for future space explorations.
- Making India a **key contributor of exploring and uncovering secrets of the universe**, thus **fostering shared aspirations** of the international community.

##### Distinctiveness of Chandrayaan 2:

- Technologically, it will be the most challenging mission that the Indian Space Research Organisation (ISRO) has undertaken because ISRO will not only be sending a spacecraft to the moon but attempting to soft-land a contraption called the lander on the lunar surface.
- If successful, India will be the fourth country (After Russia, China, and the USA) to land a rover on the moon.
- India will be the first country to land on the southern pole of the moon.
- This would give ISRO opportunity to name that site on the moon.
- Mission will also expand the country's footprint in space as moon is the perfect test-bed for proving technologies required for future space exploration.

##### Significance of the mission:

- It is India's second mission to the moon.
- It aims to explore the **Moon's south polar region**.
- It will be launched onboard India's most powerful launcher – **GSLV MK-III**.
- The mission is an important step in India's plans for planetary exploration, a program known as **Planetary Science and Exploration (PLANEX)**.
- There are three components of the mission, an orbiter, a lander and a rover.
- The mission payloads include — Terrain Mapping Camera which will generate a Digital Elevation Model (DEM) of the entire moon, Chandrayaan 2 Large Area Soft X-ray Spectrometer which will test the elemental composition of the Moon's surface Solar X-Ray Monitor which will provide solar X-ray spectrum inputs for CLASS.
- The orbiter will be deployed at an altitude of 100 kilometers above the surface of the Moon. The lander will then separate from the orbiter, and execute a soft landing on the surface of the Moon, unlike the previous mission which crash landed near the lunar south pole.





- The lander, rover and orbiter will perform mineralogical and elemental studies of the lunar surface. The rover is named **Pragyan**.
- The mission's lander is named **Vikram** after Dr Vikram A Sarabhai, the Father of the Indian Space Programme.
- 13 instruments from India, one instrument from US space agency, NASA.
- ISRO highlighted that the mission was supported by more than 500 academic institutions and 120 industries that contributed 60% of the Rs.603 crore cost of Chandrayaan-2 and 80% of the Rs.375 crore cost of the Geosynchronous Launch Vehicle-Mark III.
- The mission will also provide a map of the moon's topology, which could add many new findings to existing data due to its unique choice of the landing site.

#### Challenges involved in the moon landing:

- identifying trajectory accurately;
- taking up deep space communication;
- trans-lunar injection;
- orbiting around the moon;
- taking up soft landing on the moon surface;
- facing extreme temperatures and vacuum.

#### Conclusion:

- Based on the **new landing-profile**, the mission has further changes and new problems, with mission engineers working overtime to ensure timely launch.
- With the scientific mission riding on Chandrayaan-2, a successful landing near the south pole in itself would be an extraordinary feat for ISRO as well as global space exploration agencies.

**Q) India's own manned space mission, Gaganyaan, is scheduled to be launched by 2022. In this light, discuss the achievements of previous global space missions. What are the possible spin-offs for India through Gaganyaan. (250 words)**

[Indianexpress](https://www.indianexpress.com)

[Indianexpress](https://www.indianexpress.com)

#### Introduction:

- July 20, 2019 marked the fiftieth anniversary of man's first landing on the Moon, "a giant leap for mankind", as Neil Armstrong described it. Armstrong and Buzz Aldrin were taken to the Moon by the Apollo-11 mission in 1969. They were the first of the six two-astronaut teams that landed on the Moon over the next three years.
- The moon mission holds significance for India as she prepares for her **first manned space mission – Mission Gaganyaan**. It is being launched by Indian Space Research Organisation (ISRO) by 2022. The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission. So far, only the USA, Russia and China have launched human spaceflight missions.

#### Body:

##### Achievements of previous global space missions:

date accomplished	event	details	country or agency
Oct. 4, 1957	first artificial Earth satellite	Sputnik 1	U.S.S.R.
Nov. 3, 1957	first animal launched into space	dog Laika aboard Sputnik 2	U.S.S.R.
Sept. 14, 1959	first spacecraft to hard-land on another celestial object (the Moon)	Luna 2	U.S.S.R.
April 1, 1960	first applications satellite launched	TIROS 1 (weather observation)	U.S.
April 12, 1961	first human to orbit Earth	Yury Gagarin on Vostok 1	U.S.S.R.
June 16, 1963	first woman in space	Valentina Tereshkova on Vostok 6	U.S.S.R.
March 18, 1965	first space walk	Aleksey Leonov on Voskhod 2	U.S.S.R.



date accomplished	event	details	country or agency
July 20, 1969	first human to walk on the Moon	Neil Armstrong on Apollo 11	U.S.
April 19, 1971	first space station launched	Salyut 1	U.S.S.R.
Dec 3, 1973	first spacecraft to fly by Jupiter	Pioneer 10	U.S.
April 25, 1990	first large optical space telescope launched	Hubble Space Telescope	U.S., European Space Agency
June 21, 2004	first privately funded manned spacecraft to achieve suborbital flight above 100 km (62 miles)	Mike Melvill on SpaceShipOne	Mojave Aerospace Ventures (commercial joint venture)
July 1, 2004	first spacecraft to orbit Saturn	Cassini-Huygens	U.S., European Space Agency, Italy
Jan. 14, 2005	first spacecraft to land on the moon of a planet other than Earth (Saturn's moon Titan)	Huygens probe of the Cassini-Huygens spacecraft	U.S., European Space Agency, Italy
June 13, 2010	first spacecraft to return to Earth with samples from an asteroid	Hayabusa	Japan
March 17, 2011	first spacecraft to orbit Mercury	Messenger	U.S.

#### Spin-off benefits of ISRO's space programs:

- **Distress Alert Transmitter (DAT)**
  - INSAT based Distress Alert Transmitter (DAT) is used to transmit emergency conditions and for rescue operation. It can be easily installed in boats or other vehicles. Intended for emergency message communication transmission for all type of sea going vessels especially useful for fisherman.
- **Artificial Polyurethane Foot**
  - Polyurethane (PU) technology was developed for insulation, damping, acoustic protection and other lightweight structural applications in launch vehicles. The development of PU foams for rocket motor applications has resulted in an important spin off in the form of artificial foot prosthesis. Amputees especially among the poor and needy in the country will benefit from free prostheses replacement.
- **Fire Extinguishing Powders**
  - One of the widely used ISRO products is the fire extinguishing powder – 'OLFEX' for flammable liquid, gas fires and Ternary Eutectic Chloride (TEC) powder for metal fires. OLFEX is a reaction product of urea and potassium bicarbonate and is used for extinguishing oil fires.
- **Automatic Weather Station**
  - The state of the art Automatic Weather Station (AWS) developed by ISRO is designed as a very compact, modular, rugged, powerful, low cost system and housed in a portable, self contained package. The AWS can immediately provide information on weather and an anomaly from normal/expected weather.
- **Silica Cloth (ISROSIL)**
  - ISRO developed High Silica Cloth – ISROSIL is being used by industries for insulation and thermal protection for non metallic bellows, wrapping for pipes, cables and hoses, vertical strip furnace curtains, seals and gaskets etc.
- **DTH Based Disaster Warning system (DWS)**
  - ISRO developed a DTH based Disaster Warning Dissemination System which will find wide applications for disaster warning dissemination during flood, earthquake, tsunami, cyclone, landslides, civil disturbances etc. Function(s) of each warning receiver deployed at different places can be controlled from transmit end. The system can disseminate data Direct to Home (DTH) or to community centres and public places.



- **Pedclean**

- ISRO developed a hand cleansing formulation, PEDCLEAN-A. This cleansing system was very useful for industrial and laboratory personnel working with polymers, adhesives, oils and greases and other materials which are sticky in nature. PEDCLEAN was evaluated and certified by Industrial Toxicological Research Institute, Lucknow who certified it safe for human use as a skin barrier cream.

**Conclusion:**

- Space research always has been fascinating and India has not lagged behind. Future challenges related to space exploration, space travel, tourism application programmes based on space assets spin off technology benefits etc are going to provide lot of opportunity to the new generation.

**Q) Do you agree that the country must deregulate the space sector to encourage private enterprise so as to compete in the new space economy ? Analyse. (250 words)**

[Livemint](#)

**Why this question:**

The article throws light upon space as an emerging economy and the rising strides of competition.

**Key demand of the question:**

The answer must focus on importance of deregulating the space sector and allowing the private sector to play key role in contributing to the space economy.

**Directive:**

**Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

**Structure of the answer:**

**Introduction:**

Discuss the background of the question.

**Body:**

Explain how private sector carries with it huge potential to propel the space economy, How has the role of the private sector evolved over the years? Quote the example of SpaceX and with these changing trends how have the regulatory framework shaping up etc.

Take cues from the article and form a structured answer.

**Conclusion:**

Conclude by reasserting importance of the space economy and role of deregulation of the sector.

**Introduction:**

- India has been achieving great feats in the space arena ranging from Mangalyaan to launching 104 satellites at one go to the recent Chandrayaan 2 mission.
- However, it is ironic that India—whose space-faring tradition is decidedly in the service of human development—is lagging in harnessing the power of private innovation in the space domain. This not only limits the exploitation of space for economic development, but has serious national security implications.

**Body:**

**India's space program**

**Potential advantages of rising Space industry:**

- Adding an edge to India's foreign policy as our space capabilities can be a part of our initiatives to foster new relationships,
- Avoiding the outflow of tax-payer's money to foreign hands from where we procure turnkey products and services,
- Creating more opportunities for foreign direct investments (FDI), as well as new jobs for highly-skilled labour market,
- Empowering India's defence system by equipping it with space technology, and allowing armed forces to procure defence products and services indigenously, and
- Reversing the brain-drain from India.

**Challenges for private space entities in India:**

- **Monopoly:** In India 'Space' means Indian Space Research Organisation. Globally the technology is highly protected because of its dual use capability. Even if it was not, it would be prohibitively expensive.
- **Funding:** A major challenge in setting up a space business in India is funding. Space industry is capital intensive and upstream activities come with a long gestation period.



- **Investor's Dilemma:** The lack of clarity among the investors and lack of the ecosystem required for significant contribution is a challenge for the investors.
- **Lack of Regulation:** India is a party to the **Outer Space Treaty**, where one of the fundamental requirements laid upon states is the supervision of space activities within its borders, the country did not have any formally legislated laws. This is a potential roadblock for commercialization.
- **Growth Challenges:** Scaling up, international marketing and funding are challenges.
- **Lack of Support:** the Indian ecosystem has neither incubation support nor pointers to seek support of leaders such as ISRO for space start-ups.
- **Political and bureaucratic hurdles** limit private space operations in India.
- Low in-house capacity of ISRO restricts them to very few launches in a year. Privatization can offload 30-40% of the work and help them work more efficiently.

#### Way forward:

- India should have **national space activities legislation** which takes on board all stakeholders.
- A **public-private partnership (PPP) model** can be looked into to realise ISRO's workhorse Polar Satellite Launch Vehicle (PSLV), with a joint venture between ISRO and the private sector.
- In the UK, space ventures are treated as a complement to big organizations and not a competitor. This should be encouraged in India too.
- A **supportive international partner and likeminded local partners** helps to set up a space business.
- The idea should be to let the private industry build their own facilities after gaining enough expertise.
- ISRO has built a space technology park spread over 25 acres in Bengaluru where the entire range of facilities have been set up for use by the industry.

#### Conclusion:

- The private sector already supplies majority of the sub-systems in satellite manufacturing. This can be further scaled up into other activities with proper regulation and partnership of the ISRO and private sector.
- The country must deregulate the space sector to encourage private enterprise if we are to compete in the new space economy

**Q) Enumerate the different missions launched for exploration of Moon by various space organisations. What are the challenges associated with long plight missions ? How ISRO's Chandrayaan-2 is different from other similar missions launched by different countries ? (250 words)**

#### The hindu

#### Introduction:

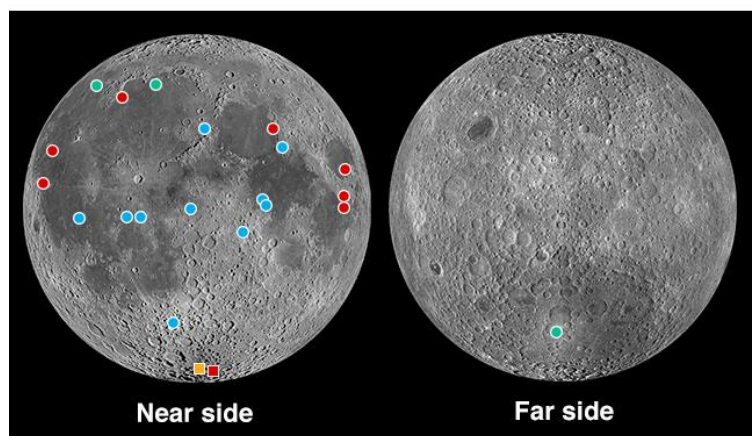
- India successfully launched its second lunar mission Chandrayaan-2 a week after it halted the scheduled blast-off due to a technical snag.
- India hopes the \$145m (£116m) mission will be the first to land on the Moon's south pole. If successful, India will become the fourth country to make a soft landing on the Moon's surface. Only the former Soviet Union, the US and China have been able to do so.

#### Body:

##### Various global missions for exploration of moon:

- **Luna Programme:** It was a series of unmanned space mission of the Soviet Union sent to the Moon between 1959 and 1976. It was designed as either an orbiter or lander and accomplished many firsts in space exploration.
- **Project Apollo:** It was a series of human spaceflight missions undertaken by the United States of America using the Apollo spacecraft and Saturn launched vehicle conducted between 1961-1972. It was the third US human spaceflight program to fly, preceded by the two-man Project Gemini conceived in 1961 to extend spaceflight

#### Sites of successful Moon landings



Source: NASA

BBC



capability in support of Apollo. The crew of first space expedition of this mission was Neil Armstrong, Michael Collins and Buzz Aldrin. Armstrong and Aldrin walked on the lunar surface while Collins remained in orbit around the moon. Neil Armstrong was the first person to walk on the moon.

- **Chandrayaan 1:** It was India's first lunar probe launched by the Indian Space Research Organisation in October 2008, and operated until August 2009. The prime objective was to conduct scientific experiments using instruments on the spacecraft which would yield data.
- Landing on moon's far side: In January 2019, China's **Chang'e 4** became the first spacecraft to land on the far side of the moon
- Google also entered the fray with a competition – **Lunar XPRIZE** – to facilitate affordable access to the moon and help space entrepreneurs to develop long-term business models on lunar transportation.

#### Challenges associated with long flight missions:

- identifying trajectory accurately;
- taking up deep space communication;
- trans-lunar injection;
- orbiting around the moon;
- taking up soft landing on the moon surface;
- Facing extreme temperatures and vacuum.

#### Distinctiveness of Chandrayaan 2:

- Technologically, it will be the most challenging mission that the Indian Space Research Organisation (ISRO) has undertaken because ISRO will not only be sending a spacecraft to the moon but attempting to soft-land a contraption called the lander on the lunar surface.
- If successful, India will be the fourth country (After Russia, China, and the USA) to land a rover on the moon.
- India will be the first country to land on the southern pole of the moon.
- This would give ISRO opportunity to name that site on the moon.
- Mission will also expand the country's footprint in space as moon is the perfect test-bed for proving technologies required for future space exploration.

#### Conclusion:

- Based on the **new landing-profile**, the Chandrayaan-2 mission has further changes and new problems, with mission engineers working overtime to ensure timely launch.
- With the scientific mission riding on Chandrayaan-2, a successful landing near the south pole in itself would be an extraordinary feat for ISRO as well as global space exploration agencies.

*Topic: Conservation, environmental pollution and degradation, environmental impact assessment,*

**Q) "Assertion of environmental citizenship by the people of India is the need of the hour". Analyse the statement with suitable examples. (250 words)**

[Indianexpress](https://www.indianexpress.com)

#### **Why this question:**

The article discusses in detail the Hindu Vedic principle of Rta dharma – Sanskrit for "truth" or "order". It highlights the religious thoughts of other indigenous communities in India and provides guidelines to counter the irresponsible decisions made in the name of development by governments and private stakeholders benefiting from environmental clearances.

#### **Key demand of the question:**

One has to analyse in depth the need of some kind of environmental citizenship by the people to conserve and save our environment for longer and sustainable future.

#### **Directive:**

**Analyze** – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

#### **Structure of the answer:**

##### **Introduction:**

Begin with importance of environmental citizenship – what is it and why is it necessary.

##### **Body:**

Explain the following aspects in the answer:

Explain why assertion of environmental citizenship by the people of India is the need of the hour?





What are the means and ways people can assert their environmental citizenship? – here one can quote example, as suggested in the article one can talk about the religious beliefs of various communities, tribal communities etc.

Discuss how role of citizens is as important as role played by government, other organizations and NGOs etc.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- Environmental Citizenship is an idea that each of us is an integral part of a larger ecosystem and that our future depends on each one of us embracing the challenge and acting responsibly and positively toward our environment. It's about making changes in our daily lives to be environmental citizens all day, every day.
- Religious notions of indigenous communities in India provide an understanding of the natural order, and resources to resist its degradation.

**Body:**

**Need for environmental citizenship to be practiced:**

- Cutting of trees, escalating construction without consideration to secure water catchment areas or aquifers.
- The approaching national water emergency is not because of lack of rains or water bodies, but mismanagement of resources on the ground.
- The disturbance in water, earth, vegetation, river and mountain ecology system has threatened all manner of life.
- Increasing number of irresponsible decisions made in the name of development by governments and private stakeholders benefiting from environmental clearances.
- The traditional wisdom in the semantics of development is marginalised — building roads, setting up industries, creating infrastructure spell short-term gains for the few and apocalypse for humanity as a whole.
- Social groups, traditionally, create livelihoods by harnessing available natural resources. Not factoring cultural wisdom to conserve natural environment impacts geographies and, in turn, reconfigures cultural responses.

**Methods of practicing Environmental Citizenship:**

- **A Green Lifestyle:**
  - Different parts of our website show how important it is to adopt a lifestyle that helps the environment.
  - Another way that you can engage in good environmental citizenship is to keep waste down to a minimum in your home.
  - The key to this is to reduce, reuse and recycle.
- **Culture as a tool:**
  - The Hindu concept of Rta dharma, explained by Kapila Vatsyayan in her essay 'Ecology and Indian Myth', states that the moral duty of communities is through karma towards sustaining and maintaining Rta (cosmic natural order).
  - The same thought is reiterated in the Guru Granth Sahib: The book enunciates a concern for the environment as an integrated approach to life and nature by stating that air, water, earth, and life — all originated from the True Lord who resides in each one of us and requires protection.
  - Islamic scholar Sigrid Nökel offers similar ideas through terms such as fitra creation as natural order; tawhid — that all things in the world are related to one another and are, as aspects of God, valuable and worthy of preservation; and, that khilafa refers to the role of mankind as the trustee of creation.
- **Participate in Environmental Decision Making:**
  - One good way of exercising environmental citizenship is to get involved in the environmental decision making process.
  - The community ownership expressed in the protests in Chhattisgarh requires duplication in many more areas.
  - To protect their forests and sacred hills, the indigenous forest communities organised protests initiated by the Sanyukt Jansangraha Samiti against the mining of Deposit 13 of the Bailadila iron ore mine in Chhattisgarh's Dantewada district
- **Hold Businesses to Account:**
  - Industries and businesses have a tremendous impact on the environment. Help them to act responsibly as you make your consumer choices on goods or services.



- The uprising a few years ago of the Dongria Kondhs of Odisha who eventually won a David-and-Goliath battle against mining giant Vedanta Resources.
- **Access to Environmental Information:**
  - It will be difficult to participate in environmental decision making, without having adequate access to environmental information.
  - Environmental information includes, information held by public bodies on air, water, soil, land, plants and animals, energy, noise, identity of polluters from the pollution registers, waste and emissions.
  - Using the RTI act, Forest Rights Act to protect the rights of the Scheduled tribes and Forest dwellers.
- **Access to Justice in Environmental Matters:**
  - It involves the right of all to access legal help and to get adequate judicial redress on environmental issues.
  - The cost of taking a case to court has been identified as a major barrier to access to environmental justice.

#### Conclusion:

- A systematic citizens' network of environment panchayats to promote environmental sustainability is required.
- What is needed is the will to support, and to ensure, environmental protection for and by the people of India.

### Q) Forest dwellers and farmers are the best hope to preserve biodiversity and ensure food security. Discuss the statement with suitable examples. (250 words)

#### The hindu

##### **Why this question:**

The article deals in what way forest dwellers and farmers are the best hope to preserve biodiversity and ensure food security.

##### **Key demand of the question:**

The answer is straight forward and must discuss the role of forest dwellers, tribal communities and the farmers in preserving biodiversity and ensuring food security.

##### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### **Structure of the answer:**

##### **Introduction:**

Explain the context of the question.

##### **Body:**

Discussion should be followed by suitable examples to justify the role of forest dwellers, for e.g. the case study of Dongria Kondh tribe of Niyamgiri Hills – they are among the best conservationists in the world. Known for the spirited defense of their forested habitat against short-sighted industrialization, they have through millennia evolved a lifestyle that is in perfect harmony with nature.

Likewise explain the role played by farmers – in what way they help achieve food security.

Take cues from the article and discuss their significant role.

##### **Conclusion:**

Conclude by reasserting their significant role played in conserving and preserving the biodiversity and ensuring food security.

#### **Introduction:**

- The UN-backed panel's **first global assessment of biodiversity** held humans squarely responsible for the looming mass extinction of species.
- A loss in biodiversity simply means that plants and animals are more vulnerable to pests and diseases, and it puts food security and nutrition at risk. In this context, forest dwellers and farmers are the best hope to preserve biodiversity and ensure food security.

#### **Body:**

##### **Challenges posed due to dwindling biodiversity:**

- The situation with India's forests now is less encouraging.
- Nature now faces the threat of another mass extinction of species.
- Pressure from industrialisation does not care too much about conservation and biodiversity.



- The same holds true for the overexploitation of our rivers and seas.
- Without radical efforts towards conservation, the rate of species extinction will only gather momentum.
- There is no single national-level answer to the problem of crop and biodiversity loss.
- For instance, the natural farming movement in Andhra Pradesh may not be suitable for, say, Punjab.

#### **Importance of indigenous people in biodiversity conservation:**

- Across India, there are many indigenous people who have managed to lead safe lives without any needless destruction of natural ecosystems.
- These tribes, along with marginalised communities living on the fringes of forests and millions of smallholder farmers, have a crucial role now.
- They offer the much-needed solutions to the bio-diversity challenges of the present era

#### **Case study:**

- The Dongria Kondh tribe of Niyamgiri Hills are among the best conservationists in the world.
- Known for the spirited defence of their forested habitat against short-sighted industrialization, they have through millennia evolved a lifestyle that is in perfect harmony with nature.
- Nothing can be achieved without the active participation of communities that live close to nature — farmers and forest dwellers.

#### **Way forward:**

- Although biodiversity loss is a global problem, it can be countered only with local solutions, as there is no one-size-fits-all approach in this.
- India's tropical homeland is rich in biodiversity.
- But, the imperatives of relentless economic growth, urbanisation, deforestation and overpopulation place it at a higher risk.
- Certainly, a solution that has succeeded in a temperate, wealthy nation may not be suitable for a country like India.
- It is now obvious that intensive agriculture, exploitative forestry and overfishing are the main threats to biodiversity in India and the world.
- Given these, the approach now should be to ensure the active participation of communities that live close to nature – farmers and forest dwellers.
- Innovative policies should take lead like the –
  - growing movement of zero-budget natural farming in Andhra Pradesh and Telangana
  - the community-driven forest conservation initiatives in Odisha and the Northeast
- The UN agencies too have emphasized on the significance of the accumulated wisdom of indigenous peoples, fishers and farmers.

#### **Conclusion:**

- Local people should be at the centre of all the actions taken at dealing with the challenges of nature. Instead of evicting forest dwellers from their homes, the country should be encouraging them to conserve and nurture their habitats.
- Their knowledge about the local geography, climate, and relief will help in better conservation of the biodiversity.

**Q) Untreated waste water poses a threat to both human health and the aquatic ecosystems. Explain the statement with examples. (250 words)**

#### Reference

##### **Why this question:**

The article discusses the threats posed by untreated waste water on human health and aquatic health.

##### **Key demand of the question:**

Explain in detail the ill effects posed by the untreated waste water, what needs to be done to address the same.

##### **Directive:**

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

##### **Structure of the answer:**

##### **Introduction:**

Briefly introduce problem of untreated water.

**Body:**

Explain with few facts – The 2017 United Nations World Water Development Report (WWDR) notes that more than 80% of the world's wastewater is released into the environment untreated.

Write about impact of untreated wastewater – on health, economy, environment etc.

Discuss what should be the way forward.

**Conclusion:**

Conclude by suggesting solutions.

**Introduction:**

- Wastewater is any water that has been adversely affected in quality by anthropogenic influence. Wastewater can originate from a combination of domestic, industrial, commercial or agricultural activities, surface runoff or storm water, and from sewer inflow or infiltration.
- The **2017 United Nations' Water Development Programme's World Water Development Report (WWDR)** notes that more than 80% of the world's wastewater — over 95% in some least developed countries — is released into the environment untreated.
- The **National Green Tribunal** has directed 18 States and 2 Union Territories to submit their respective action plans on utilisation of treated wastewater to reduce pressure on the groundwater resources across the country.

**Body:**

Threats posed by untreated wastewater:-

- **Water borne diseases:** such as polio, cholera, typhoid etc; slum dwellers are at a greater risk due to poor drainage in slums.
- **Threat to water bodies & aquatic life:** wastewater is rich in nutrients which eutrophics water bodies causing algal bloom, increase in BOD, killing the aquatic life beneath.
- **Biomedical waste:** many city hospitals dump biomedical waste into drains thereby multiplying the toxicity of wastewater.
- **Pollution of Rivers:** Indian rivers like Ganga, Yamuna are being severely polluted by effluents discharges by industries hence wastewater by domestic and other sources adds to the problem.
- **Reduced flow and corrosion** in sludge pipes due to build-up of organic content hence it severely damages the infrastructural set up.
- **Toxic gases** like Hydrogen Sulphide, CO<sub>2</sub>, ammonia, methane produced from slurry can become hazardous to people and animal around.

**Way forward:**

- **Tapping and Recycling waste water resources**
- **Need of national Water policy,** on lines of Rajasthan – 1st state to implement sewage water policy
- **Extraction of by-products:** such as salt, nitrogen, phosphorous will be useful for local businesses.
- **Industrial applications:** for cooling purposes in power stations, industrial machinery etc; Singapore uses reclaimed water called '**NEWater**' to serve 30% of its needs.
- **Role of government, municipalities:** need to enforce stricter norms regarding dumping of wastewater, improve process for treatment of wastewater.
- **Improve infrastructure:** setting up more wastewater treatment plants in every municipality funding them through municipality bonds.
- **Cultural change:** the culture of wasting water needs to be changed through educational campaigns.
- **New technology:** like sequencing batch reactor – C-TECH technology that was adopted in Navi Mumbai, meets the standards of EUROPEAN UNION in terms of treated water quality.
- A paradigm shift from "**use and throw – linear**" to a "**use, treat, and reuse – circular**" approach is needed to manage wastewater.
- Investment in wastewater treatment has associated risks as well. It is therefore important to understand the underlying social, political, technical, and financial factors that will drive, facilitate, and sustain wastewater management interventions in India.

**Conclusion:**

- Sustainable Development Goal (SDG) 6 specifically focuses on water and sanitation, with Target 3 addressing water quality, but the availability of water is a cross-cutting issue upon which every aspect of development hinges.
- Put simply, water is life, and without a sustained commitment to improving and benefiting from effective wastewater management, that precious resource, and the billions of lives it nourishes, is in peril.



**Q) Discuss the key features of Climate Change Performance Index (CCPI) also bring out the key findings' of 2019 edition. (250 words)**

#### Reference

##### **Why this question:**

The question is based on the theme of CCPI and the key findings of 2019 edition.

##### **Key demand of the question:**

The answer must discuss in detail the relevance of the report, features and its major highlights.

##### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### **Structure of the answer:**

##### **Introduction:**

The Climate Change Performance Index (CCPI) is an instrument covering 58 countries and supposed to enhance transparency in international climate politics.

##### **Body:**

The 2019 edition of the Climate Change Performance Index (CCPI) has been released which illustrates regional differences in climate protection and performance within the 56 evaluated countries and the EU.

No country performed well enough to reach the ranking 'very good' in this year's index.

Explain that its aim is to encourage political and social pressure on those countries which have, up to now, failed to take ambitious actions on climate protection as well as to highlight countries with best-practice climate policies.

Discuss the highlights and bring out the performance reported for India.

##### **Conclusion:**

Conclude with significance of the findings.

##### **Introduction:**

- The Climate Change Performance Index (CCPI) is an instrument covering 58 countries and supposed to enhance transparency in international climate politics. It is an annual publication by **Germanwatch, NewClimate Institute and Climate Action Network Europe**.
- Its aim is to **encourage political and social pressure on those countries which have, up to now, failed to take ambitious actions on climate protection as well as to highlight countries with best-practice climate policies**.

##### **Body:**

##### **Key features:**

- The top three positions of the CCPI 2019 are still unoccupied, because none of the 56 countries or the EU are clearly on a well below 2°C pathway in their overall performance.
- The four categories examined are: GHG emissions (40%), renewable energy (20%), energy use (20%) and climate policy (20%).
- The latter is based on expert assessments by NGOs and think tanks from the respective countries.
- The CCPI also evaluates to what extent the respective countries are taking adequate action within the categories emissions, renewables and energy use to being on track towards the global Paris-goal of limiting global warming to well below 2°C.
- Therefore, the CCPI is an important tool in contributing to a clearer understanding of national and international climate policy.

##### **Key findings of CCPI 2019:**

##### **Global Performance:**

- Morocco has been named the second best performing country after Sweden in the Climate Change Performance Index (CCPI).
- With the connection of the world's largest solar plant to the grid, Morocco is on track for achieving its target of 42% installed renewable energy capacities by 2020.
- Sweden is in top position, followed by Morocco and Lithuania in the CCPI 2019.
- The bottoms five in the list are Saudi Arabia, U.S., Iran, South Korea and Taiwan.

##### **India's Performance:**

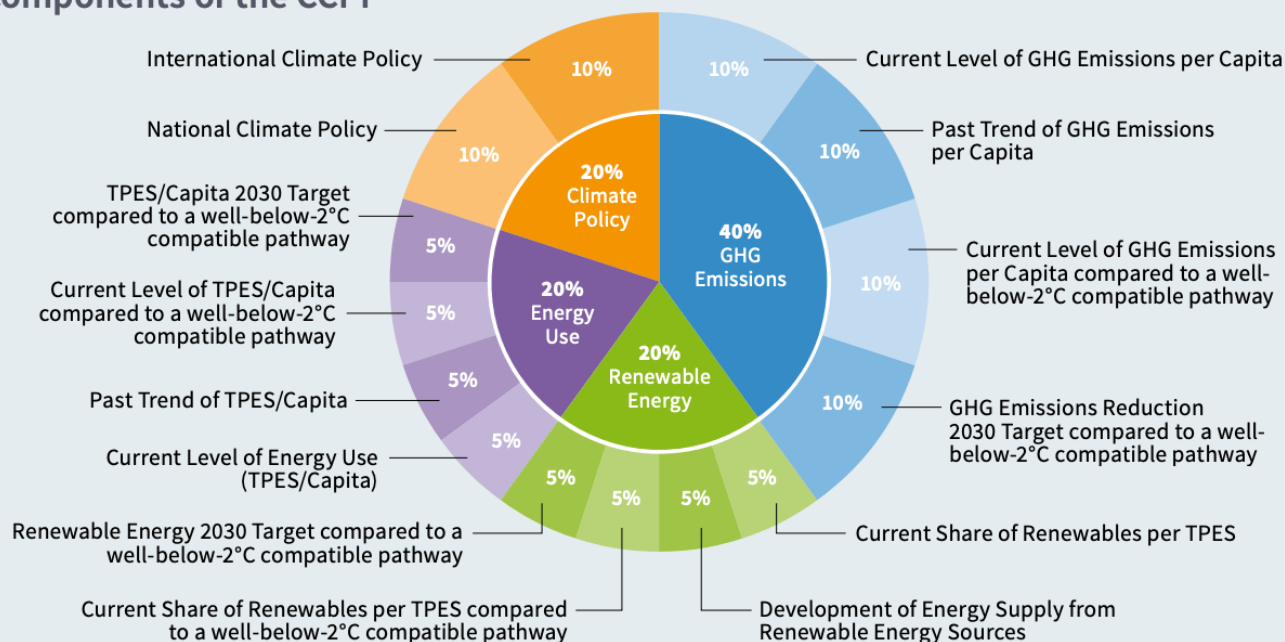
- India ranks 11th in this year's CCPI, improving its standing by three places compared to the previous edition.
- Most notably India improved its performance in the Renewable Energy category, joining the group of medium





- However, national experts argue that plans to build new coal-fired power plants may pose a risk of offsetting positive developments in the renewable energy sector.
- Comparatively low levels of per capita GHG emissions and a relatively ambitious mitigation target for 2030 give India an overall high rating in the emissions category.

### Components of the CCPI



GHG = Greenhouse Gases | TPES = Total Primary Energy Supply

© Germanwatch 2018

### Conclusion:

- While there is a continued growth and competitiveness of renewable energy, especially in countries that had low shares before, the CCPI shows a lack of political will of most governments to phase out fossil fuels with the necessary speed.
- Because of that, in most countries the climate policy evaluation by national experts is significantly lower than in the last years.

### Q) Analyse the reasons behind India's problem of e-waste and provide an account for the ineffectiveness of the rules. (250 words)

#### Reference

#### Why this question:

The article provides a closer look at the menace of e-waste that India is facing.

#### Key demand of the question:

The answer must look into the reasons leading to the problems of e-waste with special emphasis on the ineffectiveness of rules and regulations dealing with it.

#### Directive:

**analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

#### Structure of the answer:

#### Introduction:

Discuss in brief what you understand by e-wastes, how are they generated etc.

#### Body:

Introduce briefly e-waste problem through relevant facts.

Enumerate causes of e-waste.

Describe the reasons for the failures of e-waste guidelines to control the problem.

Explain that when E-waste are dismantled and disposed unscientifically, they release extremely harmful gases or large particulates into environment causing hazardous air pollution causing severe health hazards.

Thus, there is need to implement the E-waste management rules 2016 effectively and deal with the problem of e-waste more holistically with proper monitoring mechanisms in place.



### Conclusion:

Conclude by suggesting way ahead, suggest solutions at policy level, technology level etc.

### Introduction:

- A recent **UN report** titled '**A new circular vision for electronics**' warned that '**Tsunami of e-waste**' was to hit the world soon. The report notes that the waste stream has already reached **48.5 million tonnes (MT) in 2018** and the figure is expected to double if nothing changes.
- In India, e-Waste accounts for **70% of the landfills. (2011 Rajya Sabha Secretariat Study)**. By 2050, India will likely stare at a pile of a new category of electronic waste, namely **solar e-waste**. India's **PV (photovoltaic) waste volume is estimated to grow to 200,000 tonnes by 2030 and around 1.8 million tonnes by 2050**.

### Body:

The **root causes** of India's e-Waste problem are:

- e- Waste is technically all waste electrical and electronic equipment (WEEE) discarded without the intent of use.
- It comprises not just electronic items, but also all electrical equipment that involves anything with a plug, electric cord or battery.
- In recent years, e-waste has grown faster than earlier anticipated. By 2021, the annual total volume is expected **to surpass 52 MT**, considering the fact that the number of devices connected to the internet is going to be between **25-50 billion by 2020**. **By 2050, the volume of e-waste in the worst-case scenario, could top 120 MT annually**.
- In India, e waste accounts for **4% of global e-waste and 2.5% of global GDP** (2014 figures) – so it has a higher share of e-waste than its share of gross domestic product (GDP).
- The **informal sector** manages about **95% of the e-Waste in India**. Due to the informal and crude processing techniques, the soil, water and air are polluted to a beyond-repairable level. **Example:** Moradabad and Seelampur.
- The **hard-to-recover substances from e-waste like mercury, arsenic** make their home in landfills and keep leaching into ground water.
- **Incineration** is one of the most practiced methods of recycling leading to high carbon emissions and poisoning of air with toxic gases.
- **The poor implementation of Extended Producer Responsibility** as mandated under **e-Waste Management Rules, 2016** is another challenge.
- The **export of e-Waste from developed countries** is another growing problem despite regulations under **Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal**.

### Causes for failure of rules and regulations for e-Waste:

- India has 19 PROs (producer responsibility organisations), which are hired for collection as of today but there is no level playing field.
- There is no independent mechanism to verify if EPR is being implemented. The law mandates random inspections by the Central Pollution Control Board (CPCB) and state PCBs, but there's no record of them.
- The issues of how to address the ones using the products: how do you get people to hand back their products in a reasonable way.
- The lack of companies' initiative to build an image of a responsible actor, of someone consumers can believe in.
- Customer care representatives do not have inkling about any take back or recycling programme and even if they have set up collection centres, they are simply not enough for a geographically vast country like India.
- India being a vast country, setting up collection mechanism is a big challenge. If any of the brands try individually to reach out to all corners of the country, it will economically not be sustainable or feasible.

### Measures to control the e-Waste growth:

- **Unified effort:** The report calls for systematic collaboration with major brands, small and medium-sized enterprises, academia, trade unions, civil society and associations in a deliberative process to reorient the system and reduce the waste of resources each year with a value greater than the GDP of most countries.
- **Holistic management:** To **capture the global value of materials in e-waste and create global circular value chains, use new technology to create service business models, better product tracking and manufacturer or retailer take-back programmes**.
- **Scaling up recycling:** The report notes that **material efficiency, recycling infrastructure and scaling up the volume and quality of recycled materials** to meet the needs of electronics supply chains will all be essential for future production.



- **Incentivization:** The producers should also have buy-back or return offers for old equipment, and plans to incentivise the consumer financially. The report also advocates a system of 'urban mining' by strengthening the **extended producer responsibility provision**.
- **Job potential:** If the electronics sector is supported with the right policy mix and managed in the right way, it could lead to the **creation of millions of decent jobs worldwide**.
- **Awareness & Education:** there is an acute lack of awareness among people as they simply don't know that there exist collection centres that collect items for recycling. The law will fail to serve the purpose unless these changes are made on the ground.

#### Conclusion:

- A strong political will is required to come out with strict regulations to manage e waste in India. Increased public awareness is the need of hour.
- It is now to be seen how the stakeholders who turned a blind eye to the rules so far, proceed ahead.

### Q) Enumerate the significant elements of India's Intended Nationally Determined Contribution (INDC) ? Explore the methods of financing for meeting the objectives of India's INDC. (250 words)

#### Reference

#### Introduction:

- **Intended Nationally Determined Contributions or INDCs**, are publically declared country commitments indicating the actions each country would take under a new global agreement, which would eventually take its final shape in December 2015 at the 21<sup>st</sup> session of the signatories /parties to the United Nations Framework Convention on Climate Change (UNFCCC).
- The INDCs will largely determine whether the world achieves an ambitious 2015 agreement and is put on a path toward a low-carbon, climate-resilient future. Government of India submitted its INDCs on 1st October 2015 to the UNFCCC.

#### Body:

##### Salient features of India's INDC:

- To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
- To adopt a climate-friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
- To reduce the emissions intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level.
- To achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030, with the help of transfer of technology and low cost international finance, including from Green Climate Fund.

##### Key elements and focus areas of India's INDC:

India's INDC centre around the country's policies and programmes for:

- **Sustainable Lifestyles:** To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
- **Cleaner Economic Development:** To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
- **Reducing Emission intensity of Gross Domestic Product:** To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level.
- **Increasing the Share of Non Fossil Fuel Based Electricity:** To achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
- **Enhancing Carbon Sink:** To create an additional carbon sink of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent through additional forest and tree cover by 2030.
- **Adaptation:** To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.
- **Mobilizing Finance:** To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.



- **Technology Transfer and Capacity Building:** To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.

#### Methods of financing for meeting the objectives of India's INDC:

- As per estimates, at least USD 2.5 trillion (at current prices) required between now and 2030 to implement all planned actions.
- USD 206 million required for adaptation actions. Much more needed for strengthening resilience and disaster management.
- About USD 834 billion, at 2011 prices, required for mitigation actions till 2030.
- A total of INR 170.84 billion collected through cess on coal production. Being used for funding clean energy projects
- **National Clean Energy Fund:** The Fund was created to promote clean energy, funded through an initial carbon tax on use of coal by industries.
- **National Adaptation Fund** has been created with initial allocation of Rs 3500 million.
- **Clean Development Mechanism (CDM):** It allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO<sub>2</sub>. The CDM is the main source of income for the UNFCCC Adaptation Fund.
- In February 2015, at the **REInvest renewable energy financing event** hosted by the Indian government, the MNRE invited public and private corporate and financial firms to invest in the country's renewable energy sector in the five-year period from 2015-2019.
- **Tax free infrastructure bonds** of INR 50 billion being introduced for funding renewable energy projects
- The **CAMPA act** passed helps use the money collected under compensatory afforestation funds.
- **Polluter Pays:** The 'polluters pays' principle is the commonly accepted practice according to which those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. This principle underpins most of the regulation of pollution affecting land, water and air formally known as the 1992 Rio Declaration.

#### Other feasible measures:

- **Green Bonds:** Bonds issued to raise money especially for Green projects.
- Creation of Renewable Energy Investment Trusts as in UK.
- Incorporating renewable energy within **Priority Sector Lending requirements**
- **Public-private partnership (PPP) and PPP People (PPPP)** can help improving climate finance.

#### Conclusion:

- An analytical framework is necessary to combine potential climate risks with a systematic cost-benefit analysis. Favourable policy and institutional actions are important for successful introduction or scaling up of financial instruments.
- Climate finance should be equipped with non institutional financial services such as market funds, private etc.

### Q) Discuss the risks and benefits of Eco-Tourism with examples in India ? (250 words)

[Reference](#)

[Reference](#)

#### Introduction:

- Ecotourism as a term first emerged during the late 1980s with **growing global concern for sustainable practices with regard to ecologies extending towards minimizing the degenerative results of tourism on the environment.**
- Ecotourism thus essentially has come to imply **responsible travel practices when exploring natural conditions such that travel practices are conducted with a view towards environmental conservation, environmental sustainability and the welfare of local communities.**
- This involves generating practices that aim towards better interpretation of tourism practices and education regarding the above.

#### Body:

- Ecotourism was introduced in India after the World Tourism Organization announced 2002 as the International Year of Ecotourism coming under the United National Environmental Program.
- **Thenmala in Kerala** is India's first planned and certified ecotourism destination. Other than this there are many national parks and sanctuaries in India that act to cater to tourism and work towards environmental conservation at the same time (Eco India, 2008). Many ecotourism sites are now present in India.

**Benefits:**

- **To increase foreign exchange:** Ecotourism is one of the important industries that earn foreign exchange for a country without actually exporting any material. The income from ecotourism has tended to increase at a higher rate than merchandise export in a number of countries.
- **To help in the development of infrastructure facilities:** Development and improvement of infrastructure facilities are another important benefit offered by the ecotourism industry. A variety of secondary industries may be promoted which may not serve the needs of. Thus, indirectly; tourist expenditure may be responsible for stimulating other economic activities of a country.
- **To help in balanced regional development:** Tourism development greatly benefits underdeveloped regions of a. These economically backward regions mostly have places of high scenic beauty which if developed for the tourism industry, will help to bring a lot of prosperity to the local people.
- **To help in generating employment:** Tourism industry is highly labour intensive service industry that generates employment for highly skilled, semiskilled and unskilled labour in sectors like hotels, restaurants, travel agencies, tourism offices, shops etc.
- **To help in maintaining peace and understanding:** Tourism plays an important role in promoting international. It creates awareness and appreciation of other countries culture and nature.

**Risks:**

- Ecotourism that is not properly implemented in a learned manner can thus fall prey to commercialization, and more often than not commercial interests can overrun the pedagogy of policy on the ground level.
- It is the major threat to the rich biodiversity and natural habitats of the wilds in the jungles.
- Eco tourism tends to conserve the environment at the expense of the development prospects for the third world communities.
- Located in the eco systems, eco tourism projects it is the biggest obstacle in the way of the development of the environment.
- Competition for eco tourism income between the various groups leads to social disharmony.
- To cater to the increasing demand for eco-tourism, land around parks and sanctuaries is being cleared through deforestation, displacement of people etc. to accommodate hotels, resorts etc.
- Increased use of resources by the human population, even in the smallest sense cause problem to the environment.
- Another major threat to the environment is the production waste and effluent pollution as well as increasing human activities like logging, and agricultural clearance.
- Eco-tourism takes away livelihoods from the locals, and in return provides them with low-paying subordinate positions in the resorts etc that are established. No viable long-lasting employment opportunities with scope for growth are provided to the locals.

**Conclusion:**

- India is one of the 12-mega bio-diverse countries of the world and has a rich cultural heritage too. It has a vast potential for ecotourism that needs to be tapped for healthy conservation and preservation of nature and bringing about economic benefits to the local communities.

**Q) Discuss the Objectives of Environmental Impact Assessment in India also trace the recent developments in this direction while commenting on the current framework of the same. (250 words)**

Reference**Why this question:**

The question is straightforward and is about analyzing the EIA process and its objectives.

**Key demand of the question:**

The answer must discuss in detail the objectives of EIA and trace the recent developments in this direction.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.





### **Structure of the answer:**

#### **Introduction:**

Describe what is EIA.

#### **Body:**

Explain the Objectives of Environmental Impact Assessment

- Identifying, predicting and evaluating economic, environmental and social impacts of development activities.
- Providing information on the environmental consequences for decision making.
- Promoting environmentally sound and suitable development by identifying appropriate alternatives and mitigation measures.

Discuss the importance and relevance.

Explain the framework existing in India, progress made on different fronts etc.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- Environmental Impact Assessment (EIA) is an important management tool for ensuring optimal use of natural resources for sustainable development. It covers developmental sectors such as industries, thermal power projects, mining schemes etc.
- EIA has now been made mandatory under the Environmental (Protection) Act, 1986 for 29 categories of developmental activities involving investments of Rs. 50 crores and above.

#### **Body:**

##### **The objective of the EIA:**

- To identify, predict and evaluate the economic, environmental and social impact of development activities.
- To provide information on the environmental consequences for decision making.
- To promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures.
- To identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses.
- To identify and quantify any potential losses or damage to flora, fauna and natural habitats.

##### **Issues Related to EIA:**

- Environmental decision-making processes for development projects are supposed to use the best available scientific knowledge to ensure that development does not lead to negative impacts.
- But there are compromised decision-making on development and infrastructure projects.
- Sometimes the EIA reports lack the expected degrees of honesty, owing to bias, corruption, exaggeration and wrong claims.
- EIA reports for the approved “redevelopment” projects in Delhi were prepared by copying from copyrighted papers, web-pages and other EIA reports.
- There are many instances of missing or misleading information which understate the potential impact of the projects.
- Many projects are approved without public consultation.
- Lack of awareness among the local people about the process of EIA, its significance for them, their own rights and responsibilities.
- Most of the time EIA reports are unavailable in local languages, thus local people are unable to decipher the reports, and are misled by the proponents

##### **Way Forward:**

- Competent authorities must ensure that a project causes minimal adverse environmental impact and generates maximum social and economic benefits.
- Involving affected people and concerned citizens in environmental decision-making has far reaching effects.
- It allows for democratising environmental governance.
- Participatory processes give opportunities to understand and plan for unforeseen effects.
- In 2009, the **Delhi High Court in Utkarsh Mandal v/s Union of India** upheld that it is the duty of the EACs to consider the merits of the objections raised at the public hearings.
- Women and other vulnerable sections of the society are the first and most affected by consequences of developmental processes and damage to the environment.



- Adverse impacts of development projects can be reduced with the full and equal participation of both genders, particularly women in decision-making processes.
- NGOs, civil society groups and local communities need to build their capacities to use the EIA notification towards better decision making on projects.

#### Conclusion:

- An EIA should not be used just as a means for obtaining an environmental clearance; rather, project proponents should use it as a management tool to assess the soundness of a project plan.
- The focus of EIA needs to shift from utilization and exploitation of natural resources to conservation of natural resources.

### Q) “National Policy on Biofuels 2018 is essentially a resolution but not a solution in itself”. Critically analyse. (250 words)

#### Reference

##### **Why this question:**

The National Policy on Biofuels-2018 approved by the Government envisages an indicative target of 20% blending of ethanol in petrol and 5% blending of bio-diesel in diesel by 2030.

##### **Key demand of the question:**

The answer must analyse National Policy on Biofuels 2018 and critically discuss in what way it is not an end in itself.

##### **Directive:**

**Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

##### **Structure of the answer:**

##### **Introduction:**

Describe in brief the national biofuel policy 2018.

##### **Body:**

The answer must discuss the following aspects –

First discuss the salient features of national biofuel policy 2018.

Then discuss other than the policy what are the on ground requirements to propel the use of biofuels in India, discussion should debate about the availability of resources, technology etc. and justify that one policy alone would not change the energy scenario but a framework regulating the energy sector in a multi-pronged approach is the need of the hour.

##### **Conclusion:**

Conclude with solutions.

#### Introduction:

- Any hydrocarbon fuel that is produced from an organic matter (living or once living material) in a short period of time (days, weeks, or even months) is considered a biofuel. Biofuels may be solid, liquid or gaseous in nature.
- The National Policy on Biofuels-2018 approved by the Government envisages an indicative target of **20% blending of ethanol in petrol and 5% blending of bio-diesel in diesel by 2030.**

#### Body:

##### **Salient features of National Policy on Biofuels, 2018:**

- **Categorization:** The Policy categorises biofuels as “Basic Biofuels” viz. First Generation (1G) bioethanol & biodiesel and “Advanced Biofuels” – Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.
- **Scope of raw materials:** The Policy expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.
- **Protection to farmers:** Farmers are at a risk of not getting appropriate price for their produce during the surplus production phase. Taking this into account, the Policy allows use of surplus food grains for production of ethanol for blending with petrol with the approval of National Biofuel Coordination Committee.



- **Viability gap funding:** With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
- **Boost to biodiesel production:** The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.

#### **Biofuel policy is not a panacea in itself:**

- **Supply-chain infrastructure** that is required to deliver biofuels to the final consumer remains inadequate.
- To convert India's existing biofuel potential into reality, **huge investments** need to be made in creating bio refinery capacity. However, this is easier said than done. While state-owned oil marketing companies are in the process of setting up 12 bio-refineries, this can only be a base to build on.
- On the ground, **private sector investment in this space has been hampered by financial constraints and lack of cohesive support** from the Central to the local level.
- **Efficiently transporting low value biomass to the refineries is another challenge.**
- The policy is **totally silent on octane**, which has direct consequences on air quality and pollution as it assists in proper combustion of fuels, thereby affecting vehicular emissions.
- **Over ambitious:**
  - The policy states that a viability gap funding scheme for 2G ethanol bio refineries of Rs. 5,000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels will be provided.
  - The policy is overambitious in light of the fact that the capability of 2G has not been realised till today. Therefore, completely relying on a mechanism which has not been proven commercially is flawed.

#### **Way forward:**

- Any bio-fuel policy must be strongly backed by sufficient technology and production scale in order to be financially feasible and implementable.
- Given the current market dynamics, sugar industry's share in the bio-fuel mix is unrivalled – thereby underscoring the need for better pricing for ethanol.
- The consideration for using food grains is a tricky one as food supply chains might get affected if there aren't proper checks.
- While source diversification is indeed a positive, proper enhancement of supply-chain infrastructure to reach the final consumer will prove vital.
- The government should also take steps to remove policy barriers that have discouraged private investment in building supply chains.

#### **Conclusion:**

- From encouraging the use of biofuels in public transport to ensuring that civic bodies actually realise the potential of municipal waste and sewage the policy needs to be implemented in mission mode on a nationwide basis.

**Q) Discuss the concept of carbon tax, also analyse to what extent it can prove to be an effective policy instrument in achieving INDC targets for India. (250 words)**

[Financialexpress](https://www.financialexpress.com)

#### **Why this question:**

The question is based on the concept of carbon tax and the utility of the same as an effective policy instrument.

#### **Key demand of the question:**

One must detail on the concept of carbon tax and list down its advantages and potential.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Define what is carbon tax.

##### **Body:**

Carbon tax is a form of pollution tax. It levies a fee on the production, distribution or use of fossil fuels based on how much carbon their combustion emits. The government sets a price per ton on carbon,



and then translates it into a tax on electricity, natural gas or oil. Because the tax makes using dirty fuels more expensive, it encourages utilities, businesses and individuals to reduce consumption and increase energy efficiency.

List merits –

Carbon tax also makes alternative energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil.

Carbon tax offers social and economic benefits.

It is a tax that increases revenue without significantly altering the economy while simultaneously promoting objectives of climate change policy.

The carbon tax is the most practical method to reduce the fossil fuel consumption. It checks the use of fossil fuel.

It helps India to reach the committed INDC of 33% by 2030.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

- A carbon tax aims to **internalise the externality of climate change by setting a price on the carbon content of energy consumed or greenhouse gas emitted in the production or consumption of goods.**
- India is taking varied efforts to curb pollution and achieve the Intended Nationally Determined Contributions (INDC) targets under the Paris climate deal. In this regard, it is essential to understand the instrumental role that carbon tax could play.

#### **Body:**

##### **Carbon tax as a potent mitigation policy:**

- Carbon tax avoids the problems related to choosing a baseline. In a price approach, the natural baseline is a zero carbon tax.
- A carbon tax policy will be better able to adapt to the element of uncertainty which pervades the science of climate change. Quantity limits on emissions are related to the stocks of greenhouse gas emissions, while the price limits are related to the flow of emissions.
- From this uncertainty arises another complication of price volatility which is the reason why a carbon tax policy is likely to cause less volatility in the prices of carbon emissions
- Carbon tax primarily discourages environment unfriendly production and consumer practices by making the 'polluting sources' costlier.
- This works without any negative effect on overall employment and output levels.
- Putting a price on carbon and taxing it directly is far better than the 'cap and trade' system.
- This is because the carbon tax system has advantages due to its simplicity, affordability, transparency, revenue recycling and predictability of carbon prices.
- It works on the principle of 'the polluter pays'.
- The carbon tax will essentially be a **Pigovian Tax** which balances the marginal social costs and benefits of additional emissions, thereby internalising the costs of environmental damage. It can act as an incentive for consumers and producers to shift to more energy-efficient sources and products.

#### **Way forward:**

- Some countries and regions such as the U.S. and the European Union already have fairly successful carbon pricing regimes in place in the form of carbon taxes and emissions trading schemes.
- Some other countries have introduced general taxes on energy consumption instead of direct taxes on carbon content. This can be a good starting point for a shift in policy by countries while they deliberate on a harmonised carbon tax regime.
- India has to become a pioneer among emerging economies and impose an explicit carbon tax, and let the polluters pay.
- Another near-term approach can be a '**cap-and-tax**' which combines the strengths of both quantity and price approaches. Cap-and-tax might also address the concerns of environmentalists that a price-based approach does not impose hard constraints on emissions.

#### **Conclusion:**

- Carbon tax is the most basic economic instrument which can be used to price carbon and combat CO<sub>2</sub> emissions, and correct negative externalities.
- India should take up carbon tax as an effective policy instrument in reducing different local pollutants and achieving INDC targets.



**Q) What is wetland ? Explain the Ramsar concept of ‘wise use’ in the context of wetland conservation. Cite two examples of Ramsar sites from India. (250 words)**

previous year question, Indian geography by Majid Hussain, Environment by Shankar IAS Academy.

**Why this question:**

The question is straightforward and is based on the concept of wetland.

**Demand of the question:**

The answer must discuss the concept of wetland in detail and discuss the Ramsar concept of wise use.

**Directive word:**

**Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

**Structure of the answer:**

**Introduction**

Define Wetland.

**Body**

Wetlands are ecotones between terrestrial and aquatic ecosystems. They get periodically get inundated with water. They support a flourishing community of aquatic organisms including frogs and other amphibians. Swamps, marshes and mangroves are examples of wetlands.

Then discuss that the Ramsar “Wise use concept” requires that wetlands’ ecological character should be maintained within the framework of sustainable development.

Detail on the components of the concept. And conclude with examples.

**Conclusion**

Conclude with way forward and importance of such sites and conventions.

**Introduction:**

- The Ramsar Convention on wetlands defines wetland as including a wide variety of habitats such as marshes, peatlands, floodplains, rivers and lakes, and coastal areas such as salt-marshes, mangroves, and seagrass beds, also coral reefs and other marine **areas no deeper than six metres at low tide**. Wetland also includes **human-made wetlands such as waste-water treatment ponds and reservoirs**.
- Wetlands are ecotones between terrestrial and aquatic ecosystems. They get periodically get inundated with water. They support a flourishing community of aquatic organisms including frogs and other amphibians. Swamps, marshes and mangroves are examples of wetlands.

**Body:**

Ramsar “Wise use concept” requires that wetlands’ ecological character should be maintained within the framework of sustainable development. This concept recognizes that:

- **Developmental activities are inevitable** in wetland areas such as construction of roads, electricity infrastructure, schools and hospitals for poor families.
- **Economic activities are also inevitable** in wetland areas such as fisheries, farming and tourism.
- Such activities **aid in human development and economic development** in a wetland area.
- And for these activities, wetland’s land, water and bio-resources will have to be used.
- However, these **resources should not be used in a manner that wetland’s ecological character is harmed**.

The practical applications of “Wise Use” concept are as following:

- **Use of Water:** Farmers in wetland region require freshwater for cultivation of paddy, fruits and vegetables. But, it should not lead to overexploitation of freshwater else wetland’s regenerative capacity will suffer. Fish, reptiles and amphibians will die. Therefore, Government may impose legal ‘upper limits / ceiling’ on water use.
- **Use of Land:** Wetlands purify air and water, they moderate adverse weather impacts and thus protect human health. However, mining, infrastructure and transportation services harm wetlands, and thereby indirectly harm human health. Hence, the ‘land’ of wetland should be generally not used for such activities.
- **Use of Biomass:** Fishing is one of the primary occupations of people in Wetland area. But excessive fishing, especially during reproduction season will harm wetland’s foodweb. Hence, government may impose restriction and encourage aquaculture and ‘rice-fish’ management practices.

India currently has **27 sites** designated as Wetlands of International Importance (Ramsar Sites). Some of them are

- **Ashtamudi Wetland in Kerala**
- **Bhitarkanika Mangroves in Odisha**

*Note: It is important to know all the site names from prelims and mains perspective*



**Conclusion:**

- Wetland conservation is crucial for protecting biodiversity and mitigating the adverse impacts of climate change.
- At the same time, due to high level of poverty & population, it's not possible for developing countries & Least Developed Countries (LDCs) to keep wetlands in pristine conditions completely free from human activities.
- The "wise use" concept of Ramsar convention is a **notable attempt made to strike balance between these two opposing aspects**.

*Topic: Disaster and disaster management.*

**Q) With warnings from India's policy-makers and reports of major cities in India struggling to cope with water crisis, exploring technologies to harness fresh water seems to be a ray of hope. Critically examine these technologies. How far would they be effective in preventing a water crisis in the future ? (250 words)**

Livemint

**Why this question:**

The article discusses the major challenge of water crisis the country is facing and highlights the need of emerging technologies in addressing the issue.

**Key demand of the question:**

The answer must bring out the role that technology can play in harnessing effective ways of preventing water crisis in the coming future.

**Directive:**

**Critically Examine** – When asked to examine, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

**Structure of the answer:****Introduction:**

Start with facts justifying the current water crisis conditions facing the country.

**Body:**

The question is straightforward and there isn't much to deliberate, students must first bring out the current conditions of water crisis in the country – state reasons, concerns posed etc. and then move on to explain in what way newer technologies can address the situation in an effective and sustainable manner.

**Conclusion:**

Conclude with significance of technology and put a word of caution that technology alone can not be a solution for the crisis but also awareness, sustainable use of water is the need of the hour.

**Introduction:**

- India is on the threshold of a very serious groundwater crisis, which needs mitigation both in the fields and at the policy corridors of the country.
- A World Bank study puts the plight of the country in perspective: 163 million Indians lack access to safe drinking water; 210 million Indians lack access to improved sanitation; 21% of communicable diseases are linked to unsafe water.
- Many Indian cities, including Delhi and Bangalore, face a water crisis, especially that of freshwater.

**Body:****Technologies to harness fresh water:**

- **Rainwater Harvesting:** It is a process involving collection and storage of rain water (with the help of artificially designed system) that runs off natural or man-made catchment areas e.g. roof top, compounds, rock surface or hill slopes or artificially repaired impervious/semi-pervious land surface.
  - **Pros:** It reduces Runoff loss, helps meet rising demand of water by recharging the water table, No land is wasted for storage purpose and no population displacement is involved, increases the productivity of aquifer and reduces urban flooding.
  - **Cons:** High installation charges, lack of awareness and education,



- **Desalination:** It is a technology that converts salt water into freshwater using reverse osmosis (RO). Osmosis involves 'a solvent naturally moving from an area of low concentration, through a membrane, to an area of high concentration'
  - **Pros:** Abundance of Seawater around India. RO is commercially proven and the dominant technology. It is easier for attracting the private players.
  - **Cons:** RO plants convert seawater to fresh water, the major environmental challenge they pose is the deposition of brine (highly concentrated salt water) along the shores. This reduces the availability of prawn, sardine and mackerel. Environmentalists second this saying that hyper salinity along the shore affects plankton, which is the main food for several of these fish species. The construction of the RO plants required troves of groundwater. Desalinated water can also be acidic to both pipes and digestive systems.
- **Low Temperature Thermal Desalination (LTTD)** is one process that uses the availability of a temperature gradient between two water bodies or flows to evaporate the warmer water at low pressure and condense the resultant vapour with the colder water to obtain freshwater.
  - **Pros:** Better than the Desalination technique; simplicity of the LTTD process also enables to control the quality of product water in order to provide either good quality drinking water or boiler grade water as the situation warrants.
  - **Cons:** the LTTD technique draws power from diesel sets

The water crisis of India cannot be solved by just one type of solution. Thus, technology alone cannot be a panacea. There is a need for multi-pronged solution to tackle the crisis of water.

#### Other measures needed:

- India's priority must be:
  - To make our irrigation and water systems amenable to modern concepts.
  - To complete irrigation and water sector reforms.
  - To implement improved water management, governance and regulation practices.
  - Pricing system for water: For making people use water efficiently
- Deepen our understanding of our water resources and usage and put in place interventions that make our water use efficient and sustainable.
- Augmentation of watersheds that can store more good water, for use in agriculture and to serve habitations.
- Strict pollution control enforcement.
- **Decentralisation of irrigation commands**, offering higher financial flows to well-performing States through a **National Irrigation Management Fund**.
- Groundwater extraction patterns need to be better understood through **robust data collection**.
- Pollution can be curbed by levying suitable costs.
- Poor maintenance of pipelines, consistent leakage and illegal tapping of water are some of the issues that need to be addressed on a war-footing.
- Adopting rainwater harvesting techniques is the need of the hour.
- A legal mandate will work better than just competition and cooperation; it would make governments accountable.
- These forward-looking changes would need revamped national and State institutions, and updated laws.
- Urban India needs to focus on recycling and harvesting water, having better testing and purification facilities and increase public awareness on the need to conserve water.
- Large catchment areas need to be developed around water bodies so that natural recharge of groundwater takes place. A good example is the **Seog catchment area** which has been denoted as a wildlife sanctuary and where no construction is allowed.
- Greywater recycling, a method of recycling wastewater from kitchen sinks, showers and laundry fixtures.
- Greywater recycling helps reduce household water usage by about 50% .
- This year's World Water Development Report makes it clear that nature-based solutions which are also aligned with the principles and aims of the 2030 Agenda for Sustainable Development can offer answers to our most pressing water-related challenges.

#### Conclusion:

- There is a need for credible environmental and cumulative impact assessments, genuine public consultation process at multiple stages of planning and project implementation, confidence-inspiring appraisal, which



includes the appointment of independent experts, and most crucially, achieving some real monitoring and compliance.

- The **water governance** ought to be made **transparent, accountable and participatory** in every sub-sector, including management of rivers, groundwater, floods, and biodiversity, among others.

**Extra information:** Ancient Indians understood the art of water governance. Most of India's traditional water management has been at the community level; relying upon diverse, imaginative and effective methods for harvesting, storing, and managing rainfall, runoff and stream flow. Some of the traditional water conservation structures:

- **Phad** – It is a community-managed irrigation system in the Tapi river basin in Maharashtra. It starts with check dam built across a river and canals to carry water to agricultural blocks with outlets to ensure excess water is removed from the canals.
- **Zing** – It is found in Ladakh, are small tanks that collect melting glacier water. A network of guiding channels brings water from the glacier to the tank.
- **Kuhls** – They are surface water channels found in the mountainous regions of Himachal Pradesh. The channels carry glacial waters from rivers and streams into the fields.
- **Zabo or Ruza System**– It is practised in Nagaland. Rainwater that falls on forested hilltops is collected by channels that deposit the run-off water in pond-like structures created on the terraced hillsides.
- **Jackwells** – The Shompen tribe of the Great Nicobar Islands uses this system, in which bamboos are placed under trees to collect runoff water from leaves and carries it to jackwells which are pits encircled by bunds made from logs of hard wood.
- **Pat system** – It is developed in Madhya Pradesh, in which the water is diverted from hill streams into irrigation channels by diversion bunds. They are made across the stream by piling up stones and teak leaves and mud.
- **Eri** – It is tank system, widely used in Tamil Nadu which acts as flood-control systems, prevent soil erosion and wastage of runoff during periods of heavy rainfall, and also recharge the groundwater.
- **Johads** – They are small earthen check dams used to conserve and recharge ground water, mainly constructed in an area with naturally high elevation.
- **Panam keni** – The Kurumba tribe (a native tribe of Wayanad) uses wooden cylinders as a special type of well, which are made by soaking the stems of toddy palms and immersed in groundwater springs.
- **Ahar Pynes** – They are traditional floodwater harvesting systems indigenous to South Bihar. Ahars are reservoirs with embankments on three sides and Pynes are artificial rivulets led off from rivers to collect water in the ahars for irrigation in the dry months.
- **Jhalara** – Jhalaras are typically rectangular-shaped stepwells that have tiered steps on three or four sides in the city of Jodhpur.
- **Bawari** – Bawaris are unique stepwells that were once a part of the ancient networks of water storage in the cities of Rajasthan.
- **Taanka** – It is a cylindrical paved underground pit into which rainwater from rooftops, courtyards or artificially prepared catchments flows. It is indigenous to the Thar Desert region of Rajasthan.
- **Khadin** – Also called dhora, is a long earthen embankment that is built across the hill slopes of gravelly uplands. It is indigenous to Jaisalmer region and similar to the irrigation methods of Ur region (Present Iraq).
- **Kund** – It is a saucer-shaped catchment area that gently slopes towards the central circular underground well. It is found in the sandier tracts of western Rajasthan and Gujarat.

## Q) Discuss the concept of community-based Disaster Management and highlight its principles and challenges. (250 words)

National policy on disaster management. IGNOU Notes on Disaster Management.

### **Why this question:**

The question is directed to evaluate the significance of community-based Disaster Management.

### **Key demand of the question:**

The answer must discuss in detail the community-based Disaster Management- its features, importance and challenges.

### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



### **Structure of the answer:**

#### **Introduction:**

Begin with brief on what you understand by community-based Disaster Management.

#### **Body:**

Discussion should include the following:

Community-based disaster management (CBDM) is an approach to building the capacity of communities to assess their vulnerability to both human induced and natural hazards and develop strategies and resources necessary to prevent and/or mitigate the impact of identified hazards as well as respond, rehabilitate, and reconstruct following its onset.

Explain the principles of CBDM.

CBDM empowers communities to be pro-active in disaster management and creates a space for them to develop strategies on their own terms rather than waiting for already overstretched governments and NGO's.

Bring out associated challenges if any.

#### **Conclusion:**

Conclude with way forward.

#### **Introduction:**

Community-based disaster management (CBDM) is an approach to building the capacity of communities to assess their vulnerability to both human induced and natural hazards and develop strategies and resources necessary to prevent and/or mitigate the impact of identified hazards as well as respond, rehabilitate, and reconstruct following its onset. Simply put, the aim of CBDM is to

- reduce vulnerabilities and increase capacities of vulnerable groups and communities to cope with, prevent or minimize loss and damage to life, property, and the environment,
- minimize human suffering
- Hasten recovery.

#### **Body:**

##### **Importance of CBRDM:**

- The same plan, regardless of the regional characteristics, is implemented or imposed everywhere.
- Local knowledge, experiences, skills, resources and techniques are not given due importance. Rather external resources and techniques are proposed to be utilized.
- Negligence about local cultural instincts and heritage.
- Prioritisation is decided by an outsider and not the stakeholders or the community itself.
- Local community does not have any information about the disaster management plans for their area and the role of different sectors in helping the community during disasters.

##### **Advantages of CBRDM:**

- Feelings of coordination and self belonging to the society are developed.
- Local geo-climatic and socio-cultural characteristics get attention of the people in development and disaster management.
- Local initiatives begin and community provides assistance to the executing agencies involved in disaster management.
- There is exchange of knowledge, information, skills and techniques between the community and the experts involved from outside.
- Community comes forward to put forward its ideas for selection of appropriate programmes suitable to their locality and society.
- Community can monitor the quality of works being done in its locality. It will also generate a sense of responsibility among the community.
- It will lead to capacity building of the community on issues of disaster-safe developmental activities.

#### **Conclusion:**

- There is a need for coordination in the Community-Based Approach among all the stakeholders.
- This bottom-up, participatory approach can make community members more receptive of new knowledge and information presented to them.



## Q) Highlight development perspective to disaster management with focus on disaster management in riverine regions. (250 words)

National policy on disaster management. IGNOU Notes on Disaster Management.

### **Why this question:**

The question aims to analyse the development angle possible in riverine regions that are hit by disasters.

### **Key demand of the question:**

Explain in detail the development aspects associated with disaster hit region and in what way they are essential in overall development of the region.

### **Structure of the answer:**

#### **Introduction:**

In brief explain the significance of development in disaster hit regions.

#### **Body:**

Explain that with the kind of economic losses and developmental setbacks that the country has been suffering year after year, it makes good economic sense to spend a little extra today in a planned way on steps and components that can help in prevention and mitigation of disasters, then be forced to spend many multiples more later on resto-ration and rehabilitation. The design of development projects and the process of development should

take the aspect of disaster reduction and mitigation within its ambit; otherwise, the development ceases to be sustainable and eventually causes more hardship and loss to the nation.

Quote a case study from recent times – Assam floods etc. to justify your answer.

#### **Conclusion:**

Conclude by suggesting way forward.

#### **Introduction:**

- India is vulnerable, in varying degrees, to a large number of disasters. Floods affect an average area of around 7.5 million hectares per year.
- According to the National Commission on Floods, the area susceptible to floods was estimated in 1980 to be around 40 million hectares and it is possible to provide reasonable degree of protection to nearly 80 per cent (32 million ha). Riverine flooding is perhaps the most critical climate-related hazard in India.

#### **Body:**

##### **India's key vulnerabilities:**

- Coastal states, particularly in the eastern coast and Gujarat on the west coast are vulnerable to cyclones.
- 4 crore hectare land mass is vulnerable to floods.
- 68% of the net sown area is vulnerable to drought.
- 55% of total area is in Seismic zones –III to V and vulnerable to earthquakes.
- Sub-Himalayan region and Western Ghats are vulnerable to landslides.

Disasters lead to enormous economic losses that are both immediate as well as long term in nature and demand additional revenues. Also, as an immediate fall-out, disasters reduce revenues from the affected region due to lower levels of economic activity leading to loss of direct and indirect taxes. In addition, unplanned budgetary allocation to disaster recovery can hamper development interventions and lead to unmet developmental targets.

With the kind of economic losses and developmental setbacks that the country has been suffering year after year, the development process needs to be sensitive towards disaster prevention and mitigation aspects. There is thus need to look at disasters from a development perspective as well.

##### **Current institutional measures to tackle such incidences:**

- The **National Cyclone Risk Mitigation Project (NCRMP)**, to be implemented with financial assistance from the World Bank, is envisaged to have four major components:
  - Component A: Improvement of early warning dissemination system by strengthening the Last Mile Connectivity (LMC) of cyclone warnings and advisories.
  - Component B: Cyclone risk mitigation investments.
  - Component C: Technical assistance for hazard risk management and capacity-building.
  - Component D: Project management and institutional support.
- These components are highly interdependent and have to be implemented in a coherent manner.





- In 2016, **National Disaster Management Plan** was unveiled to tackle disaster. It provides a framework to deal with prevention, mitigation, response and recovery during a disaster.
- The **NDMA** had come up with its **National Guidelines of Management of Cyclones in 2008**. The basic premise of these guidelines is that the mitigation has to be multi-sectoral.
- Developing Integrated Coastal Zone Management (ICZM) frameworks for addressing the sustainability and optimal utilisation of coastal resources as also cyclone impact minimisation plans.
- Ensuring cyclone resistant design standards are incorporated in the rural/ urban housing schemes in coastal areas
- **Implementing coastal flood zoning, flood plain development and flood inundation management and regulatory plans.**
- **Coastal bio-shields** spread, preservation and restoration/ regeneration plans.
- There is a need for **private sector participation in designing and implementing policies, plans, and standards.**
- Need of **Disaster Management program to be inclusive including women, civil society, and academia.**

#### Way forward:

- For addressing natural calamities such as floods and drought, there already exist a number of plan schemes under which a lot is being done and can be done.
- State Governments need to make full use of the existing plan schemes and give priority to implementation of such schemes that will help in overcoming the conditions created by the calamity.
- Reconstruction efforts must involve rebuilding in a better way. Climate proofing in Kerala calls for structures to be built with wind- and water-resistant materials.
- People need to relocate out of harm's way. During the 2015 floods, Chennai illustrated the price of unrestricted urban development.
- Early warning is vital. Because of investments in these systems, Cyclone Phailin (2013) claimed less than 40 lives in Odisha. In Kerala, there was no timely forecast from national weather services. The State needs a reliable flood forecasting capability.
- There needs to be tougher implementation of logging and mining regulations in fragile ecologies. Deforestation worsened the effects of Kerala's floods and mudslides, as the report of the Western Ghats ecology expert panel 2011 had warned.
- Non-structural measures for flood forecasting provide early warning in flood prone areas have proved to be successful for flood management. High-tech warning systems on the ground will not be useful until the authorities, key stakeholders and communities are trained to act upon the information obtained from these facilities.
- Different stakeholders need to come together for mapping risks, vulnerabilities, and resources, engage in regular preparedness actions like drills and capacity building, develop and update emergency plans, check the availability of resources at the local level and act upon early warning intimations.

#### Conclusion:

- India should prepare to mitigate and deflect the destruction caused by riverine floods. We need to employ technology, strict following of command structure and most importantly the participation and cooperation of local communities in the affected area.

### Q) Discuss the role of Information Technology in disaster prevention. (250 words)

NIOS notes on disaster management

#### **Why this question:**

The question expects us to bring out the role of various facets of Information and technology in prevention of disasters as well as in managing the aftermath of disaster.

#### **Key demand of the question:**

The answer must talk about role played by technology in effectively managing and preventing disasters.

#### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

#### **Structure of the answer:**

##### **Introduction:**

Begin with brief introduction on what are disasters.

**Body:**

Discussion should include the following:

Define disaster management- e.g Disaster management is a systematic process with primary aim to reduce the negative consequences and effect of disasters, hence safeguarding people and social infrastructure.

Discuss in points, how big data can play a role in disaster management. E.g Big data generated from geo-informatics and remote sensing platforms can contribute to early warning systems for disasters. Geographical Information Systems (GIS), Global Positioning Systems (GPS) and environmental monitoring sensors with cloud services have a potential to predict disasters; Geoinformatics information along with transportation network data can benefit to understand human mobility patterns during disasters; social data sets; financial data sets etc.

Also discuss the role of internet etc. in disaster handling.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- India is a large country and prone to a number of natural hazards. Among all the natural disasters that country faces, river floods are the most frequent and often devastating. The shortfall in the rainfall causes droughts or drought like stimuli in various parts of the country. The country has faced some severe earthquakes causing widespread damage to the life and property.
- India has a coastline of about 8000 km which is prone to very severe cyclonic formations in the Arabian Sea and Bay of Bengal. Another major problem faced by the country is in the form of landslides and avalanches.

**Body:****The role of Information Technology in disaster prevention:****GIS AND REMOTE SENSING:**

- GIS provides a tool for effective and efficient storage and manipulation of remotely sensed data and other spatial and non-spatial data types for both scientific management and policy oriented
- This can be used to facilitate measurement, mapping, monitoring and modelling of variety of data types related to natural phenomenon.
- The specific GIS application in the field of Risk Assessment are Hazard Mapping to show earthquake, landslides, floods or fire hazards.
- Theses map could be created for cities, districts or even for the entire country and tropical cyclone Threat Maps are used by meteorological departments to improve the quality of the tropical storm warning services and quickly communicate the risk to the people likely to get affected by the
- eg.: GIS and Remote Sensing can be used for preparing seismic hazards maps in order to assess the exact nature of risks.
- GIS can be used in carrying out search and rescue operations in a more effective manner by identifying areas that are disasters prone and zoning them accordingly to risk magnitudes

**INTERNET**

- In the present era of electronic communication, the internet provides a useful platform for disaster mitigation communications.
- Launching of a well defined web site is a very cost-effective means of making an intra-national and international presence felt.
- It provides a new and potentially revolutionary option for the rapid, automatic, and global dissemination of disaster information. A number of individuals and groups, including several national meteorological services, are experimenting with the Internet for real-time dissemination of weather observation, forecasts, satellite and other
- In the most critical phase of natural disasters electronic communication have provided the most effective and in some instances perhaps the only means of communication with the outside world.

**WARNING AND FORECASTING SYSTEM**

- An advance system of forecasting, monitoring and issuing early warnings plays the most significant role in determining whether a natural hazard will assume disastrous proportions or
- Indian Metrological Department (IMD) provides cyclone warnings from the Area Cyclone Warning Centres (ACWCs) It has developed the necessary infrastructure to originate and disseminate the cyclone warnings at appropriate



- Seismological observations in the country are made through national network of 36 seismic stations operated by the IMD, which is the nodal
- Long term drought proofing programmes on the natural resources of the district have been greatly helped by the use of satellite data obtained by National Remote Sensing Agency.
- The drought assessment is based on a comparative evaluation of satellite observed green vegetation cover (both area and greenness) of a district in any specific time period by the National Agricultural Drought Assessment and Management System (NADAMS).
- Flood forecasts and warnings are issued by the Central Water Commission (CWC), Ministry of Water Resources. These are used for alerting the public and for taking appropriate measures by concerned administrative and state engineering agencies in the flood hazard

#### Conclusion:

- Advancement in Information Technology in the form of Internet, GIS, Remote Sensing, Satellite communication, etc. can help a great deal in planning and implementation of hazards reduction.
- For maximum benefit, new technologies for public communication should be made use and natural disaster mitigation messages should be conveyed through these measures.

**Q) The ingenuity of the Coalition for Disaster Resilient Infrastructure (CDRI) clearly reflects India's commitment in promoting disaster resilient infrastructure and next major foreign policy innovation. Elucidate. (250 words)**

Livemint

#### **Why this question:**

This article covers "Will India's idea on disaster management gain global support". It talks about the prospects of Coalition for Disaster Resilient Infrastructure. Indian Prime Minister, at the Hamburg G20 meet in 2017, proposed Coalition for Disaster Resilient Infrastructure (CDRI). It may be taken up at the G7 meet next month in Biarritz, where India has been invited by hosts France, along with Australia, Chile and South Africa.

#### **Key demand of the question:**

The answer must discuss the concept in detail and the significance of it in managing disasters.

#### **Directive:**

**Elucidate** – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

#### **Structure of the answer:**

##### **Introduction:**

Describe what is 'Coalition for Disaster Resilient Infrastructure'.

##### **Body:**

Each time a natural disaster occurs anywhere in the world, countries try to provide immediate relief, but there is no focus on building disaster-resilient Infrastructure.

In this context, Indian PM proposed CDRI which will act as a convening body that will pool best practices and resources from around the world for reshaping construction, transportation, energy, telecommunication and water, so that building in these core infrastructure sectors factors in natural catastrophes.

CDRI could fill this gap of funds and technology and help developing countries to build disaster-resilient Infrastructure.

For instance, India is a world leader in preventing human deaths due to disasters. The United Nations Office for Disaster Risk Reduction (UNISDR) has praised India's zero casualty approach and playing a pioneering role model for global community for drawing up a national and local strategy to reduce disaster losses and risks.

##### **Conclusion:**

Conclude that India's initiative for Coalition for Disaster Resilient Infrastructure will help in the development of appropriate infrastructure to face the least developed and developing countries with natural calamities.



### Introduction:

- The **Coalition for Disaster Resilient Infrastructure (CDRI)**, as proposed by Indian Prime Minister, will act as a **convening body that will pool best practices and resources from around the world for reshaping construction, transportation, energy, telecommunication and water, so that building in these core infrastructure sectors factors in natural catastrophes.**

### Body:

#### Need for CDRI:

- According to Sendai framework, every \$1 spent in disaster risk reduction leads to gain of \$7. But developing countries face the dilemma of balancing economic investment for development vs disaster resilient infrastructure.
- CDRI could fill this gap of funds and technology and help developing countries to build disaster-resilient Infrastructure.
- Suppose a disaster strikes a country, the affected nation could approach CDRI for technical and financial help, thus shielding it from excessive damage and devastation.
- **Post-calamity resuscitation and reconstruction** to strengthen local infrastructure and soften the blow of the next disaster, is a farsighted approach.
- It can only work if there is domestic political will, which is reinforced at the multilateral level through CDRI.

#### India's commitment in promoting disaster resilient infrastructure

- The Prime Minister pledged a funding of ₹480 crore (\$70 million) for CDRI in G20 summit in Osaka to promote the idea and invite greater international participation.
- India's initiative for Coalition for Disaster Resilient Infrastructure will help in the development of appropriate infrastructure to face the least developed and developing countries with natural calamities.
- CDRI could fill a real gap at a time when climate change-induced floods, cyclones and fires have multiplied in destructive force.
- For instance, India is a world leader in preventing human deaths due to disasters. The United Nations Office for Disaster Risk Reduction (UNISDR) has praised India's zero casualty approach and playing a pioneering role model for global community for drawing up a national and local strategy to reduce disaster losses and risks.

#### Foreign policy innovation:

- CDRI will boost India's soft power, but more importantly it has wider connotation than just economics, as synergy between disaster risk reduction, SDG and Climate Accord provides for sustainable and inclusive growth
- The United Nations Office for Disaster Risk Reduction (UNISDR) has praised India as a pioneering role model for drawing up a national and local strategy to reduce disaster losses and risks.
- If India is a world leader in preventing human deaths in disasters, it is not so adept in protecting property and infrastructure from extreme weather havoc. This is where CDRI is looking to tap into the expertise of Japan.
- CDRI will also complement India's efforts to bring together a coalition of countries harnessing solar power under the International Solar Alliance framework

#### Case Studies:

- Japan is prone to recurrent killer earthquakes, tsunamis and typhoons, but it has overcome these liabilities through improved building rules, stricter zoning laws and regulations since the 1980s, making it the world's safest and most disaster-resilient country.
- In Latin America, Chile has similarly learnt lessons from past catastrophes and drastically cut down casualties and losses from disasters through well-regulated building standards.

#### Conclusion:

- Each time a natural disaster occurs anywhere in the world, countries try to provide immediate relief, but there is no focus on building disaster-resilient Infrastructure. CDRI would help fill this gap and India can play a crucial role in setting a global example.

**Q) In a large and diverse country like India, authorities are regularly confronted with large-scale protests, riots; incidents of mass civil disorder and crowd disasters. While keeping in focus the NDMA guidelines on Crowd Disaster Management, discuss the various issues faced by government. (250 words)**

#### Reference



### Why this question:

The question aims to analyse the disaster management in crowds and various issues faced by the government in dealing with the same.

### Key demand of the question:

The answer must analyse what is crowd disaster management and provide for relevant discussions.

### Directive:

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

### Structure of the answer:

#### Introduction:

Describe what is crowd disaster management.

#### Body:

The discussion must cover the following aspects:

What are the different types of disasters associated with crowd ranging from stampede, fire incidences, floods etc.

Discuss the causes and consequences, suggest the framework provided by NDMA for crowd disaster management.

#### Conclusion:

Conclude with need for following best practices and rules and regulations in place.

#### Introduction:

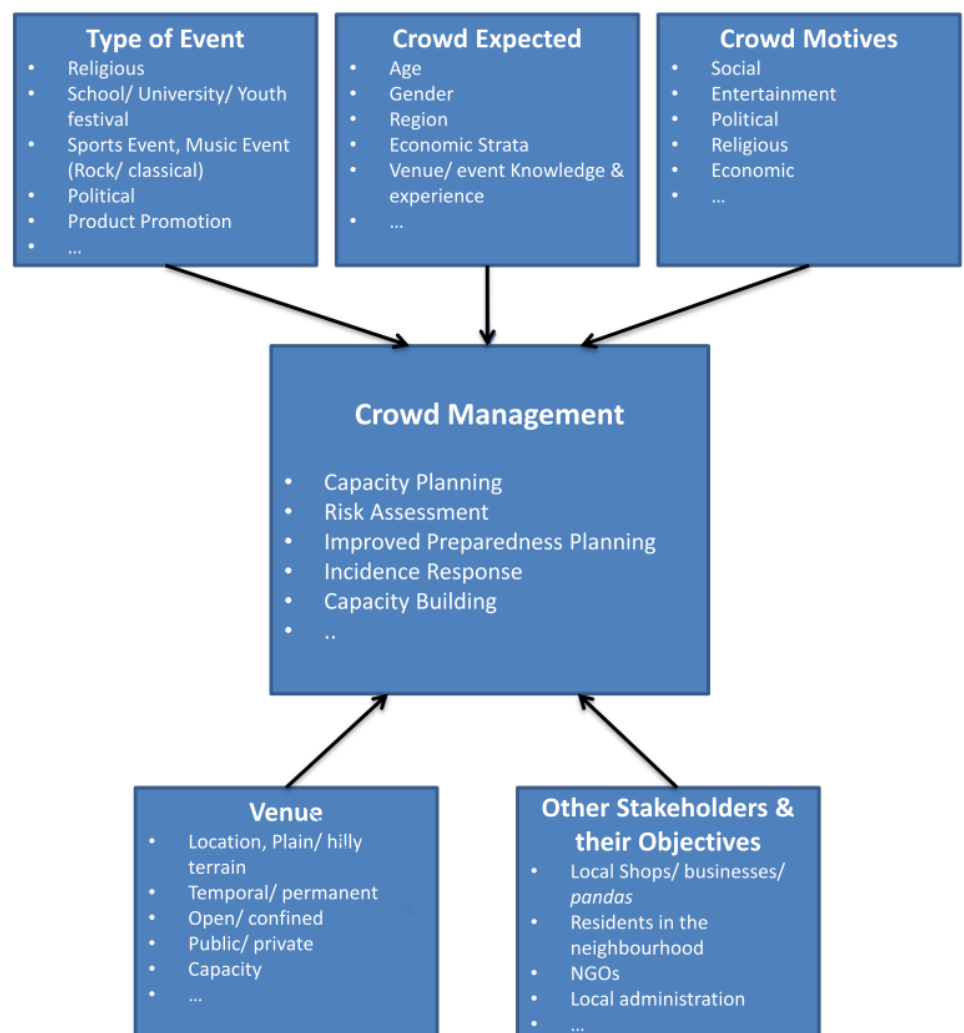
- Poor crowd management mechanism in India has lead to many unprecedented tragedies in India. From religious shrines to railway stations- frequent incidents of human stampedes are an unfortunate reality of Indian life.

#### Body:

- National Guide on Crowd Management-NDMA:** In view of the recurring stampedes at places of mass gathering, including religious places, and typically ad-hoc responses to those, the National Disaster Management Authority (NDMA) had prepared 'Suggestive Framework for Preparation of Crowd Management Plan for Events/Venues of Mass Gathering'.

#### Issues faced by Government:

- Governance and accountability:** There are lots of provisions in existing acts and rules for effective crowd management. However, enforcement and implementation are the key challenges faced by the administrator and law enforcement agencies. **g.:** Dabwali fire tragedy and Uphaar Cinema Tragedy are the typical examples of lackadaisical approach to crowd safety.







- **Poor infrastructure:** Lack of sufficient manpower in permit granting bodies, political pressure. Deployment of untrained security personnel in order to save cost.
- **No crowd management plan:** A major issue highlighted by recurring stampedes is the poor crowd management by concerned authorities. The state governments and local authorities have not yet implemented the NDMA guidelines on crowd management.
- **Rising population:** With rising population and rapid urbanization, urban areas are likely to be more susceptible along with places of frequent mass gatherings like temples.
- **Tolerance to crowd:** According to scholar Teresa Moore, large-scale events in India are more susceptible to stampedes because of a greater tolerance for high-density crowds. The higher tolerance for crowded places in India allows for more people to get closer, because they don't feel uncomfortable until it's very packed.

**Measures needed:** Some salient points from the NDMA guidelines are as follows:

- **Crowd Queues:** Initial focus should be on traffic regulations around the mass gathering venues. There should be a route map for venues along with emergency exits route maps. Also, there should be Barricade facility to control the movement of crowd queues. In case of large crowd gathering, there should be snake line approach, along with constant monitoring of crowds for developing hazard points.
- **VIPs:** There should be specific plans to handle VIPs and if VIPs add the security concerns then authorities should refuse entry to VIPs.
- **Communications:** There should be CCTV surveillance, along with another public address system, such as loudspeakers should be installed at all crowded points, in order to communicate with the crowds.
- **Medical facilities:** Ambulance and health care professionals should be available on venues. NDMA has recommended the medical first-aid rooms and emergency operations in order to handle post-disaster emergencies.
- **Basic facilities:** The venue Organisers should ensure authorised use of electricity, fire safety extinguishers and other arrangements as per the safety guidelines.
- **Civil society:** Police authorities should access the preparedness. Also, Event/venue managers should involve NGOs and civil society in traffic control, medical assistance and mobilization of local resources in case of disaster.
- **Capacity building:** In order to be proactive, there is need to focus on the capacity building. Also, the training manual should be periodically in order to usher in new crowd management technique. Apart from that if there is issue of insufficient Security personnel, students, NGOs and civil society should be roped in. Also, the media should be trained to manage communications during crowd disasters.
- **Use of technology:** Smart phones have been used to detect crowd dynamics such as pedestrian flows and bottlenecks, and social groups. Event/venue managers should get liability insurance for their visitors. Example, Shri Maa Vaishnodevi Shrine Board has insurance cover against any accidental casualty for visitors.
- **Awareness Generation Campaign:** A campaign to educate the public that railway tracks cannot be treated as commons, and vigorous enforcement, will reduce the probability of train related disasters like the Amritsar case.

**Conclusion:**

- In most of the cases, the crowd disasters are man-made disasters and such tragedies can be prevented with proactive planning and execution by the authorities involved.
- Apart from that lessons should be learnt from past mistakes. Every member of society is the stakeholder in such disaster prevention. NDMA should also focus on a central repository of incidences so that lessons can be learnt from past.

**Q) Evaluate the relationship between Disaster and Development. To what extent this relationship is significant to policy makers? Discuss. (250 words)**

**Why this question:**

The question seeks to evaluate the relationship between development and disasters.

**Key demand of the question:**

The answer must discuss the relationship between development and disasters and its significance to policy makers.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



**Evaluate** – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

**Structure of the answer:**

**Introduction:**

Begin with brief that Development schemes can both increase and decrease vulnerability. In the traditional approach to disasters, the attitude was that the disasters, especially natural ones, were an act of god and as such were beyond human control; accepting death and damage to property was part of the costs.

**Body:**

Discussion should include the following:

What is the relationship between disaster and development?

How is development linked with disaster?

What is development disaster management?

What is disaster development nexus?

**Conclusion:**

Conclude with way forward.

**Introduction:**

- A disaster is an unforeseen event, which can overwhelm the capacity of the affected people to manage its impact. Disaster management efforts aim to reduce or avoid the potential losses from hazards, assure prompt and appropriate assistance to the victims of a disaster, and achieve a rapid and effective recovery.

**Body:**

- Disasters and development are closely linked. Disasters can both destroy development initiatives and create development opportunities. Development schemes can both increase and decrease vulnerability.

**Disaster-Development**

		<b>Economic Development</b>	<b>Social Development</b>
Disaster limits development		Destruction of fixed assets. Damage to transport, communication, infrastructure. Erosion of livelihood.	Destruction of health or education infrastructure and personnel. Death, migration of key social actors leading to an erosion of social capital.
Development causes disaster risk		Unstable development practices that create wealth for some at the expense of unsafe working or living conditions for others or degrade the environment.	Development path generating cultural norms that promote social isolation or political exclusion.
Development reduces disaster risk		Access to adequate drinking water, food, waste management and a secure dwelling increases people's resilience. Trade and technology can reduce poverty. Investing in financial mechanisms and social security can cushion against vulnerability.	Building community cohesion, recognising excluded individuals or social groups, and providing opportunities for greater involvement in decision-making, enhanced educational and health capacity increases resilience.

- Nations increase their capacities and decrease their vulnerabilities through development. Development planning is used by governments to draft plans to guide economic and social development. The concept of **sustainable development** is widely recognized by international agencies and by governments, although its definition is not universally agreed upon. Sustainable development is the outcome of comprehensive planning that incorporates considerations of disaster risk (reducing hazards and vulnerability) as well as strategies designed to protect the environment and to improve economic growth, levels of education, and living conditions of the entire population
- **The Sendai Framework for disaster reduction also focuses on development of Disaster Resilient Infrastructure, reducing the disaster risk, Building back better.**

**Conclusion:**

- The holistic approach to integrating disaster with development has been emphasized and practiced by policymakers and public managers of local communities.
- Disasters can be seen as a “**window of opportunity**” for development and **well-planned development** can certainly reduce impacts of disasters.

**Case Study:** Disasters can provide unique windows of opportunity in development. In the wake of the 1986 earthquake in El Salvador, the health sector took advantage of the severe damage to the large Children’s Hospital to restructure and decentralize services so that the nation would not be dependent on the services of one “megahospital.” The El Salvador earthquake also had extreme social and developmental consequences: scarcity of housing, high unemployment (26-35%), and a reduced capacity in public health facilities. Hurricane Joan, which ravaged the Atlantic coast of Nicaragua in 1988, also had serious effects on an already failing economy during a difficult political and economic period.

*TOPIC: Linkages between development and spread of extremism; Role of external state and non-state actors in creating challenges to internal security.*

**Q) What is meant by radicalisation ? What are its types and how does India deal with radicalisation ? Discuss. (250 words)**

[Timesofindia](https://www.timesofindia.com)

**Why this question:**

The question aims to analyse the concept of radicalization.

**Key demand of the question:**

Explain in detail the concept of radicalization, its types and in what way India deals with deradicalization.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:****Introduction:**

In brief define radicalization.

**Body:**

Explain the context of question with the help of recent incidences, explain what are the different types of radicalization – Right-Wing Extremism, Politico-Religious Extremism, Left-Wing Extremism etc. Then discuss India’s efforts in this direction to deradicalize.

**Conclusion:**

Conclude that the problem of radicalization has seen an uptrend and in absence of any clear policy will continue to spread. It is important therefore to conduct meaningful research to aid the development of a framework that not only deals with de-radicalization but also rehabilitate the misguided youth of the nation.

**Introduction:**

- The word “radical” refers to **change in the fundamental nature of something**, thus Radicalism is **set of beliefs or actions of people who advocate thorough or complete political or social reform**.
- Radicalisation refers to the **process of an individual’s transformation from a moderate, law-abiding citizen into an active, anti-state, violent extremist**.

**Body:****Types of Radicalisation:**

- **Right-Wing Extremism:** It is characterized by the violent defence of a racial, ethnic or pseudo-national identity, and is also associated with radical hostility towards state authorities, minorities, immigrants and/or left-wing political groups. E.g.: Ku Klux Klan in USA.
- **Politico-Religious Extremism:** It results from political interpretation of religion and the defence, by violent means, of a religious identity perceived to be under attack (via international conflicts, foreign policy, social debates, etc.). Any religion may spawn this type of violent radicalization. E.g.: ISIS using Islam as an alibi.



- **Left-Wing Extremism:** It focuses primarily on anti-capitalist demands and calls for the transformation of political systems considered responsible for producing social inequalities, and that may ultimately employ violent means to further its cause. It includes anarchist, Maoist, Trotskyist and Marxist-Leninist groups that use violence to advocate for their cause. E.g.: Naxalism in India.
- **Internet Radicalization:** Internet is used by terrorist as an effective tool for radicalisation and terror financing. Terror groups use the internet to advocate the use of violence to further a religious, ideological or political cause.

#### Steps needed to deal Radicalism in India:

- A **consistent counter radical strategy** is required to tackle radicalism.
- **Institutions have to be strengthened:** Educational and political institutions should be strengthened at ground level so that people of any state feel empowered. Also, enough number of job opportunities should be provided to people to decrease their chances of joining any radicalist organization.
- Central agencies like RAW, IB to play important role in covert operations to know the extremist propaganda and to inform the state special cell regarding the mechanism to regulate the actions of the radicalized youth.
- There should be sufficient evidence behind banning any organization. This is necessary to avoid court cases. Also, Intelligence Agencies, Law Enforcement Agencies and Judicial Courts need to act in unison on this matter.
- Once government identifies any radicalist organization, it needs to **take hold of their physical and financial resources**.
- **Countering activities of radicalists.** If hate can be taught, then love and social responsibilities toward people and the nation can also be taught. This is necessary to de-radicalize people.
- It needs to be ensured that people who been de-radicalized feel safe and secure in the country.
- The corner stone for radicalization is **poverty, deprivation and isolation and lack of employment and standard education opportunities, these to be addressed** by the government and policies to be formulated for inclusive participation and facilitation of all means for their development.
- **Political executive** plays an important role in drawing the youth into decision making and giving responsibility for the development of the community.
- **Social media to be regulated** when such info of such activities to be held and to draw a legalized guide lines to regulate in due means without contradicting the privacy of an individual.

#### Conclusion:

- Radicalisation is a danger to internal security and polarises the Indian society deepening the sectarian differences.
- Thus it is imperative to fight radicalisation on all fronts. Initiatives like UDAAN they must be inclusive in nature and drag youth from all sections, Nehru yuva kendra to be given impetus in such areas to involve youth in all capacity, cultural and sports activities so there are less chances for them to get influenced from such ideological goals.

**Q) Do you agree that underdevelopment often creates the conditions for insurgency and spread of extremist ideologies among the people, who perceive that their needs are not being taken care of by the government ? Discuss in detail the linkage between development and spread of extremism. (250 words)**

#### Reference

##### *Why this question:*

The question is based on the static portions of the GS -III paper, it aims to analyse the linkage between development and spread of extremism.

##### *Key demand of the question:*

The answer must analyse in detail the linkage between development and spread of extremism.

##### *Directive:*

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### *Structure of the answer:*

##### *Introduction:*

Begin with brief introduction on extremism.

**Body:**

Explain how it is true that underdevelopment often creates the conditions for insurgency and spread of extremist ideologies among the people, who perceive that their needs are not being taken care of by the government. While it has been the policy of governments around the world today to emphasize on “inclusive development”, there are always groups in every state who feel alienated because they perceive that they are left out of the developmental efforts. Such perceptions coupled with inefficient and corrupt governance create an ideal condition for extremism and militancy. More than lack of development, it is the perception of injustice, misgovernance and inability of the system to engage the disaffected lot that lead people to violence and extremism.

**Conclusion:**

Conclude with way forward.

**Introduction:**

- Extremism can be defined as **any ideology considered to be far outside the mainstream attitudes of a society or to violate common moral standards**. It means an ideology deflected from the mainstream of common moral standards which can be perceived as good or bad depending upon the political and philosophical values.
- Improvement in standard of living is something that everyone craves for and deserves it too. It involves, apart from decent food clothing and shelter, quality education and health and also dignified living.

**Body:****Causes for Extremism:**

- **Lack of governance:**
  - Governance is considered the most important issue as we lack a long term strategic perspective. Government has been giving more priority to Industrialization and less preference to development of tribal areas. Tribals have been denied their constitutional rights and justice.
- **Socio-economic issues:**
  - With regards to socio economic issues education must be the prime intervention and this needs to be addressed with innovation. Once education enters the blood stream of the people of particular region they would be discrete with their violent actions.
  - Most of these people who are entering into the movement of extremism are lacking primary education, basic amenities and infrastructure facilities.
- **Policing:**
  - Efficient and impartial policing is an important requirement of good administration. Weaker section of people does not have much faith in police.
  - People have no faith that justice will be done to them against the powerful person in the society. Here lies one of the attractions of the Naxalite movement and extremist thoughts.
- **Process of getting Justice:**
  - Frustrations have built among the society where disputes and conflicts are not settled in time. Today's judicial system is time consuming in nature. The parties to the dispute lose control over even the terms and details of the dispute once it goes to the court. This way the people minds are turning towards extremist thoughts.
- **Developmental issues related to rise and spread of extremism:** Developmental issues which pertain to the spread of extremism are linked to **lack of access to basic resources to sustain livelihood**.
  - **Forest policy:**
    - In the name of development, habitat of principal adivasi communities were declared reserve forests & in accordance with Forest conservation Act 1980, no forest land can be diverted to non forest use without permission
    - Rights of primitive forest dwellers were restricted resulting in losing access to land.
    - Mass resentment leading to extremist activities.
  - **Displacement & rehabilitation:**
    - Displacement/ forced eviction of people occur due to developmental projects such as irrigation, industrial projects, mining projects, power plants etc. It can be physical, emotional or cultural.
    - Tribal people are most prone to displacement because tribal areas are rich in mineral resources such as Orissa, Jharkhand. This impacts multidimensional trauma on them leading to serious consequences.





- **Labour, unemployment and wages:**

- Unemployment and insecurity of livelihood are growing source of dissatisfaction and anger among youth, both in urban and rural areas.
- Minimum wages for agriculture work are not implemented, increased share of unorganized workers in unorganized sector, no effective coverage of labour welfare laws.
- Hence this multifaceted form of exploitation in the absence of any developmental propaganda forms the major cause of spread of extremism.

Thus, the above causes show that underdevelopment and socio-economic lacunae lead to extremism.

- **Effective implementation of legislation:**

- PESA, MNREGA, Scheduled tribes and other traditional forest dwellers acts must be implemented effectively.

- **Land Related Measures:**

- A serious effort must be made to continuously implement the land ceiling issues for distribution amongst the most vulnerable section of the landless poor.
- Land should be acquired by government for SEZ by paying proper compensation to the farmers.
- Land tribunals or fast track courts must be set up for speedy disposal of land ceiling cases. The loopholes in the respective state ceiling laws must be corrected.

- **Basic amenities and Infrastructure:**

- Failure to provide infrastructure and services as per national norms is one of the much discriminatory manifestations of governance in extremism affected areas. Basic services to standards among the people in these areas to be given top priority.

- **Governance Issues:**

- Areas in central India where unrest is prevailing covers several states like Andhra Pradesh, Orissa, Chattisgarh, Madhya Pradesh, Jharkhand and parts of Maharashtra are manually administered.
- State interventions both for development and for law and order are fairly low. Local populations present in the tribal areas are being exploited by the armed and rich people. Government should taken necessary action in protecting these people.
- The basic steps required in the direction include establishment of credibility and confidence of government, keeping a continuous vigil for fulfilment of people's vision, effective protection, peace and good governance sustainable development with equity in tribal areas will make extremism low in tribal areas.

- **Livelihood Security:**

- should strengthen the subsidiary and supportive activities in horticulture, poultry, fisheries, animal husbandry under the strict guidelines of ministry of agriculture through establishment of quality infrastructure & efficient market linkages at the village level.
- Universalize basic social services to standards amongst the people of extremist affected areas so that the discriminatory manifestations of governance can be removed.

- **Institutional arrangements for centre-state cooperation:**

- Since problems in formulating a counter-Extremist policy as well as in dealing with the issue on a day-to-day basis are sourced to the lack of centre-state cooperation, a permanent institutional mechanism in the form of a coordination centre can be established to thrash out emerging differences.
- A coordination centre does currently exist within the MHA, but requires the active participation of state representatives to ensure smoother coordination

### Conclusion:

- Inequalities between classes have increased over the years which act as source of unrest. **Indian Constitution in article 39** mandates states to prevent concentration of wealth in few hands but policy makers often ignore this resulting into two dimensions: BHARAT and INDIA.
- Only when adivasis and marginalized groups are taken care of both these worlds won't merge. Structural violence causes much of violence. While not condoning radical violence, an honest response to extremism therefore must begin by ameliorating the structural violence in the society.

### Way forward:

- Strengthening of local self govt with additional financial and decision making power would promote development by making them stakeholders in development.
- A majority of adivasis are uneducated, education can help them to demand their rights and fight for them.



- Apart from this, discrimination related to residence, food, clothing, marriage and employment must be removed.
- Roping in more NGOs and other groups that work with these tribals to help them get more skills and opening new vistas of employment based on their skills can help nip alienating feeling among them.
- Land reforms in letter and spirit granting right of land to the tiller can root out long standing dissatisfaction among the tribals.

**Q) The main support for the Naxalite movement comes from Dalits and Adivasis. Discuss the correspondence and linkages of the social conditions of these communities of the population and Naxalism of a particular region. (250 words)**

#### Reference

##### **Why this question:**

The question aims to establish the interlinkages between the communities of Dalits and Adivasis with Naxal movements of the country.

##### **Key demand of the question:**

The answer must discuss and establish the relation between the presence of such communities and the Naxal establishments of a region.

##### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### **Structure of the answer:**

##### **Introduction:**

Begin with brief introduction on Naxal reach and expanse in the country.

##### **Body:**

Discussion should include the following:

Discuss the double tragedy at work in tribal India; The first tragedy is that the state has treated its Adivasi citizens with contempt and condescension. The second tragedy is that their presumed protectors, the Naxalites, offer no long-term solution either.

Explain the plight of thousands of tribals and Dalits in India.

Discuss that plethora of constitutional provisions are in place to protect the Scheduled Castes and Scheduled Tribes, and yet, in practice no SC/ST law comes to their rescue or penalizes the culprits.

##### **Conclusion:**

Conclude with way forward and suggest what needs to be done.

##### **Introduction:**

- Dalits and adivasis comprise about one-fourth of India's population: Dalits constitute 16 per cent and Adivasis 8 per cent. Most of them (80 percent of Dalits and 92 percent of Adivasis) live in rural areas. High levels of rural poverty therefore, are likely to indicate high distress among SCs and STs.
- Bihar, Orissa, Madhya Pradesh, Uttar Pradesh and West Bengal are the States with highest rural poverty, and they also account for a high proportion of SC and ST poor.

##### **Body:**

##### **Socio-Economic Conditions:**

##### **1. Dalits:**

They continue to face wide-ranging economic, social disadvantages, and day to day humiliation and degradation, denial of justice and violent atrocities in India.

- **High poverty:** In 2004/05, the proportion of SCs below the poverty line was as high 8 per cent in rural and 40% in urban areas.
- **Low education:** Dalits had been excluded from the education system for centuries. In the post-independence period educational opportunities have slowly opened up for them, but education levels continue to be very low among Dalits and the gap between Dalits and non-Dalits remains very
- **Limited employment opportunities:** most Dalits live in rural areas. The incidence of landlessness is higher among the SCs than among the The persistently high poverty of SC households is closely associated with low levels of ownership of capital assets like land, low levels of education and considerably lower diversification of avenues of employment.



- **Political marginalisation:** dalits have often had to struggle in order to assert this right and struggle again to demand accountability from the elected. The reins of power have remained with the dominant sections of society, whether it be the upper castes or in recent years the middle castes.
- **Social discrimination:** Dalits continue to face many kinds of social discrimination, related for instance to residence, food, clothing, marriage and employment.

## 2. Tribals:

- Apart from poverty and deprivation in general, the causes of the tribal movements are many: the most important among them are absence of self governance, forest policy, excise policy, land related issues, multifaceted forms of exploitation, cultural humiliation and political marginalisation.
- Land alienation, forced evictions from land, and displacement also added to unrest. Failure to implement protective regulations in Scheduled Areas, absence of credit mechanism leading to dependence on money lenders and consequent loss of land and often even violence by the State functionaries added to the problem.

Thus, the above causes show that underdevelopment and socio-economic lacunae lead to extremism.

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  - PESA, MNREGA, Scheduled tribes and other traditional forest dwellers acts must be implemented effectively.
- **Land Related Measures:**
  - A serious effort must be made to continuously implement the land ceiling issues for distribution amongst the most vulnerable section of the landless poor.
  - Land should be acquired by government for SEZ by paying proper compensation to the farmers.
  - Land tribunals or fast track courts must be set up for speedy disposal of land ceiling cases. The loopholes in the respective state ceiling laws must be corrected.
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  - Failure to provide infrastructure and services as per national norms is one of the much discriminatory manifestations of governance in extremism affected areas. Basic services to standards among the people in these areas to be given top priority.
- **Governance Issues:**
  - Areas in central India where unrest is prevailing covers several states like Andhra Pradesh, Orissa, Chhattisgarh, Madhya Pradesh, Jharkhand and parts of Maharashtra are manually administered.
  - State interventions both for development and for law and order are fairly low. Local populations present in the tribal areas are being exploited by the armed and rich people. Government should taken necessary action in protecting these people.
  - The basic steps required in the direction include establishment of credibility and confidence of government, keeping a continuous vigil for fulfilment of people's vision, effective protection, peace and good governance sustainable development with equity in tribal areas will make extremism low in tribal areas.
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  - should strengthen the subsidiary and supportive activities in horticulture, poultry, fisheries, animal husbandry under the strict guidelines of ministry of agriculture through establishment of quality infrastructure & efficient market linkages at the village level.
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  - Since problems in formulating a counter-Extremist policy as well as in dealing with the issue on a day-to-day basis are sourced to the lack of centre-state cooperation, a permanent institutional mechanism in the form of a coordination centre can be established to thrash out emerging differences.
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## Conclusion:

- Inequalities between classes have increased over the years which act as source of unrest. **Indian Constitution in article 39** mandates states to prevent concentration of wealth in few hands but policy makers often ignore this resulting into two dimensions: BHARAT and INDIA.



- Only when Adivasis and marginalized groups are taken care of both these worlds won't merge. Structural violence causes much of violence. While not condoning radical violence, an honest response to extremism therefore must begin by ameliorating the structural violence in the society.

**Q) North-East suffers from violent movements based upon ethnic identities leading to clashes. Discuss the role played by Non-state actors in leading to the current conditions of the region. (250 words)**

#### Reference

##### **Why this question:**

The question aims to analyse the insurgency situations often witnessed by the North east region owing to the role played by non-state actors.

##### **Key demand of the question:**

The answer must discuss the insurgency in north east prevalent due to non-state actors.

##### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

##### **Structure of the answer:**

##### **Introduction:**

Begin with brief upon the situation in north east states.

##### **Body:**

Discussion should include the following:

Explain the existing situation, trace the historical factors responsible for the uprising of insurgency, rise of non-state actors, role played by them.

Then explain what should be the role of the government in overcoming the challenges, discuss policies and schemes in place to address the situation.

##### **Conclusion:**

Conclude with way forward.

##### **Introduction:**

- Due to its distinct socio-cultural background and particular historical evolution, the North-East region of India holds several fault lines around which many non-state actors have been thriving for a very long time.

##### **Body:**

The **role played by Non-state actors** in leading to the current conditions of the region:

- This region has been one of the **most neglected regions in terms of developments** and is the main cause behind the resentment of the people living in this area. The insurgent groups take advantage of resentment of people and get support base.
- Alienation of population from mainstream political process**, where the insurgent group continue to boycott the dialogue and electoral process. E.g.: NSCN-Khaplang group.
- Active and covert foreign support to these insurgent groups, through training, logistic and moral support has also been a big hurdle to eradicate these groups. China is alleged to support such acts for instance . ULFA members of Assam were given shelter by China.
- Non state actor -sponsored terrorism**, often motivated by fundamentalist ideologies, backed by secretive but efficient financial networks, use of IT, clandestine access to chemical-biological and nuclear materials, and illicit drug trafficking, has emerged as a major threat to international stability.
- They **bring fake currency** to India and try to hit Indian economy. E.g.: India Bangladesh border
- They **smuggle weapons, drugs into India**, directly targeting the youth
- Extremist non state actors also include religious fanatics which propagate religious hatred which can led to **communal tensions** in the country.
- They also incite people for regionalism thus demanding their separate state which further **increases secessionist tendencies**.

##### **Measures needed:**

- Thorough background check of all insurgents groups should be carried out before the central government enters into any Ceasefire or Suspension of Operations Agreements with the insurgents.
- Political solutions to the Assam problem should be discussed openly as widely as possible to avoid backlash from the tribal and the minority population of the state.



- Focus of the Ministry of DoNER and NEC should be on investment in mega-projects which will make big difference to the development of the region.
- Institutional capacities in the North east should be developed urgently.
- Pragmatic land use policy should be formulated for attracting industries in the region. Micro, small and medium enterprises should be encouraged.
- Greater awareness about the Look East Policy and its benefits to the North East should be generated among the policymakers and the intelligentsia of the region.
- Ties with Myanmar should be deepened by exploiting Myanmar's anxieties about China as well as existing deep civilization and spiritual ties.
- The North East region must be included in the India-ASEAN Vision for trade and cooperation. Development Plan for the North East should factor India-ASEAN strategic cooperation.
- Special economic zones along India-Bangladesh border, especially in Meghalaya and Assam should be set up.

**Q) In what way external state and non-state actors create problems to India's internal security ? Discuss. (250 words)**

Ethics by Lexicon publications

**Why this question:**

The question is direct from the static portions of GS paper III.

**Key demand of the question:**

Explain in detail the role of way external state and non-state actors and in what way they pose threat to the internal security of the country.

**Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:**

**Introduction:**

In brief define who are external state and non- state actors.

**Body:**

Explain that 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.

Discuss who are state and non-state actors, what are the various challenges posed by them for the Indian internal security.

**Conclusion:**

Conclude by stating what needs to be done to overcome the challenges.

**Introduction:**

- India has been facing challenges on the front of internal security since independence from various state and non state actors. **External State actors** refer to those entities which have formal backing of a sovereign state for carrying out any intended action.
- **Non state actors** on the other hand, have a considerable power of influencing international events but they do not have formal state backing. Examples of state actors are the army, bureaucracy, intelligence agencies etc. whereas non state actors would be NGOs, civil society organizations, extremist outfits, multinational companies etc.

**Body:**

**External State actors** are responsible for posing a challenge to internal security in multiple ways:

- Countries surrounding India have been active in exploiting the volatile situation presented by the turmoil in the northeast. Not only countries such as China, Pakistan, Bangladesh and Myanmar, but also smaller powers such as Bhutan and Nepal have been involved in the region.
- Through **political backing, economic assistance, logistic support, military training or arms** supplies these countries have varyingly contributed to the ongoing violence in this region.
- The state may carry out a **limited war against Indian state** and this might have ramifications for our internal security too





- They might **support the various insurgent groups, Naxalites, or separatist groups** through funding, training or logistics
- There have been instances where state actors have been responsible for carrying out **cyber warfare** through **hacking and other espionage**.

**Non state actors** however have played their nefarious role too in creating problems for India:

- **Insurgency:**
  - North-East suffers from violent movements based upon ethnic identities leading to clashes. China is alleged to support such acts for instance. 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 for instance Lashkar-e-Taiba, Jaish-e-Mohammad are a continuous threat.
  - **Non state actor -sponsored terrorism**, often motivated by fundamentalist ideologies, backed by secretive but efficient financial networks, use of IT, clandestine access to chemical-biological and nuclear materials, and illicit drug trafficking, has emerged as a major threat to international stability.
  - These groups aim to not only create instability in states like J&K, they also have a larger aim of destabilising the country. This is done through sporadic terrorist strikes, which spreads terror and panic. This could also adversely affect the ability of the Indian state to pursue economic modernisation.
- **Naxalism:**
  - Left wing extremism affects states like Chhattisgarh, Jharkhand and West Bengal.
- **Drug trafficking:**
  - Inter and Intra state trafficking takes place, through golden crescent and golden triangle routes.
  - Drugs from **Golden Crescent** (Pakistan, Afghanistan and Iran) have affected Punjab and **Golden Triangle** (Laos, Myanmar and Thailand) has affected North Eastern states.
- **Human-trafficking:**
  - Children and women trafficking takes place via Bangladesh and Nepal.
- **Counterfeit currency:**
  - 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. This is the issue arising especially from Pakistan.
- **Communalism:**
  - Propagandas are run and funded by enemy country and other **non-state actors (NGOs and CSOs)** 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.
- They can also incite people for regionalism thus demanding their separate state which further increases secessionist tendency

#### 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. There is a need for a **national internal security doctrine** to deal with various challenges.

*Topic: Various Security forces and agencies and their mandate.*

**Q) Discuss the mandate of National Investigation Agency (NIA), What are the impediments in its operative functioning ? How can these concerns be addressed ? Elucidate. (250 words)**

[Indianexpress](https://www.indianexpress.com)

#### **Why this question:**

Lok Sabha recently passed the NIA Act Amendment Bill, which gives more powers to the National Investigation Agency and extends its jurisdiction beyond India's borders. The Bill was hotly debated, with the Opposition accusing the government of misusing the agency for political vendetta and turning India into a police state.



### **Key demand of the question:**

Answer must discuss the key mandate of NIA, impediments in its operative functioning and in what way these impediments can be overcome.

### **Directive:**

**Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

### **Structure of the answer:**

#### **Introduction:**

In brief narrate the background of the question, why was NIA in news etc.

#### **Body:**

Discuss the following aspects in the answer:

Explain the proposed amendment to the National Investigation Agency (NIA) Act-2008 that were passed – aims to provide the probe agency with powers to investigate scheduled offences such as human trafficking; circulation of fake currency; manufacture and sale of prohibited arms; and cyber-terrorism. It also allows for the creation of special courts for adjudicating such crimes.

The bill also seeks to allow the NIA jurisdiction over scheduled offences committed outside India, subject to international treaties and the domestic laws of other countries. A special court in New Delhi will preside over such cases etc.

Then discuss what are the issues involved and how they need to be addressed.

#### **Conclusion:**

Conclude with a way forward, signifying its importance.

#### **Introduction:**

- The National Investigation Agency (NIA) was set up in 2009 under the NIA Act, 2008. It was set up in the wake of the Mumbai terror attack. At present, NIA is functioning as the Central Counter Terrorism Law Enforcement Agency in India.
- The Lok Sabha recently passed the National Investigation Agency (Amendment) Bill, 2019 which enhances the jurisdiction and powers of NIA. The amendments will allow NIA to probe cybercrimes and cases of human trafficking.

#### **Body:**

##### **Mandate of NIA:**

- It aims to be a thoroughly professional investigative agency matching the best international standards at the national level, by developing into a highly trained, partnership-oriented workforce.
- It aims to discourage the existing and potential terrorist groups/individuals.
- It aims to develop as a storehouse of terrorist related information
- The agency aims to match the best international standards in counter terrorism and other national security related investigations at the national level by developing into a highly trained, partnership oriented workforce.

##### **Impediments in its operative functioning:**

- As most of terror attacks originate outside India, NIA faces hindrance in that regard.
- Due to law and order being state subject, NIA has faced coordination issues with regards to state police.
- Quality manpower is a constant challenge, especially with regards cyber attack capabilities.
- With regards to tech, it is dependent of foreign imports.
- There are no dedicated officers; the officers are recruited from Central State police, Central armed police forces on deputation.
- Lack of coordination mechanism with other specialised agencies like RAW, IB, State police etc. E.g.: Confusion during Pathankot attacks
- Lack of experts to deal with the cybercrimes.
- Lack of financial autonomy.

##### **Measures needed:**

- Granting of financial autonomy similar to CAPF.
- Although special courts will speed up judgments but filling up the vacancies of judiciary is a challenge in present times.
- To investigate cyber-crimes, need skilled manpower and ethical hackers.
- As many experts recommend, it is time for India to have a documented national security doctrine



- The doctrine should be accompanied by a security strategy that should spell out the state response to various kinds of security challenges.

#### Conclusion:

- Dealing with the menace of terrorism would require a comprehensive strategy with involvement of different stakeholders, the Government, political parties, security agencies, civil society and media.
- There is a need for National Counter Terrorism Centre. A centrally co-ordinated Terrorism Watch Centre, which could also operate as a think tank with sufficient inputs from academic and private experts.

**Q) What do you mean by 'white collar crimes' ? If poor and illiterate are more vulnerable to be corrupt, why do the rich and educated people become corrupt ? Suggest measures to stop corruption by the rich and educated people ? (250 words)**

Ethics by Lexicon publications

#### **Why this question:**

The question is based on the theme of corruption and in what way it is beyond the lines of poor or rich.

#### **Key demand of the question:**

Explain in detail with examples how corruption need not always be driven by poverty or un-educatedness rather it is often the manifestation of lack of right values and morals in individuals.

#### **Structure of the answer:**

##### **Introduction:**

In short explain the prevalence of corruption among rich and poor.

##### **Body:**

Discuss with suitable examples how corruption is rampant even among the rich and educated. The question can be best explained with examples where it is evident that the rich and literate have indulged in corruption by compromising on values and morals.

##### **Conclusion:**

Conclude with what needs to be done.

#### **Introduction:**

- White-collar crime refers to financially motivated nonviolent crime committed by business and government professionals. Within criminology, it was first defined by sociologist Edwin Sutherland in 1939 as "a crime committed by a person of respectability and high social status in the course of his occupation".
- Typical white-collar crimes could include fraud, bribery, Ponzi schemes, insider trading, labour racketeering, embezzlement, cybercrime, copyright infringement, money laundering, identity theft, and forgery. E.g.: Nirav modi scam, Vijay Mallya scam, Harshad Mehta scam etc.

#### **Body:**

Rich people become corrupt due to:

- **Greed:** The people who usually commit these crimes are financially secure.
- **Materialism:** Driven by motive of material pleasures, they are willing to take any crooked means.
- **Lack of Respect:** Disregard and ignorance for laws as they think they are above laws.
- **Power:** Legislators and the law implementers belong to the same group or class to which these occupational criminals belong;
- **Financial or physical duress.**
- The emergence of **cutting edge technology**, growing businesses, and political pressures has opened up new avenues for these criminal organizations to prosper.
- This increase is due to a **booming economy and technological advancement such as the Internet and fast money transfer systems.**
- **Law enforcement is sometimes reluctant** to pursue these cases because they are so hard to track and investigate.
- It is **very difficult to detect as white collar crimes always committed in privacy** of an office or home and usually there is no eyewitness.

#### **Measures needed:**

- Strengthening the implementation of laws like **Fugitive Economic Offenders Act, Benami Transactions act, Prevention of Money laundering act etc.**



- **Special Tribunals** should be constituted with power to award sentence of imprisonment upto 5 years for white-collar crimes. Convictions should result in heavy fines rather than arrest and detention of white-collar criminals.
- **Strengthening Corporate Governance** by implementing the measures suggested by Uday Kotak panel.
- **Increasing the democratic nature of the company** by improving transparency and accountability through audits, tax measures etc.
- **Creating public awareness** against these crimes through the media of press, and other audio-visual aids and legal literacy programmes.
- **Public vigilance** seems to be corner-stone of anti-white-collar crime strategy. Unless people strongly detest such crimes, it will not be possible to contain this growing menace.

**Conclusion:**

- Our social system is corrupted by number of white collar crime and it is a great challenge for us to discover suitable resolution to the increasing menace of white-collar crime.
- These crimes are directly affecting the economy of the nation and the public's confidence, therefore corrective action must be taken immediately for preventing, detecting, investigating, and prosecuting economic crimes in order to minimize their outcome.
- The provisions of Indian Penal Code dealing with white-collar crimes should be amended to enhance punishment particularly fine in tune with changed socio-economic conditions.

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