

# State PCS Success Program (SPS)

UPPSC (Mains) - 2022

GS Paper #3 - Solution



### **Instruction to Students**

Answers provided in this booklet exceed the word limit so as to also act as source of good notes on the topic.

Candidates must focus on the keywords mentioned in the answers and build answers around them. Elaborate answers are given with the purpose that candidates understand the topic better.

We have also adopted a grey box approach to provide context wherever necessary, which is not to be considered a part of the answer.

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**Q.1) Assess the strategic disinvestment policy of public sector enterprises announced in the budget 2021-22.**

**Approach: Start with the provisions of the strategic disinvestment policy of public sector enterprises. In main body provide significance and challenges associated with those provisions. You can conclude with the way forward.**

Strategic disinvestment means the **transfer of the ownership and control of a public sector** entity to a private sector entity. To implement this, the government has announced a new policy for strategic disinvestment in budget 2021-22.

Main provisions of the new strategic disinvestment policy 2021-22:

1. It aims to receive **₹1,75,000 crore** from the disinvestment of government's share in public enterprises and institutions.
2. The government has classified the public sector into 2 categories for the purpose: a) **Strategic sector** e.g., atomic energy, space, defense etc. and b) **Non-Strategic sector**
3. In the non-strategic sector, the government will exit from all businesses and in strategic sectors, government will keep a bare minimum presence.
4. The government will also incentivize the state governments for disinvestment in their public sector enterprises.

Significance of new disinvestment policy:

1. Monetization will bring revenue that can be used to support welfare schemes. This will be beneficial in post COVID-19 times when the government's tax collection has been less buoyant.
2. **Better specialization of public capacity:** The government will be able to focus on the strategic sector of the economy for competitive gains such as defense indigenization, infrastructure delivery, space research etc.
3. **Efficiency of the public sector:** Healthy competition in the non-strategic sector will increase the efficiency of remaining PSUs.
4. **Atmanirbhar Bharat Mission** also gets a push through more rationalization in the participation of central public sector enterprises in commercial activities, as it will build efficiency and competitiveness.

Challenges of disinvestment policy:

1. **Loss of regular income:** The sale of profit-making and dividend-paying PSUs would result in the loss of regular income to the government.
2. **Threat to national security:** Some experts argue that strategic disinvestment of Oil PSUs like Bharat Petroleum Corporation Limited can give access of India's energy assets to hostile countries.
3. **Poor record of disinvestment:** The loss-making units do not attract investment due to their loss-making perception in the market.
4. Financing the fiscal deficit from disinvestment is an unhealthy and short-term practice like selling the family silver to meet the short-term monetary requirement.
5. Complete privatization may result in the development of private monopolies that could endanger the socio-economic welfare agenda of the government.

**Disinvestment and rationalizations of public sectors** units need to be done as per the performance of the PSUs. Simultaneously government should also increase the operational autonomy of PSUs and should also take a hands-off approach to their management. A balanced approach can help build efficiencies as well as achieving the targets of disinvestment.

**Q.2) What is your view on universal basic income- is it a cure for poverty or a worse disease for the economy? Explain your stand.**

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**Approach: Introduce by describing Universal Basic Income (UBI). In body, discuss how UBI is a cure for poverty. List points giving reasons why UBI is not good for economy. Conclude with emphasis on SDG of eradicating poverty.**

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Universal Basic Income (UBI) is a welfare concept in which **every adult citizen is given money** on a regular basis to provide for basic living. The Economic Survey, 2016-17 advocated the concept of UBI as an alternative to the various social welfare schemes and subsidies aimed at reducing poverty.

UBI can help in reducing poverty in following ways:

1. **Reduction in inequalities:** UBI will help in covering the essential needs of the poor, which consumes all their incomes currently. This would open options to spend on education and health, adding to productivity and social mobility. It would thus be a powerful tool of reducing inequalities.
2. **Alternative to Social Capital:** The poor who largely belong to scheduled castes and tribes have no social capital to support their economic development. Income transfers from the state can add to their savings which can be used for starting a small shop.
3. **Women empowerment:** Income transfers to women of the household is known to lead to more productive utilization of such transfers such as for education of children, which is crucial to breaking free of the vicious cycle of poverty. UBI can thus create synergies between poverty reduction and women empowerment.
4. **Financial inclusion:** Millions of bank accounts were created under the Pradhan Mantri Jan-Dhan Yojana, but many such accounts have been closed by banks for inactivity. Regular monthly transfer through UBI will help in continued financial inclusion of such account holders, and increasing the utility of bank accounts for them.
5. **Individual Agency:** Cash transfers give agency to a person in participating in the market, leading to her economic development.

Despite the potential benefits in poverty reduction, UBI can have negative impact on economy due to following reasons:

1. **Fiscal Viability:** UBI is estimated to require a public expenditure of 4-10% of GDP, which is fiscally unviable for India. It will put constraints on other fiscal commitments such as defense, education, health etc.
2. **Dis-incentive to work:** It is argued that provisions of essentials by income transfers from state would reduce incentive to work and reduce productivity of the workforce and the economy. But there are counter-views as well.
3. **Inflation:** UBI can lead to inflation due to increase in market demand, and decline in public provisioning as subsidies related to PDS etc. are rolled back. Inflated prices would in-turn reduce the utility of income transfers as cost of living would increase.
4. **Economic growth:** UBI can have long-term effects in socio-economic growth of the poor, but other short-term economic exigencies related to need for economic stimulus, incentives for industries such as through production-linked incentive scheme etc. reduce the ability to implement UBI.

Over the years government has launched various schemes targeting poverty reduction such as National Rural and Urban Livelihood Missions, MGNREGA, Jan-Dhan scheme etc. Among these measures, UBI provides a new outlook towards poverty reduction, but critical constraints limit its practical utility.

Alternatives such as Inclusive growth dividend, as a supplemental income to households can be fiscally more viable in moving towards the Sustainable development goal to end poverty in all its forms, everywhere.

**Q.3) Explain the role of Micro, Small and Medium Enterprise (MSME) sector as an engine of economic growth of Uttar Pradesh.**

MSME stands for Micro, Small and Medium Enterprises. The following **composite criteria of investment and turnover by Union cabinet** decides the qualification of an industrial unit as MSME:

Micro	Small	Medium
Investment < 1cr	Investment < 10cr	Investment < 20cr
Turnover < 5 cr	Turnover < 50 cr	Turnover < 100 cr

UP has the highest number of MSMEs in India at **89.99 Lakh MSME units**, which are **14.2% of the total MSMEs** across all states.

Role of **MSME** sector in **UP's economic growth**:

1. **Employment:** MSMEs can **raise the income, consumption expenditure and reduce poverty** due to its larger **share in employment at 40%**.
2. **Balanced regional development:** MSMEs are relatively **evenly distributed** in comparison to larger industries. **Rural areas account for 45% of MSMEs**, while the remaining are in urban areas. Hence, SMEs are well-poised to **address poverty in both the cities and villages**.
3. **Boost to manufacturing with ODOP program:** MSME can provide boost to UP governments **One Product, One District Programme** which will create **entrepreneurship among skilled** population.
4. **Reducing burden on Agriculture:** MSME is 2<sup>nd</sup> largest employment provider after agriculture. Uttar Pradesh has **largest population and biggest employment needs** in India.
5. **Investment and Infrastructure:** Boost to MSME sector will create a **virtuous cycle** of growth, attracting **global investments**, harnessing talent of youths as well as provide a boost to **infrastructure and connectivity**.
6. **Human Resource Development:** Increase in **spending power** of local population, higher investment in **education, skill**, improvements in **nutrition**, overall development will promote **overall development of UP**.
7. **Economic Stability and leverage exports:** MSMEs make up for about **48% of exports** and hence are crucial to **manufacturing and export competitiveness**.

**Challenge** faced by MSME sector:

1. **Covid and restrictions:** Challenges to MSMEs have increased in recent times due to pandemic, lockdowns etc. A recently conducted survey finds that **capacity utilization in SMEs** has fallen from an average of **75% to 13%**.
2. **Poverty, lack of skilled human resources**, difficulty in getting loans from banks are some of major reasons behind poor performance of micro enterprises.
3. **Law and order:** Poor governance and law & order problem are **major roadblocks in attracting investments** and promoting growth of businesses.
4. **Infrastructure deficit:** Good infrastructure and connectivity is lacking for transport of raw materials, goods and people, creating **bottlenecks for development**.
5. UP does **not have major mineral resources**, hence it is dependent on other states for resources. Hence, there is limited scope for MSMEs.

MSME sector's growth in UP can be promoted by **improving ease of doing business**, access to **credit** and reforming regulation of MSMEs. Government initiatives such as **Udyami Mitra Portal**, **MSME Samadhaan**, **MSME Sambandh**, **Capital linked Subsidy Scheme** etc. aim to promote MSMEs and can help to boost economic growth of UP.

**Q.4) What do you understand by Liberalization, Privatization and Globalization (LPG)? Examine the impact of LPG reforms of 1991 on economic development of India.**

LPG reforms refer to **the set of economic reforms** introduced in **1991** in India. Liberalization refers to the **process of decreasing traits of a state economy** and increasing traits of a market economy. Privatisation refers to the **expansion of the private sector**/market economy through **de-licensing/de-reservation of industries**, cuts in subsidies, **permission to foreign investments** etc. Globalisation refers to the **integration of Indian economy** with economies across the globe.

**Positive impacts of the LPG reforms on economic development:**

1. **Higher employment** due to **increased private investments (FDIs)** and **smooth running of businesses** reduced the **prevalence of acute poverty** in the country.
2. **Increased healthy competition**, due to advent of private companies and rolling back of state ensured **creation of a robust economy** devoid of **red tapism of pre-LPG era**.
3. **LPG reforms, improved the standard of living** for the large middle class of India. MNCs invariably **enhanced the incomes** and thus the **quality of living** of the people.
4. **LPG reforms** led to **faster development of infrastructure**, that had a **multiplier effect** on the economy.
5. **LPG reforms** ensured a **balance between the demand and supply** in the economy. This in turn **reduced the inflation**.
6. **LPG reforms** led to **higher revenues for the government**, that led to a **reduction in the fiscal deficit** of the country.

**Negative implications of LPG reforms:**

1. **Limited Fiscal Space:** In the short to medium term, government was forced to restrict its fiscal expenditure.
2. **Neglect of agriculture:** The economic reforms largely **ignored agriculture reforms**. As a result, structural weaknesses of agriculture sector such as ecological and regional imbalance, **disguised unemployment**, and vulnerabilities of **small farmers** continued to intensify.
3. **Neglect of Social Infrastructure:** Public infrastructure in health and education continued to decline due to limited public expenditure. Private expenditure on health and education has **squeezed family's food budget, and created gender inequities**.
4. **Poor social security:** Failure of market and government has also created a large informal sector of economy, which lacks social security. The grave **sufferings of migrant workers during pandemic-related lockdown** highlighted their **neglect by the governments over the years**

In conclusion, we can say that the **economic and human development journey** of India since 1991 has been a **mixed bag**. The exigencies of 1991's economic crisis forced the state to limit its role not just in economy but welfare as well. However, the socio-economic **development needs** of the country require **governments to commit to its welfare** role sooner than later.

### Q.5) What are the causes of poor price realization for farm produce in India?

The agriculture sector in India is in distress and has become **non-remunerative for farmers**. As per the **NSSO data**, between 2004-2012, about **34 million farmers moved out** of agriculture. It highlights the growing unsustainability of agriculture for farmers in India, manifested by **rising farmer suicide**. One of the reasons for farm distress is the poor price realization for farm produce in India.

Indian farmers suffer from **poor price realization** in India for the following reasons:

1. **Poor Implementation of MSP:** Minimum Support Price is declared for **28 crops**. However, the government **procures majorly only 2 crops** (wheat and rice) and that too, mainly from Punjab and Haryana. Thus, the **farmers are forced to sell below MSP** as the market is manipulated by middlemen.
2. **Role of APMCs:** APMCs have a **monopoly in the buyer's market**. Also, due to the **nexus between politicians and Arhatiyas**, the prices are kept low in the market and farmers are paid the suppressed prices.
3. **Arbitrary Export Restrictions:** The farmers are also not able to properly **utilize the export potential** and better prices as the government **controls the prices** in domestic market by arbitrarily restricting exports.
4. **Demand-supply gap:** Farmers face price uncertainties mainly owing to fluctuations in demand and supply caused by **bumper or poor production, speculation and hoarding** by traders.
5. **Infrastructure bottlenecks:** There is **lack of storage and transport** infrastructure which leads to **stress selling** by the farmers.
6. **Lack of Food Processing:** Food processing through **value addition** can help in better price realization.
7. **Legal hurdles:** Acts like **Essential Commodities Act** demotivates private players to invest in storage as government has power to **arbitrarily change storing limits** of grains and commodities. Moreover, many states have not adopted **Model Contract Farming Act** which can help predetermine prices for farm produce.

For better price realization, the government needs to **reform farm related laws** such as **contract farming** and **removing restrictions on storage and export**. Also, the government should implement the **MS Swaminathan recommendation** that MSP should be **50% plus cost of production**. The cost of production (C<sub>2</sub>) includes **all the expenditures on crops, the labour cost and an estimated land rent**. However, Price realization is **not a good metric** to judge farmers' progress. The government should concentrate on **increasing farmers' income** as there has been increase in cost of inputs.

### Q.6) Examine the efforts of the Uttar Pradesh government in promoting food processing industries.

**Food processing** is the **transformation of raw agricultural produce** into processed food through chemical or mechanical procedures. Uttar Pradesh is blessed with **geography favorable to agriculture** and thus is one of the major producers of horticultural crops and food grains in India, which serves as a **lucrative base for the food processing industry**.

To incentive, the Food Processing Industry (FPI) the UP government has **taken a number of steps** which are as follows:

1. In order to give an impetus to FPI, the UP government brought out the Food Processing Industry Policy in 2017. Under the policy, the government envisages achieving a **level of 20% in the Food Processing sector**.

2. The UP government is supporting the Food Processing sector by giving a number of monetary grants. For instance, a subsidy of up to 25% of the cost of plant & machinery for setting up the food processing industry in the state.
3. The UP government under the “**one district, one product**” scheme is incentivizing various food processing items like **jaggery in Faizabad, asafetida in Hathras**, etc.
4. The UP government is effectively utilizing central government schemes in the Food Processing sector like the **Mega Food Park Scheme**, or the **formalization of Micro Food Processing Enterprises** to catalyze growth in the sector.
5. The UP government is also investing in **Human Resource Development** in this sector. The government is granting Rs. 75 lakh per institute for the creation of infrastructure facilities in government institutions for offering courses in Food processing.
6. The UP government is incentivizing innovation in Food processing, by giving one-time reimbursement of up to 75% for **patent/design registration fees**.
7. For the promotion of **export of processed products**, the UP government is giving subsidies on the transportation cost and is also promoting standardization of products as per internationally accepted quality norms, environmental certification, and accreditation such as **ISO:14001, ISO:2200, Phytosanitary certification**, etc.

Despite taking a number of steps, the level of food processing is as low as 6% according to the **UP Food Processing Policy 2017**. The Food processing sector faces challenges like:

1. The **culture of processed food** is far from accepted in rural India, where people prefer fresh food.
2. The **lack of proper infrastructure** ranging from transportation to storage limits the availability of raw materials for food processing industries.
3. The **tropical climate and perishable nature** of most horticulture crops coupled with a lack of cold storage in agriculture markets constrain the growth of the industry.
4. The existence of archaic laws like the **essential commodities act, 1955** limits private investment in this sector.

The state of Uttar Pradesh is in a favorable situation not only in terms of supply of raw material for the food processing sector but also in terms of demands as it boosts the largest populated state in the country. The government needs to effectively create **backward and forward linkages** to give a boost to the Food Processing sector which in turn has the potential to generate revenue, employment and reduce agriculture wastage.

**Q.7) What are the different types of vaccine? Also, discuss various steps involved in clinical development of a new vaccine.**

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**Approach: Introduce with the definition of a vaccine and how it helps in disease control. Discuss the various types of vaccines with examples. Further, explain the various steps involved in clinical development of a new vaccine. Finally conclude with a summary.**

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Vaccines are **biological preparations** that are administered to humans to develop **active acquired immunity** against a pathogen. They **prepare the body beforehand for fighting the pathogen** e.g., a polio vaccine.



Since the first experiment by **Edward Jenner**, development of vaccines has come a long way. Some of the **different types of vaccine** are mentioned below:

1. **Live Attenuated Vaccines:** Live bacteria or viruses are made to **lose their virulence** (the capacity to infect), but can still be recognized by the human immune system. This provides a **strong and long-lasting immunity** against the disease e.g., **oral polio vaccine (OPV)**.
2. **Killed Inactivated Vaccines:** Pathogens are killed before being administration into the body. Thus, they cannot cause the disease but are **capable of initiating an immune response**. This reduces the threat of vaccine induced diseases e.g., **Inactivated Polio Vaccine**.
3. **Toxoids:** Some bacterial diseases are not directly caused by the bacteria itself, but by a toxin they produce. In such cases, **inactivated toxins (toxoid)** are used to initiate an immune response e.g., **tetanus** (against **tetanus toxin**).
4. **Subunit and Conjugate Vaccines:** These vaccines contain **only pieces of the pathogens** they protect against. E.g., only **cell proteins of influenza**. These parts act as antigens and cause an immune response without the risk of the disease.
5. **Genetically Engineered Vaccines:** Certain viruses are administered into the body to cause production of a non-virulent antigen that mimics a pathogen. Thus, **body in itself is made to produce** the vaccine e.g., **mRNA vaccines for COVID by Pfizer**.

The vaccines have to go through certain **steps for their clinical development** before they can be used:

1. **Preclinical stage: Research-intensive** stage to find natural or synthetic antigens that trigger the same reaction as the actual virus/bacteria, i.e., selection of a potential candidate antigen. Here, there is no human testing, but there might be **animal or cell-line testing**.
2. **Phase 1:** First time the vaccine is tested in a small group of adults **to evaluate its safety and measure the immune response** it generates. This is to **determine the most effective dose**, and map the vaccine safety (allergies, side-effects, etc.) e.g., facts such as COVISHIELD may cause fever/headache.
3. **Phase 2:** The pool of people receiving the vaccine is increased and their experiences are studied. Usually, **a diverse pool** is preferred with different ages, gender, diseases, etc.
4. **Phase 3:** Number of volunteers receiving the vaccine is **expanded to tens of thousands** with those **particularly vulnerable** to the disease and effects on them are studied.
5. **Phase 4:** Based on results in previous phases and placebo studies, **approval** is sought, for example from FDA in USA or DCGI in India. **Once approved, manufacturing starts** on a large scale. Quality is required to be maintained at all times.

Vaccines have come to be **a sort of elixir** when it comes to their role in saving lives. The entire process of **vaccine development may take years** to yield results. But recently vaccines **against COVID-19 have been developed within a year** due to the nature of global emergency and through collaborated global efforts.

**Q.8) Floods are major natural disasters in Uttar Pradesh. Discuss the strategy of the state government to tackle this problem.**

**Floods**, according to National Disaster Management Authority, is the **submergence** of usually dry area **by a large amount of water** due to **excessive rainfall**, an overflowing river or lake, melting snow or an exceptionally high tide. **For Uttar Pradesh**, floods are a special concern due to **numerous rivers and large population** living nearby. The **intensity and frequency** of floods is expected to **increase under effects of climate change**.

**Factors** leading to Recurring Floods in Uttar Pradesh:

1. **Geographical Reasons:**
  - a. **Low-gradient alluvial terrain** of the Indo-Gangetic plains along with frequently **shifting channel of young rivers** makes the region prone to frequent flooding.
  - b. Uttar Pradesh faces **both western disturbances and South-west Indian monsoon** in a year leading to excessive downpour.
2. **Anthropogenic Reasons:**
  - c. Greater **water-uptake due to farming along the banks, deforestation** in the Terai region, **large-scale human population** along the banks including effects of **siltation** has drastically **reduced the carrying capacity** of rivers like Ramganga, Gomti.
  - d. **Climate change:** Rapid **Glacial melting** as a result of global warming adds up more water to the river channel **exceeding river's optimum carrying capacity**. For example, the **Uttarakhand dam disaster**.
3. **Other Reasons:** Lack of **disaster preparedness, poor risk management architecture** e.g., **lack of State Disaster Mitigation Fund** as mandated by National Disaster Management Act 2005.

**Strategies** adopted by the state to tackle the disaster:

1. **Institutional steps:** District Disaster management authority (**DDMA**) has been setup in each district under **Disaster management Act 2005** to ensure coordination at various levels.
2. **Flood Zone mapping** to demarcate regions based on **socio-economic vulnerability** of the community.
3. **Capacity Building:** New disaster management **training centers** have been opened in Lakhimpur and Bulandshahr to train the workforce in **rescue and relief operations**.
4. Construction and revamp of dams with the support of World bank, establishment of **Flood management Information System Centre**.

Despite all such steps, Intensity of the disaster has not reduced in last three years for which the **following steps can be taken:**

**Structural measures:** Construction of more **check dams and embankments** especially in eastern Uttar Pradesh, **pre-monsoon desilting**, strict **enforcement of building laws** and standards are few places which need prime intervention. Technical innovation of development of **Sponge towns by China** can be the steps in right path.

1. **Early weather forecasting** and timely communication to the vulnerable must be focused upon. **Community participation** and delineation of **clear role for stakeholders** will increase capacity.
2. **Cooperative Federalism:** Inter-state river basins require co-operation in flood management strategies across states such a **river-basin based approach**. Cooperation **between state government and Centre** is vital not just during disaster but also in post disaster management and **capacity building** such as in establishing **real-time meteorological network** in the state as per NDMA 2010 guidelines.
3. **A proper crisis management plan** with regular updating is necessary to ensure timely and **efficient rehabilitation and reconstruction** given the evolving **dynamism of flood under climate change**.

Floods are a **recurring phenomenon** causing huge **loss of lives and property** (50 billion USD in India since 1990, as per Asian Development Bank). The **geographical and socio-economic vulnerabilities of Uttar Pradesh** require a holistic approach towards flood management to minimize loss. **Risk reduction strategies** and capacity building as per **Sendai framework** should be the way forward.

**Q.9) Critically examine the challenges of renewable energy development in Uttar Pradesh.**

**Renewable energy** is the energy obtained from resources that are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, geothermal, etc.

Although, Uttar Pradesh has potential to generate renewable energy, but at the same time, it faces multiple challenges in tapping these resources as-

1. **High economical cost:** High financial cost associated with establishing renewable power plants is a major hurdle. It is compounded with the commitment of the UP government towards welfare spendings for alleviating millions from poverty.
2. **Low technological know-how:** Acquisition of relevant technology for installing renewable energy plants at a scalable level is low, thus, remains a pertinent challenge.
3. **Diversion of fertile land:** Diversion of largely fertile/agricultural land of UP for the purpose of generating renewable energy remains a challenge.
4. **Transmission infrastructure/grid connectivity:** Evacuation infrastructure in UP, for the renewable energy remains poor. This challenge is further aggravated as majority of transmission companies face huge debt crisis.
5. **Narrow pool of resources:** After creation of the hill state of Uttarakhand, UP parted with majority of its renewable energy potential.

But at the same time, UP acts as an ideal destination for renewable energy development due to-

1. **Market availability-** A rising middle class and a growing industrial base provides for a higher demand for energy, which could be satiated with renewable energy production.
2. **Bio-mass:** Presence of a large number of sugar mills provide for power generation through bagasse-based cogeneration.
3. **Workforce availability-** UP has a huge number of skilled and semi-skilled workers whose talents can be utilized in the sector which can cause employment generation.
4. **Waste to energy-** UP has ample of availability of biodegradable waste which can result into energy production. Diversion of waste for energy production will also provide a check to the problem of river pollution.
5. **Policy support-** Various schemes and policies make UP an ideal place for investment. E.g., KUSUM, Solar rooftop, Subsidies for renewable energy production, etc.

**Global partnership-** UP has the potential to attract global companies to invest in renewable energy projects in the state. E.g., 75MW solar power plant at Chhanvey block in Mirzapur by a French firm ENGINE. We thus observe that UP has RE potential, and to translate the same into results, various awareness campaigns have to be set-up to stop electricity-theft, innovation culture has to be rewarded with hackathons, and the energy market has to be made competitive to provide an impetus to the renewable energy sector in the state.

**Q.10) How are internal security challenges related to peace in neighboring countries and regional stability? Explain with special reference to Taliban's takeover of Afghanistan.**

**Approach:** Introduce by providing a context. Briefly tell about the rise of Taliban and its ramifications for India. Discuss in detail how neighborhood and regional instability affects internal security. Give way forward and conclude accordingly.

In an interconnected world, no country exists in isolation; **internal security, peace and prosperity** of a nation invariably **depends** on the conditions in neighboring countries and **broader regions**. Border security, social unrest, trade etc. are linked, to varying degrees, with regional stability. Instability in erstwhile **East Pakistan** (now Bangladesh), civil war in **Sri-Lanka**, refugee crisis of **Myanmar**, piracy off-coast **Somalia** etc. are few examples showing this interconnection.

Takeover of Afghanistan by **Taliban** has potential to **destabilize the entire region** and **threaten India's internal security** as explained below:

1. **Security on Borders:** A volatile region poses threat of **infiltration by terrorists, drug syndicates or refugees**. For example, Taliban's takeover of **Afghanistan in the 1990's pushed a wave of insurgents** into Jammu & Kashmir through Pakistan. **High-tech weapons** have fallen in Taliban hands that can be supplied to **organizations** like Al-Qaeda, **Jaish-e-Mohamad** etc. **creating a fear of viral spread of terrorism**.
2. **Organized Crime:** As per a report of a UN Monitoring group, **Taliban derives 50% of its revenues from taxes on poppy cultivation**. **Large syndicates** of organized crimes are involved in operationalizing this trade, with **non-state actors** facilitating smuggling of drugs, other crimes and terrorism. **Such activities are likely to increase**.
3. **Anti-democracy: Regressive political ideology** in neighboring nations can have a 'demonstration effect' on populations residing in bordering areas. For example, the **rise of Taliban in 1980s and 90s** is often related with **growth of Islamist movement in Jammu and Kashmir** which denounced Indian democracy.
4. **Regional instability:** Countries like China fear that rise of **Taliban might influence its restive Muslim populated Xinjiang region**. Similarly, instability in Uzbekistan and Tajikistan is also feared.
5. **Refugee Crisis:** Porous borders between Afghanistan and **Pakistan can become a passage** for people fleeing the Taliban regime to seek shelter in India.

Internal security challenge arising out of Taliban takeover of Afghanistan can be better **managed** by:

1. **Diplomatic Channels:** Engagement with like-minded nations to put pressure on Taliban to keep a check on its criminal activities, promote democracy and ensure that **Afghan land is not used against India**.
2. **Intelligence Grid:** India must improve coordination and **information exchange** between domestic and international intelligence agencies. **Full activation of NATGRID** is important. **Financial transactions of the Taliban** must be monitored. This is needed **to avoid incidents like IC-814 Kandahar hijacking**.
3. Operationalization of **CIBMS** (Comprehensive Integrated Border Management System) for better border management.

The **National Security Council** and the **Cabinet Committee on security** must formulate a counter-strategic program against security threats from Taliban. As the situation in Afghanistan worsens, it will be in India's best interest to plan for the worst and hope for the best **being mindful of present realities and history**.

**Q.11) Examine the significance of National Infrastructure Pipeline (NIP) in improving the ease of living and propelling growth rate in the country.**

**Approach:** Introduce your answer with the brief explanation of NIP. In body, explain the significance of NIP in improving ease of living and propelling economic growth. Conclude your answer showing the challenges that needs to be tackled in implementing NIP and moving towards the target of \$5 trillion economy.

The National Infrastructure Pipeline (NIP) for FY 2019-25 is a first-of-its-kind, whole-of-government exercise to ease various constraints in **creating world-class infrastructure** and **improving the quality of life** in India. It includes both **economic** and **social infrastructure** projects.

Significance of NIP in improving **ease of living**:

1. **Limiting the rural to urban migration:** NIP will ensure enhanced employment opportunities, health and education facilities in rural areas. By focusing on increasing **irrigation and food processing** facilities, it will help in **doubling farmer's income**.
2. **Improving the urban transportation availability for all:** Highly congested, unaffordable and poorly accessible **urban transport affects the quality of life** in urban areas. NIP will help in ensuring availability of safe and affordable public transport, saving time and in turn **improving work life balance**. It will also help in **reducing the pollution level** of Indian cities.
3. **Housing and water supply for all:** Government through **the Jal Jeevan Mission** is working to ensure functional tap water availability. Improving **the conditions in slum** areas and providing **housing for all** will get significant push with the NIP.
4. **24x7 power and access to clean energy:** Access to **electricity facilitates better education, health** etc. Enhancing clean energy access will help improve condition of women, reducing the need to use **firewood**, a major cause of **indoor air pollution**.
5. **Better disaster preparedness:** NIP is focusing on **developing disaster resilient infrastructure** to minimize the impact of disaster.

Significance of NIP in **propelling economic growth**:

1. **Improvement in India's logistics performance:** The current **logistics cost of India is 14%** of GDP, which is very high in comparison to **US and Europe (8 to 10%)**. It affects the global competitiveness of Indian products. Infrastructure development projects of Railways, Road and Ports will improve **India's logistic competitiveness**.
2. **Education and Skill development:** Majority of India's graduates are not able to fulfil the requirements of Industries. **By focusing on world class education institutes and research**, NIP will ensure more investment and increased economic growth.
3. **Better infrastructure attracts investment**, which helps in increasing growth rate and creates a **virtuous cycle of growth**, investment, rising incomes and human capital.
4. **Enhancing the fiscal capacity:** Better **infrastructure leads to better revenue** generation and will improve the government's fiscal capacity. Large fiscal capacity will lead to **more government spending** and in turn will help in increase economic growth.

NIP is a much-needed step, which will help India in moving towards **the target of \$5 trillion economy by 2025**. But, to ensure timely completion of projects the **challenge of rising non-performing assets** and poor state **fiscal capacity** will need to be tackled.

**Q.12) What are the various issues plaguing the Public-Private Partnership (PPP) Model in India? Suggest measures to strengthen it.**

**Approach: Introduce with the definition of public-private partnership (PPP) model. In the body, mention the various types of PPP model. Then, elaborate the factors that have been plaguing PPP model. Thereafter, suggest measures to strengthen PPP model (Include Kelkar Committee report). Conclude by signifying the importance of PPP model for India.**

The public-private partnership (PPP or 3P) is a **commercial legal relationship/arrangement** between a government entity on one side and a private sector entity on the other. This collaboration is used to finance, build and operate **infrastructural projects** such as construction of airports, roads, ports, etc.

The PPP model in India is mainly undertaken because:

1. To **pool in financial resources** from private entities as government has financial limitations.
2. To utilise the technical expertise and consultation of private entities.
3. To bring state of the art technologies in infrastructural projects.
4. To **reduce cost overruns** and **time delays** in project execution.

Some of the examples of PPP Model in India are as follows:

**1. Build-Operate-Transfer (BOT) Annuity Model:**

- a) Private partner is responsible to design, build, operate (during the contracted period) and transfer back the facility to the public sector.
- b) Private entities bring the required finance.
- c) The government starts payment to the developer after the launch of commercial operation of the project on a six-month basis.

**2. Build-Operate-Transfer (BOT) Toll Model:**

- a) The private entity constructs the road and is allowed to **recover his investment** through toll collection (25-30 years).
- b) There is no government payment to the developer as he earns his money invested from tolls.

**3. Engineering-Procurement-Construction (EPC) Model:**

- a) Under this model, **the cost is completely borne** by the **government**.
- b) Responsibility of all clearances, procurement of raw material and construction costs are met by the government.
- c) The private sector's participation is minimum and is limited to the provision of engineering expertise.
- d) A difficulty of the model is the high financial burden for the government.

**4. Hybrid Annuity Model (HAM):**

- a) It is a mixture of BOT-Annuity Model and EPC Model.
- b) Government contribute **40%** of the project cost in first five years.
- c) The remaining payment will be made on the basis of the assets created and the performance of the developer.
- d) So, initially the 60% of the cost is raised by the developer through equity or loans.
- e) Revenue collection would be the responsibility of the **National Highways Authority of India (NHAI)**.
- f) The developer doesn't have right to collect revenue.

Policy measures designed to bring about private participation in infrastructure projects have not met with significant success. Many of the PPP projects have faced cost overruns and time delays. The issues plaguing PPP models in India are as follows:

1. **Lack of flexibility:** The existing PPP model is hobbled by a lack of flexibility in contractual arrangements.
2. **Problems in contract enforcement:** Court cases drag on forever and thus enforcement of contracts face delays.
3. **Lack of transparency:** There is aggressive bidding and manipulation in project costs by private players.
4. **Issues in raising of resources:** Banks see PPP models with suspicion. Banks have restricted lending due to rising NPA's and private sector further faces difficulty in raising finances due to crowding-out effect.
5. **Crony-capitalism:** Many PPP projects have been alleged to become a victim of crony-capitalism and thus cost overruns and time delays.
6. **Regulation of PPPs:** Indian government has a poor track record in regulation of PPPs in practice.

Despite these limitations, PPP model holds a significant potential for infrastructural development in India. And thus, following are the measures for their revival in India:

1. The government should focus on **4R – Risk allocation, regulation, renegotiation and resource raising**.
2. There should be some provisions in PPP contracts under which the government department concerned should be able to take over the project in case the private party falters.
3. Recommendations of **Vijay Kelkar Committee** on Revisiting and Revitalising PPP Model are as follows:
  - a) Contracts need to focus more on service delivery instead of fiscal benefits.
  - b) Prudent utilization of viability gap funds where user charges cannot guarantee a robust revenue stream.
  - c) Improved fiscal reporting practices and careful monitoring of performance.
  - d) An **Infrastructure PPP Adjudication Tribunal** (“IPAT”) to be constituted.
  - e) Amend the Prevention of Corruption Act, 1988 to distinguish between genuine errors in decision-making and acts of corruption.
  - f) Ensure adoption of principles of good governance by the **Special Purpose Vehicle** (SPV).

While the PPP model has been successful in sectors such as roads, ports and electricity generation, it has yet to take off in railways, civil aviation, and social sectors. Thus, government must undertake serious reforms to rationalise the PPP model and eliminate the bottlenecks constraining its potential for infrastructural growth in India.

### Q.13) Trace the evolution of land reforms in India since independence.

**Land reforms** refer to institutional measures directed towards **altering the existing pattern of ownership and management** of land. At the time of independence, **7% of the landowners owned 54% of land**, thus laying the need of land reforms.

Evolution of **Land reforms** in India can be **divided into two phases**. They are:

#### **First phase (till 1960s).**

1. **Abolition of Zamindari:** Over **50 lakh hectares of land was distributed** among landless farmers after successful completion of Zamindari Abolition Acts by various states.

2. **Tenancy laws (security of tenure, decrease in rent, ownership rights to tenants)** These were more **successful in few states** such as Kerala and West Bengal while there was only partial success in providing security of tenure to all tenants across other states.
3. **Land-ceiling laws:** It was not successful as most transferred their land among family members and it also led to **proliferation of benami properties** in many States.
4. **Land consolidation and cooperativization-** Impact of reforms in this area too had a **limited impact** due to **lack of trust among land owners** and disagreement over **issues of land quality** to be pooled.
5. State specific **Land acquisition Acts** by states such as Rajasthan and Punjab in 1953 were successful in their objective.
6. Placing the above laws in **9<sup>th</sup> Schedule** to make them immune from judicial review.
7. **Bhoodan and Gramdan movements** to encourage voluntary giving up of excess land and redistribution. However, the land donated under these movements were **barren and infertile**.

Apart from Abolition of Zamindari Act and success of tenancy laws in a few states, the first phase of land reforms was **not very successful** as there was **undue delay in enacting land laws**, exploitation of loopholes in law (**personal cultivation clause**), **lack of updated and correct land records**, **bureaucratic apathy**, **corruption** etc. Moreover, **Feudal mindset**, **lack of interest from tenant farmers and mala fide transfer of land by big landlords** to evade laws lead to failure of land reforms.

### Second phase (1970s onwards)

In the second phase, the reforms are targeted at **formalization and modernization of land records** and **ease the land acquisition** process.

1. **Right to property** [A. 19(1) (f)] was abolished as a Fundamental Right in 1978. This has allowed government to make laws for acquiring land for building infrastructure and development purposes.
2. **Digitalization of land records:** The biggest hurdle in success of post-independent land reform was absence of correct and updated land records. India is carrying a **Digital India Land Record Modernization Programme** since 2008 to computerize land records.
3. **The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013:** It regulates land acquisition and lays down the procedure for granting compensation, rehabilitation and resettlement to the affected persons in India.

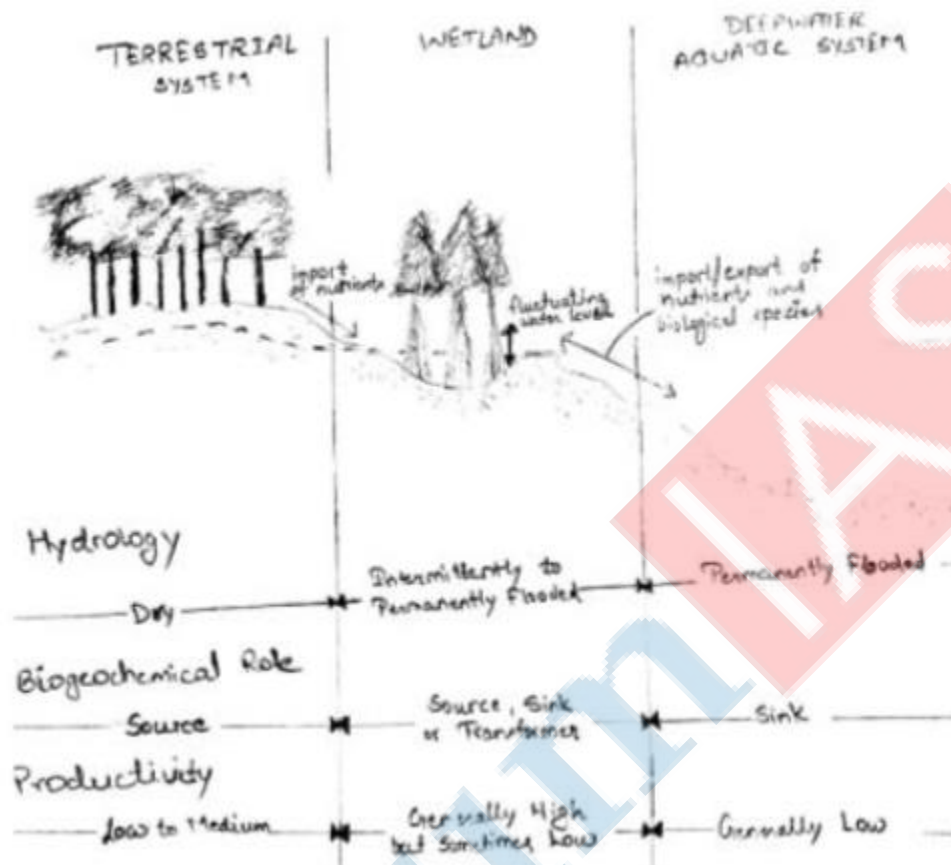
Landlessness is the **best predictor of rural poverty** in India, more than caste or illiteracy, without addressing the issue of land reforms properly we cannot make any meaningful progress towards **alleviating rural poverty and fuel agricultural growth**.

### Q.14) What is wetlands and its various types? Why is there a need to protect and conserve wetlands?

**Approach:** Introduce with the definition of wetlands. In the body, mention various types of wetlands along with examples. Then, explain why there is a need to protect and conserve wetlands through its importance. Thereafter, mention some steps undertaken to protect wetlands. Conclude on the basis of above points.

Wetlands are areas of land where the **water level remains near or above the surface** of the ground for most of the year. It is a unique ecosystem where **water is the primary factor** controlling the environment and the associated plant and animal life. They occur in areas where land is covered by water, either permanently or seasonally. They are **transition zones** i.e. they lie between deep water and terrestrial ecosystems. Swamps, marshes, bogs, lagoons, mangroves, tidal flats, ox-bow lakes, salt pans, coral reefs, underground aquifers, paddy fields, delta areas are some of the examples of wetlands.





As they support a variety of plant and animal life, biologically they are **one of the most productive ecosystems** on the planet.

#### Types of Wetlands:

As per the **Ramsar Convention**, a wide variety of natural and human-made habitat types ranging from rivers to coral reefs can be classified as wetlands.

Wetlands whether **natural or artificial, permanent or temporary** include

1. **Marine**– coastal wetlands including coastal lagoons, rocky shores, seagrass beds and coral reefs
2. **Estuarine**– deltas, tidal marshes and mudflats, and mangrove swamps.
3. **Lacustrine**– wetlands associated with lakes.
4. **Riverine** –wetlands along rivers and streams.
5. **Palustrine**– (meaning “marshy”) – marshes, swamps and bogs.

Water within the wetlands can be static or flowing; fresh, brackish or saline; and can include inland rivers and coastal or marine water to a depth of six metres at low tide. There are even underground wetlands.

However, in recent times due to unprecedented growth of population and rapid urbanization and industrialization, various ecologically important wetlands are losing their ecosystem functions.

The importance of wetlands has been realised by humanity since ancient times. However, in present times the need to protect and preserve wetlands have grown manifold times due to following reasons:

1. **Home to rich and diverse biodiversity:** Wetlands consists of complex food chain involving invertebrates, fish, amphibians, birds and mammals. Wetland plants provide **ideal nurseries with**

**shelter** from predators within thick vegetation or underwater root systems. Example: Sundarbans mangroves is home to Bengal tiger, Northern River Terrapin, Hawksbill turtle, etc.

2. **Sinks for Greenhouse Gases:** Wetlands are rich in plant species, which break down in the waterlogged soils when they die, creating **huge stores of carbon-rich nutrients**. Through this process they **remove carbon from the atmosphere** and huge critical importance in the era of global warming and climate change.
3. **Water Purification and waste assimilation:** Natural sediment and minerals along with plants and microorganisms absorb chemical runoff from agriculture and industry. There are also floating plants like Water Hyacinth (pictured right) and Duckweed, which can absorb heavy metals such as iron and copper. Example: East Kolkata Wetland assimilated almost 600 million tonnes of sewage every day.
4. **Flood control:** Wetlands hold large amounts of water over wide areas and they absorb rainwater runoff and prevent sudden floods downstream or in urban areas. Example: Chennai floods 2015 was mainly attributed to destruction and encroachment of construction and mining and quarrying activities into wetlands domain.
5. **Protection from storm surges and tsunamis:** Tidal and inter-tidal wetlands such as mangroves provide a coastal defence against storms and tsunami-like storm surges coming from the sea. Example: Sundarbans mangrove protected villages in West Bengal from Cyclone Amphan. Coral reefs and mangroves also reduce the speed and height of waves as they approach, thereby reducing the impact and damage on coastal towns.
6. **Provide provisioning services:** Wetlands also provide important benefits for industry. For example, Vembanad Lake form nurseries for fish and other freshwater and marine life and are critical to Kerala's commercial and recreational fishing industries.

Wetlands are a critical part of our natural environment as they provide an important range of environmental, social and economic services. Wetlands are vital ecological link between land and water and thus their pristine ecosystem functioning capabilities must be preserved and protected.

Wetlands can play a humongous role in achieving the aims under Sustainable Development Goals (SDGs), Paris Agreement (UNFCCC) and United Nations Convention to Combat Desertification (UNFCCD).

**Q.15) The fundamental issue in Indian agriculture is the sole focus on income rather than on productivity. Do you agree? Justify with arguments.**

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**Approach: Introduce with the basics of agriculture sector. Mention the problems faced by it. Discuss what has been done to improve the incomes. Further add how the focus is not just about incomes but also production. Conclude with you opinion on the issue.**

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Agriculture sector suffers from **two major problems:**

- a) it is **not remunerative/profitable** resulting in **poverty** of farmers
- b) agricultural **productivity** is **low** and has become **stagnant**.

Increasing the income of the farmer has received much attention from successive governments and current policy of **doubling farmers income by 2022** is one such example. Government is trying to **raise agricultural income** of farmers through following **initiatives:**

1. **MSP-** Minimum Support price is set by Government for State and Central agencies to procure farm produce. This ensures stable income for farmers and helps as Buffer in PDS.

2. **Credit support-** Several fund and microfinance institutions are in place. Micro Irrigation Fund of ₹5,000 crore, Agricultural Infrastructure Fund (AIF) to build agri-logistics (backward & forward linkages) of ₹1 lakh crore.
3. **Development of e-NAM-** Agri-Marketing Fund to strengthen eNAM and GrAMs ₹2,000 crores. E-Nam will allow farmers to sell produce all over India on better prices.
4. **Livestock Development-** Various schemes are launched to develop cattle wealth and help improve livestock like **Rashtriya Pashudhan Vikas Yojna** to increase farm incomes of livestock producers. Other initiatives include **pisciculture, sericulture** etc. like ₹ 500 crore for Bee Keeping initiative.
5. **Crop Insurance-** To safeguard farmers from the vagaries of nature like untimely rains, hails, etc older insurance schemes were improved and PM Fasal Bima Yojna launched which included food, oil and horticulture crops.

However, there has been a **simultaneous focus** on improving **productivity** as well:

1. **Soil Health-** To improve the quality of soil and **maintain the macro and micronutrient** balance of soils, Soil Health scheme was launched. It included periodic testing of soils and mobile testing units in villages.
2. **Fertilizer & subsidy-** Fertilizer containing Nitrogen, Phosphorus and Potassium are provided at subsidized prices. Organic and bio manure are also encouraged. The subsidy to farmers on diammonium phosphate (DAP) has recently been increased from ₹500 a bag to ₹1200 a bag.
3. **Irrigation-** To improve irrigation facilities PM Krishi Sinchai Yojna was launched with the idea of '**har khet ko pani**'. Similarly, construction of ponds and tanks linked with MGREGA has been ramped up.
4. **Hybrid Seeds-** High quality seeds and genetically modified seeds that increase the productivity have been introduced. One of the successful cases are **Bt Cotton**.
5. **Research & Technology-** Research and development of better methodologies, tie ups with expert nations like Israel, ramping up Institutional capacities of CSIR and ICAR have helped improved productivity.

Therefore, it is **not true** that the focus is only on income. Further, **income and productivity** have a **sympiotic** relationship and one cannot be achieved without the other.

### Q.16) Critically analyze the challenges of conservation of ground water resource in the country.

Groundwater represents one of the **most important water resources** in the country and accounts for **over four hundred cubic kilo meters** of the annual **utilizable resource** in the country. The **increasing dependence** on ground water has resulted in **its indiscriminate extraction** in various parts of the country leading to the **problem of acute ground water depletion**.

**Challenges of conservation of ground water resources** in the country are as under:

1. **Green revolution:** **Green revolution** led to growing of **water guzzling crops** in water deficit regions, leading to **ground water scarcity**.
2. **Storage:** Limited **natural storage facilities**, like aquifers, in some regions, owing to **hard rock terrains**, compounded by **lack of rainfall**, aggravates the problem of ground water shortage/depletion.
3. **Increasing demand:** Roughly **80% of India's 1.35 billion people** depend upon the ground water for **drinking and irrigation purposes**.

4. **Subsidies:** Power subsidy for **irrigation incentivizes the indiscriminate/wasteful use of groundwater resources**. Its negative implications are visible in states like **Punjab, Haryana, Uttar Pradesh** etc.
5. **Underground water pollution:** Indiscriminate use of **pesticides/fertilizers**, creation of landfills, **deforestation**, **lack of sanitation**, leakage from septic tanks etc., are major factors of ground water pollution that add to the **challenges of ground water conservation in India**.

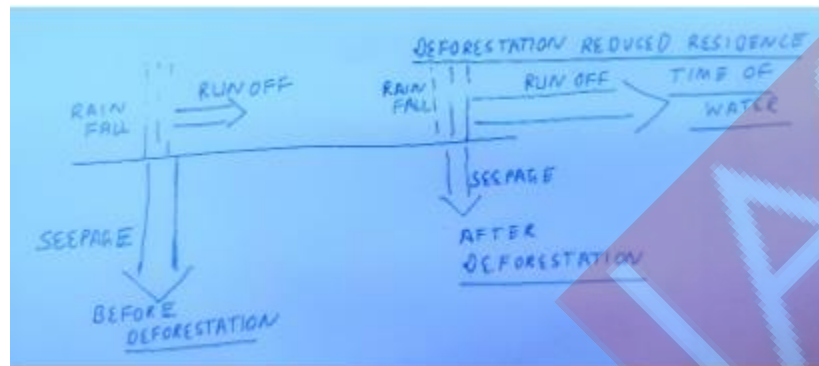


Figure: Effect of deforestation on groundwater

6. **Climate change:** Global warming, **erratic rainfall**, **rising extreme weather events** etc., have **adverse consequences** for ground water conservation in India.
7. **Non-point extraction:** **Illegal groundwater extraction** through **non-point sources** by the people, is **difficult to track/trace**. It **adds to the existing problem** of ground water extraction.

Depletion of ground water resources have led increased pumping costs, **deterioration of water quality**, reduction of water in streams and lakes, **land subsidence** etc. India's **rank at 120 out of 122 countries** in **water quality index** highlights the grim situation. Following steps need to be taken to ensure ground water conservation:

1. Integrated **demand and supply side measure** need to be taken in order to **reverse the trend of depleting ground water** resources in the country.
2. **Adoption and application of water efficient irrigation systems** (drip irrigation, sprinkler irrigation etc.), growing **less water intensive crops** like **pulses, maize, ragi** etc.,
3. **Surface water harvesting** through creation of **farm ponds, and check dams** will ensure conservation of ground water resources.
4. **Watershed management** programs, **aquifer recharging**, and **tank rehabilitation** activities will ensure **recharge of the ground water**.
5. **Stringent regulations** should be in place to check **expansion of ground water irrigated areas** and drilling of **additional wells**.
6. **Strengthening community participation** and rights in ground water governance can **improve ground water management**.

According to NITI Aayog, **21 Indian cities** including **Delhi, Bengaluru, Chennai and Hyderabad**, will **run out of groundwater by 2020**, affecting nearly 100 million people. Factors like **climate change, unscientific irrigation practices**, inadequate **watershed management structures** are adding to the challenge of ground water conservation. Holistic **efforts on demand and supply side** are needed to **arrest the decline** in ground water resources.

**Q.17) Examine various law and order challenges in Uttar Pradesh and highlight recent steps taken to counter it.**

Uttar Pradesh is the state with **largest population** in India. The demography of Uttar Pradesh makes it **susceptible to several law-and-order problems**. **Deep caste and religious cleavages**, high **incidence of poverty**, low **indicators of socio-economic development** etc., factors make Uttar Pradesh **highly vulnerable** to various **law and order challenges**, some of which include-

**Corruption**- Uttar Pradesh has consistently been in news for **issues related to corruption**. For example, in Lucknow, two local police officers themselves looted 1.84 crore from a trader.

1. **Communal violence**: Deep seated **religious differences/cleavages** often lead to eruption of **communal violence in form of riots/pogroms, lynching etc.**, in the state. For example, **2013 Muzaffarnagar riots** lead to at least **62 deaths**.
2. **Gender based violence**: UP faces the challenge of **crime against women** in the form of incidents of **rape, eve teasing, chain snatching** etc.
3. **Tax evasion/Black money**: Illegal activities not only create a **law-and-order challenge** but also **funnel the money into the black-market economy**. For example, recent **recovery of more than 200 crores worth of cash and gold** from a Kanpur based merchant.
4. **Mafia culture**: The **strongman/Bahubali culture** of UP is **well known for its notoriety**. It leads to illegal acts like **land grabbing, political murders, extortion, kidnapping** etc.
5. **Heinous crimes**- Data reflects a **rise in acts of heinous of crimes** such as murders in Uttar Pradesh. According to NCRB, Uttar Pradesh has reported the **maximum murders in India in 2020**.

Overall, according to the '**Crime in India**' report, UP recorded **3,779 cases of murder, 2,769 cases of rape and 33,250 cases of theft in 2020**. This highlights the **pitiable situation of the state with regards to Law and order**. Steps taken to counter these are-

1. The UP government has adopted a **zero-tolerance policy** towards crime/criminals which has a **deterrence effect** on anti-social elements.
2. **Technological infrastructure** such as **Center of Excellence for DNA, State Institute of Forensics Science**, have enabled **scientific evidence gathering** and hence a **credible investigation** leading to **higher convictions**.
3. **Stringent actions** against the **local strongmen** have **reinforced the rule of law** in the state. There is a **tangible decrease** in incidents of dacoity, loot, murder etc., crimes.
4. Steps like **Anti Romeo Squads** and a **dedicated women helpline** have led to a **decrease in incidents of rape/eve teasing** in the state.
5. **Training/Capacity building**: **Capacity building and training** of police personals in **police science, behavioral science** etc., will lead to better law and order outcomes in the state.
6. **Community Policing** portals have been created to **allow public to report a crime** quickly so that the **responsive action occurs** without a lag.

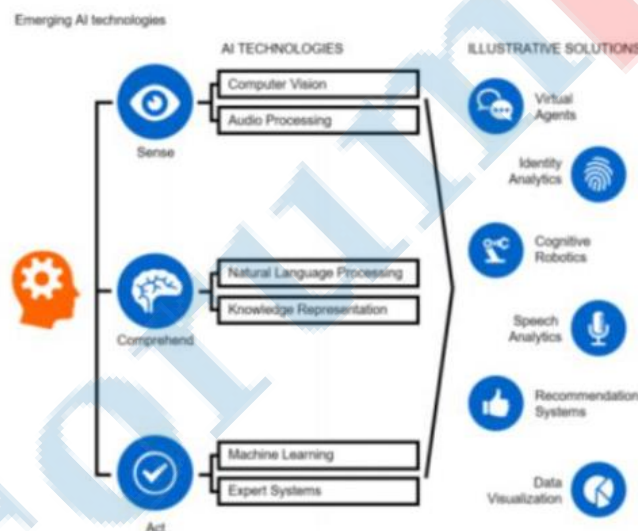
**Low police to population ratio**, high **caste and religious divides**, **prevalence of illiteracy, drug usage** etc., remain **source of law-and-order challenge** in the state of UP. However, considerable **technological intervention**, **stringent implementation of criminal laws**, **adequate training and capacity building infrastructure** etc., have led to a **reversal in challenge of law-and-order deterioration** in the state.

**Q.18) Explain Artificial Intelligence with examples? Discuss its applicability in various fields.**

**Approach: Define AI with examples. Delineate applications in different sectors – health, education, security, agriculture, etc. Briefly mention challenges in AI development and few government initiatives in this regard as conclusion.**

AI is a constellation of technologies that enable machines to act with higher levels of intelligence and **emulate the human capabilities** of sense, comprehend and act. It is development of computer system that are able to perform tasks that would require human intelligence. Few common examples of AI in use today include spam filters, speech-to-text apps, voice recognition, chatbots, pseudo-intelligent digital personal assistants like Siri, Alexa, etc. Artificial Intelligence (AI) might just be the **single largest technology revolution** of our live times, with the potential to disrupt almost all aspects of human existence.

AI is not a new phenomenon, with much of its theoretical and technological underpinning developed over the past 70 years by computer scientists such as Alan Turing, Marvin Minsky and John McCarthy. AI has already existed to some degree in many industries and governments. But the increasing computing power and the decreasing costs of data storage, we are on the cusp of the **exponential age of AI** as organisations learn to unlock the value trapped in vast volumes of data.



**Fig -1. What is Artificial Intelligence**

Applications in various fields

1. **Healthcare:** increased access and affordability of quality healthcare,
  - a) Application of AI in healthcare can help address issues of high barriers to access to healthcare facilities, particularly in rural areas that suffer from poor connectivity and limited supply of healthcare professionals.
  - b) Better quality **and improved efficacy** of healthcare can be achieved through implementation of use cases such as
    - i. **AI driven diagnostics** (example – IBM Watson)
    - ii. **Personalised treatment** (Example - applying machine-learning algorithms to patient-generated data to tailor new treatment plans that will eventually help better serve individuals)
    - iii. Monitoring of chronic diseases

- iv. AI assisted **Robotic Surgery**
- v. early identification of potential pandemics, and
- vi. imaging diagnostics.

Example - Microsoft India in doing a project in healthcare called **Microsoft Intelligent Network for Eyecare (MINE)** project where the company is working the government of Telangana for its Rashtriya Bal Swasthya Karyakram. The state government has adopted the MINE an AI platform to reduce avoidable blindness.

2. **Agriculture:** enhanced farmers' income, increased farm productivity and reduction of wastage,
  - a) Meeting the increased demand for food (global need to produce 50% more food and cater to an additional 2 billion people by 2050 as compared to today).
  - b) It also has the potential to address challenges such as
    - i. inadequate demand prediction,
    - ii. lack of assured irrigation, and
    - iii. overuse/misuse of pesticides and fertilisers.
  - c) Improvement in crop yield through
    - i. real time advisory,
    - ii. **advanced detection of pest attacks**, and
    - iii. prediction of crop prices to inform sowing practices.
3. **Education and skilling:** improved access and quality of education,
  - a) Augmenting and enhancing the learning experience through
    - i. personalised learning,
    - ii. automating and expediting administrative tasks, and
    - iii. predicting the need for student intervention to reduce dropouts or recommend vocational training.
4. **Smart Cities and Infrastructure:** efficient and connectivity for the burgeoning urban population,
  - a) traffic control to reduce congestion and
  - b) enhanced security through improved crowd management
5. **Energy:**
  - a) Energy system modelling and forecasting to decrease unpredictability and increase efficiency in power balancing and usage.
  - b) In renewable energy systems, AI can enable storage of energy through intelligent grids enabled by smart meters
  - c) Improve the reliability and affordability of photovoltaic energy.
  - d) AI may also be deployed for predictive maintenance of grid infrastructure
6. **Smart Mobility and Transportation:** smarter and safer modes of transportation and better traffic and congestion problems.
  - a) Autonomous fleets for ride sharing,
  - b) semi-autonomous features such as driver assist, and
  - c) predictive engine monitoring and maintenance.
  - d) autonomous trucking and delivery, and
  - e) improved traffic management.

### Challenges

1. Lack of **broad-based expertise in research** and application of AI.
2. Absence of enabling data ecosystems – access to intelligent data etc.

3. **High resource cost** and **low awareness** for adoption of AI.
4. Privacy and security, including a lack of formal regulations around anonymization of data
5. Absence of collaborative approach to adoption and application of AI.

Government initiatives like **RAISE 2020 (Global virtual AI Summit)**, National Knowledge Portal and NITI Aayog's National Strategy on AI are steps in the right direction to incrementally assess, adopt and enhance use of AI in various sectors.

**Q.19) Social media has emerged as a major threat to law and order establishment in recent times. Comment.**

**Approach: Introduce with a statement on Social Media along with examples. In the body, highlight how social media has caused threat to law and order establishments. Then, elaborate how social media has also helped law and order establishments to maintain law and order. Conclude by suggesting measures to strike balance between privacy and regulation of social media.**

The term social media refers to **internet-based web or mobile platforms/applications** that connect group of people and information in spontaneous and interactive ways. Examples of social media are Facebook, Twitter, YouTube, LinkedIn, discussion forums, chat rooms, etc.

Social media has caused information revolution as information can travel at lightning speed all over the globe. The decentralised form of social media, encrypted messages, complicated networks, anonymity that it offers and lack of regulation has resulted in various kinds of threat to law and order establishments, which are as follows:

1. **Fake news and misinformation:** Fake news have resulted into mob violence, rioting and communal violence.  
Example: Fake news regarding child-lifting and cattle trading has caused mob lynching in Jharkhand (Tabrez Lynching), UP (Dadri Mob Lynching), Rajasthan (Pehlu Khan mob lynching), etc.
2. **Cybercrimes against women:** Social media has become a new platform to harass and victimise women through revenge porn, cyberstalking, morphing of images, slut shaming, cyberbullying, etc.
3. **Radicalization and Extremism:** Cyber-terrorists is playing a big role in radicalizing unemployed alienated youths through spread of propagandas through social media even in vernacular languages.  
Example: Mehdi Masoor Biswas of Bangalore was a lone wolf on behalf of ISIS.
4. **Organized Crimes:** Criminals extensively use social media for fake currency circulation, human trafficking, money laundering, arms and cattle smuggling, selling banned drugs, etc.  
Example: A organised crime racket in Delhi was busted where people belonging to LGBTIQ+ community were being harassed through mobile app like Grindr.
5. **Fanning Polarization:** People through their anonymity on social media spread hate messages and false videos targeting minorities, backward castes, etc. to disrupt social capital.  
Example: 2013 Muzzafarnagar riots were caused due to circulation of videos on WhatsApp
6. **Malign the image of law enforcement agencies:** Personal credibility is essential for law enforcement. Through social media, people easily attack a police officer's and institutions character which may compromise courtroom testimony and investigations. Example: Dubey Encounter Case (UP), Hyderabad Gang Rape Encounter case (Telangana).



Social media has opened a new frontier for the law enforcement agencies to maintain peace in society. However, it has also equipped law enforcement agencies to maintain law and order in following ways:

1. **Countering fake news and misinformation:** The Delhi police establishment was quick to counter the fake news being spread in the month of February during and after North-East Delhi Riots.
2. **Instrument for bringing behavioural change through awareness:** Police across India used social media to bring behavioural change through Covid-19 Pandemic to remain inside the houses. Patna Police releases videos on Facebook on women security for young people.
3. **Closing the gap between law enforcement agencies and people:** The mistrust and governance deficit between people and police agencies are decreasing as Police uses social media to increase awareness about their schemes and policies.

The misuse of social media has become recurrent phenomena and thus law and order establishments and government must have pro-active measures as well as responsive measures to counter the ill-effects of social media. The following the suggested measures:

1. **Training Programmes:** The police departments, CBI, Financial Intelligence Unit, etc. must be trained especially the lower hierarchy in ways to counter crimes through social media.
2. **Widening the cybersecurity infrastructure:** The cyber security infrastructure must be strengthened with state of art technologies by decentralising it up to the lower Police Stations.

Social media has become a potent platform for freedom of speech and expression and deepening democracy. Thus, government must strike a balance between privacy, freedom of speech and expression and regulation of social media to counter the ill-effects of these platforms.

**Q.20) What do you understand by Left Wing Extremism (LWE). Elaborate the reasons for declining area under its influence in recent times.**

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**Approach: Introduce by explaining Left Wing Extremism and its rise in India. In the body, firstly, showcase the decreasing area of Red Corridor and the decline of LWE. Then, provide reasons for the same. Finally, conclude appropriately.**

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**Left Wing Extremism (LWE)**, also known as **Naxalism or Maoism**, is a form of **armed insurgency** against the State motivated by **leftist ideology**. The LWE organizations reject parliamentary democracy and aim at waging an **armed revolution against the government**. Maoist insurgency doctrine glorifies violence as the primary means to overwhelm the existing socio-economic and political structures. The ideology thrives on the support of the marginalised people in rural areas who are misguided to perceive the State and the present social setup as the reason for their backwardness. For example - the CPI (Maoist), the main LWE outfit in India, aims to overthrow the existing democratic state structure with **violence as their primary weapon**, and mass mobilization and strategic united fronts as complementary components and plans to usher in so-called 'New Democratic Revolution' in India.

The LWE has been described by former Prime Minister Manmohan Singh as the single biggest internal security challenge ever faced by country.

Contraction of Naxalism:

According to the Ministry of Home Affairs (MHA), Maoist influence has been gradually shrinking. **MHA redrew the red corridor** and brought down the number of districts affected with Naxal violence, most of the Left-Wing Extremism is now confined to 30 worst-hit districts and 90 in total, as of 2018. Also, there

has been a consistent decline in Left Wing Extremism (LWE) related violence in the country. In 2019, the number of LWE related incidents have **reduced by over 38%** in comparison to 2014.

Reasons for decline in area under Naxalite influence:

The geographical spread of the LWE violence has shrunk significantly due to a **multi-pronged strategy** involving security, developmental and trust building measures.

<b>Security Measures.</b>	<b>Development Measures.</b>	<b>Trust building Measures.</b>
<b>Special police</b> forces such as the Greyhounds of Andhra Pradesh, Jharkhand Jaguar of Jharkhand, Special Auxiliary Police of Bihar and C-60 commando of Maharashtra.	Development under <b>Integrated Action Plan</b> , Special Central Assistance and Aspirational districts development.	States have been working effectively to implement the provisions of <b>PESA, 1996</b> providing some amount of autonomy to the areas.
Strengthening of <b>intelligence networks</b> and <b>Counter insurgency operations</b> , ex. Operation Anaconda, Jharkhand	Provisioning of healthcare, education, clean drinking water, pucca houses with sanitation facilities, electricity, etc.	Security forces have undertaken various welfare activities under the Civic Action Program.
<b>Security Related Expenditure (SRE) scheme</b> for the purpose of reimbursement of security-related expenditure like transportation, communication, hiring of vehicles, stipend to surrendered Maoists, construction of infrastructure for forces etc.	Bharat Nirman, National Rural Health Mission (NRHM), Sarva Shiksha Abhiyan (SSA), Integrated Child Development Services (ICDS) like schemes of the Ministry of Rural Development, Agriculture, Panchayati Raj and Tribal affairs.	<b>Surrender-cum-Rehabilitation scheme</b> has been instrumental in creating a gateway for Naxals to come out of the movement and join the mainstream.
Upgradation of security infrastructure through cameras and drones besides upgradation of weaponry.	<b>Skill development initiatives</b> , ex. Roshni and employment generating activities like MGNREGA.	The State has subscribed to counter-propaganda and it has been successful in influencing <b>tribal youth to join security forces</b> . For example: the Bastaria Battalion.
<b>Blocking Naxal funding</b> and capturing many trophies (arms and ammunitions) giving a huge blow to the movement.	The <b>development of roads</b> under Road Requirement Plan, installation of mobile towers as infrastructure development initiatives.	Legislations recognising the <b>rights of adivasis</b> to access forest resources and for self-governance, ex. Forest Dwellers Act in 2006

The government has come out with a well laid out strategy called **SAMADHAN**. it stands for **S** – smart leadership, **A** – Aggressive strategy, **M** – Motivation and training, **A** – Actionable intelligence, **D** – Dashboard Based KPIs (Key Performance Indicators) and KRAs (Key Result Areas), **H** – Harnessing Technology, **A** – Action Plan for each theatre and **N** – No access to financing. It needs to be implemented well in order to eliminate the threat of LWE which has also been termed as the biggest internal security threat faced by the nation.