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GS - III

1. Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment

Ease of doing Business

Fast Mover

India's Performance in World Bank's ease of doing business' report

Indicator (Ranking)	2017	2018
Starting a Business	155	156
Dealing with Construction Permits	185	181
Getting Electricity	26	29
Registering Property	138	154
Getting Credit	44	29
Protecting Minority Investors	13	04
Paying Taxes	172	119
Trading across Borders	143	146
Enforcing Contracts	172	164
Resolving Insolvency	136	103
Overall Ranking	130	100



Manufacturing

Facts

- India manufacturing sector has grown by over **7 per cent per year on average in the past three decades and accounts for 16-20 % of India's GDP.**
- **Industrial Disputes Act** has lowered employment in organized manufacturing by about **25%** (World Bank Study)

Global Manufacturing Index

- World Economic Forum released its Global Manufacturing Index and placed India on the **30th** position.
- Overall, India is ranked better than its neighbours Sri Lanka (66th), Pakistan (74th) and Bangladesh (80th).
- The report took note of the '**Make in India**' initiative to transform India into a manufacturing hub and moving towards a more connected economy with an announcement of a **\$59 billion investment in infrastructure in 2017**

MSME SECTOR

NOTES

Definition

- **A micro enterprise:** annual turnover does not exceed five crore rupees
- **A small enterprise:** annual turnover is more than five crore rupees but does not exceed Rs 75 crore;
- **A medium enterprise:** annual turnover is more than 75 crore rupees but does not exceed Rs 250 crore.

Schemes

1. **Udyami Mitra Portal** – It has been launched by SIDBI to improve accessibility of credit and handholding services to MSMEs
2. **Digital MSME Scheme** – It involves usage of Cloud Computing where MSMEs use the internet to access common as well as tailor-made IT infrastructure (including software for managing their business processes) rather than installing in-house IT Infrastructure
3. **Revamped Scheme of Fund for Regeneration Of Traditional Industries (SFURTI)** – organizes traditional industries and artisans into clusters and make them competitive by enhancing their marketability & equipping them with improved Skills.
4. **A Scheme for Promoting Innovation, Rural Industry & Entrepreneurship (ASPIRE)** - creates new jobs & reduce unemployment, promotes entrepreneurship culture, facilitates innovative business solution etc.

IMPORTANCE OF MSMEs

It is important for inclusive growth as it provides the bulk of Industrial employment in the country

5.1 crore	Operating MSMEs in India
11.7 crore	Employment in MSME sector
77.6 lakh	Registered MSMEs as on January 10, 2018 of which 40 lakh registered since September 2015 under Udyog Aadhaar
30.7 %	Contribution to GDP (fiscal 2015)
45.0 %	Contribution to exports
78.2 %	Dependence on self-finance

Importance of MSMEs

2. **Inclusive growth and issues arising from it.**

Growing Income Inequality in India

Our inequality materializes our upper class, vulgarizes our middle class, brutalizes our lower class - MATTHEW ARNOLD

Definition

- Income inequality refers to income distributed in an uneven manner among a population.
- Income inequality (as measured by the Gini coefficient, which is 0 when everybody has the same income and 1 when one person has all the income) negatively affects growth and its sustainability.

Constitution

- It is **directive** to government of country under **Article 38** – 44th amendment– to reduce inequalities in income, status

Report and Indexes

1. World Inequality Report 2018

- The report finds that the **top 1% of income earners received 6% of the total income** in the early 1980s, close to 15% of it in 2000, and receives 22% in 2014.

2. Oxfam Report

- Oxfam report titled '*Reward Work, Not Wealth*', noted that the **richest 1% in India cornered 73%** of the wealth generated in 2017 while bottom 67 crore Indians saw their wealth rise by just 1%

3. IMF

- According to IMF estimate, one percentage point increase in the income share of the top 20% will drag down growth by 0.08% over five years, while a rise in the income share of the bottom 20% actually boosts growth.

Inclusive Development Index

- India was ranked **62nd among 74 emerging economies.**

Performance of India

- Of the three pillars, India ranks decent on inclusion, growth & development and inter-generational equity.
- Though the incidence of poverty has declined in India over the past five years, **6 out of 10 Indians still live on less than \$3.20 per day.** Thus, there is substantial scope for improvement for India in this aspect.

Financial Inclusion

Definition

- Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way.

Facts

Global Findex Report 2017

- World Bank has released Global Findex Report.
- The number of account holders in India has risen from **35% in 2011 to 80% in 2017.** During 2014-17, 51.4 crore bank accounts were opened worldwide out of which 55% were in India.
- However **in developed countries 94% of adults have an account.**

- Only 36% of account holder in India make or receive digital payments. Global average is 76% whereas the average of developed nations is 91%.

Digitisation of Economy after Demonetisation

- According to a 2014 study by Tufts University, cash operations cost the Reserve Bank of India (RBI) and commercial banks about **Rs 21,000 crore annually**.
- From October 2016 to May 2017 - Value-wise, **UPI** recorded a growth of Rs 0.49 billion to Rs 27.65 billion, more than **56 times growth** during the same period.

Employment

Unemployment Rate

- The unemployment rate in 2015-16 was 5% of the labour force, up from 4.9% in 2013-14.

Employment in Informal Sector

- According to NSSO data, there have been more jobs created in the informal sector than the formal and more than 90% of the population is employed in informal jobs
- According to the **Arjun Sengupta Committee** report 92.4% of the population is engaged in informal sector
- In India, according to the 2015-16 Economic Survey out of the 10.5 million new manufacturing jobs created between 1989 and 2010, only **3.7 million — about 35% — were in the formal sector**.
- The number of contract workers has increased from 12% of all registered manufacturing workers in 1999 to 25% in 2010.

Female labour force participation

- **Contribution in GDP:** 17%, India has a lower share of women's contribution to GDP than the **global average of 37%**.
- National Sample Survey (NSS) data for India show that labour force participation rates of women aged 25-54 (including primary and subsidiary status) have stagnated at about **26-28% in urban areas**, and fallen substantially **from 57% to 44% in rural areas, between 1987 and 2011**.
- India can potentially **boost its GDP by \$700 billion in 2025**, translating to 1.4% per year of incremental GDP growth, by raising female labour-force participation rate by just 10 percentage points, from 31% to 41%. This requires us to bring in 68 million more women into the workforce – ILO

Automation

- The IT services industry alone is set to lose **6.4 lakh low-skilled positions** to automation by 2021.
- **World Bank research** - Automation threatens 69% of the jobs in India, while it is 77% in China.

MGNREGA

Objectives

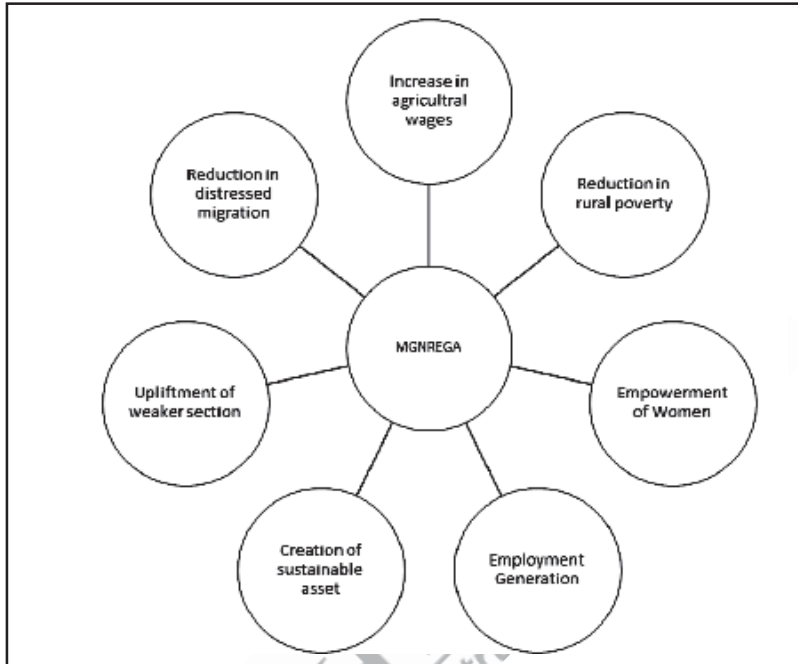
1. To provide guaranteed **100 days of wage employment** per year to each rural household
2. Creation of durable rural assets
3. Social inclusion of women, SCs and STs
4. Strengthen the Panchayati Raj Institutions

Data

- In FY2015-16, out of the total employment through MGNREGA, 56% was generated for women.
- The percentage of Scheduled Caste workers has consistently been about 20% and Scheduled Tribe workers has been about 17%.

Problems

- Delays in wage payments have been a serious concern under MGNREGA with only 44 per cent, 37 per cent, 27 per cent and 50 per cent of the wages being paid on time in fiscal years 2016-17, 2015-16, 2014-15 and 2013-14 respectively.
- As of 2016-17, total amount of wage pending is Rs. 11000 crore.



Benefits of MGNREGA

3. Government Budgeting

India's Tax Base

Facts

- Currently the total number of individual taxpayers at 6.08 crore, constitute only 4.86 per cent of India's total population of 125 crore.
- Country's total taxpayer base increased to 6.41 crore in 2016-17 from 4.38 crore in Assessment Year 2011-12 which shows a **rise of over 46 percent** over five years with individual taxpayers registering a faster growth rate than total taxpayers.
- The Economic Survey 2017-18 highlighted that there has been a decline in the reliance on **direct taxes** in India which contribute only around **35 percent of total taxes** as against a contribution of about 70 per cent in Europe.

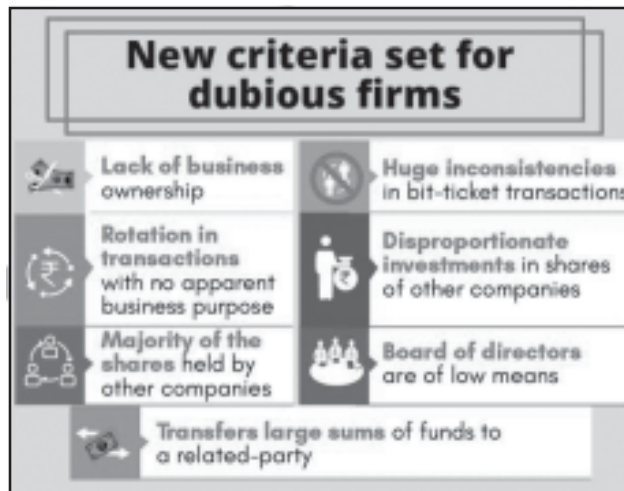
Impact of GST on Tax Net

- The introduction of the goods and services tax (GST) has brought more firms into the tax net. The number of enterprises paying indirect taxes has gone up by 3.4 million, an increase of 50%.
- Tax buoyancy (responsiveness of tax growth to nominal GDP growth) is 1.2, which is high by the historical standards for indirect taxes.

Shell Companies

Definition

- In India Shell companies are not defined under Companies Act, 2013 or any other legislation.
- Some laws can help curb illegal activities such as money laundering and can indirectly be used to target shell companies
 1. Benami Transaction (Prohibition) Amendment Act 2016;
 2. The Prevention of Money Laundering Act 2002
 3. The Companies Act, 2013 etc



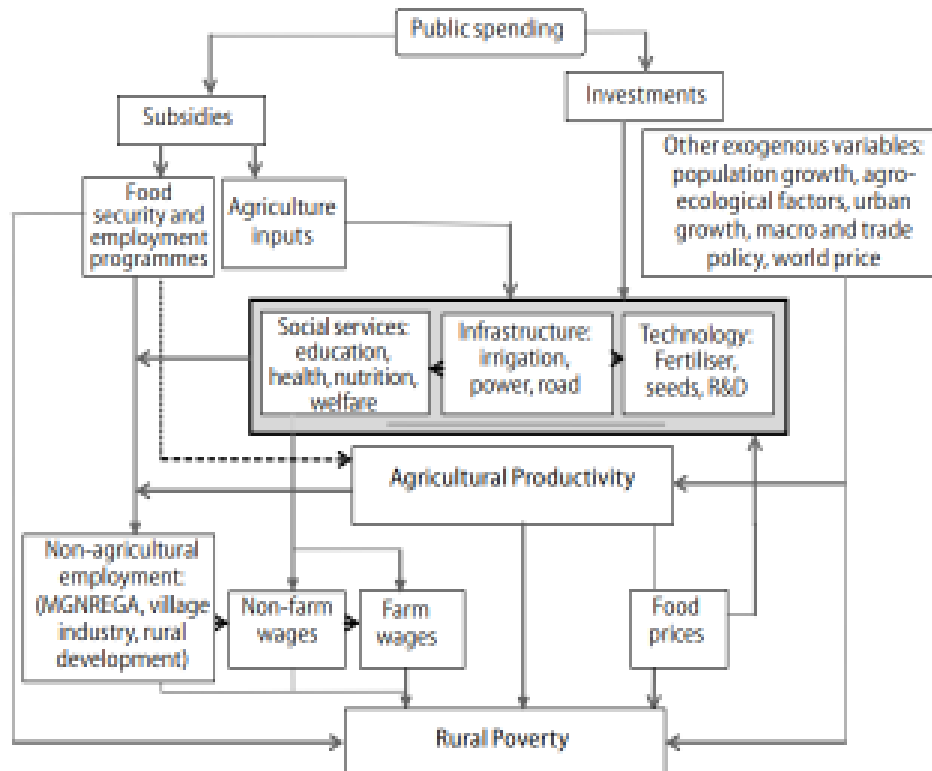
New Criteria for dubious firms

Subsidies

Data

- Fertiliser subsidy - about 0.73 lakh crore or 0.5 percent of GDP, second highest after food
- Only 35% of total subsidy reaches the intended beneficiaries.

Figure 1: Analytical Framework Estimating the Impact of Public Expenditure and Subsidies on Productivity and Poverty



Impact of Public Expenditure and Subsidies on Productivity and Poverty

** Total subsidy is 12% of budget*

Mobilisation of resource

Consumption and Saving Rate

- According to the World Bank, Household consumption accounted for 59.4% of the GDP in 2016.
- Total savings, amounted to 32.5% of the GDP, of which household savings alone contributed 23.6% to the GDP, according to NITI Aayog

Banking

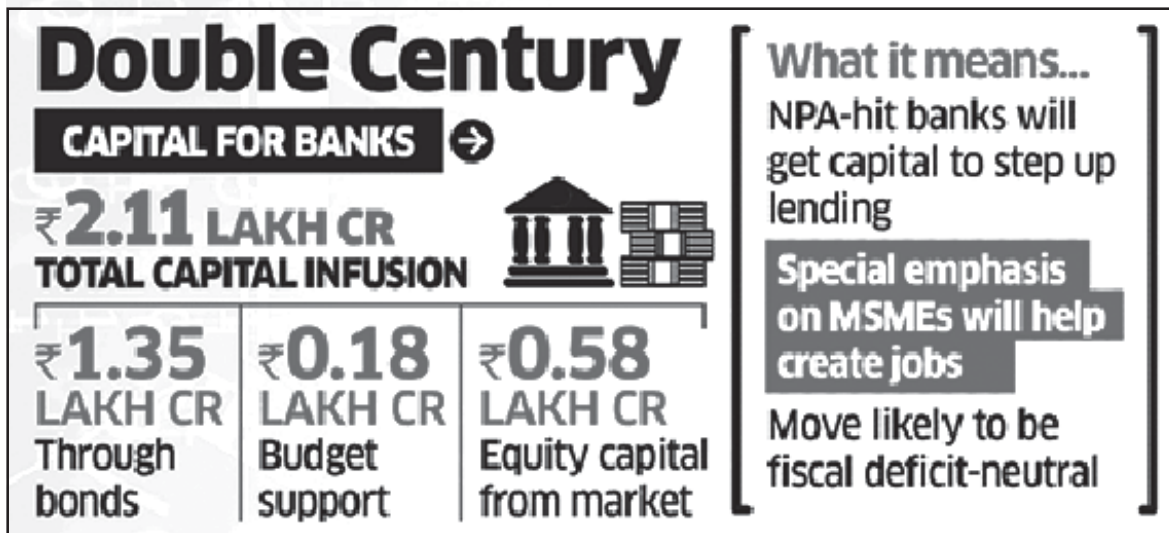
Recapitalisation

Definition

- In the case of Public Sector banks, recapitalization is injection of capital mainly through equity investment by the government to financially strengthen them.

Need of Recapitalisation

- **Rising NPA** - Compared to private sector banks, the gross NPA of PSBs have grown exponentially over the last 10 years (**from 2.9 per cent in 2013 to 13.8 per cent in 2016**).
- **Low credit growth** -Credit growth to the services sector decelerated to 7% in September 2017 as well down from the increase of 18.4% in September 2016.



Double Century
CAPITAL FOR BANKS →

₹2.11 LAKH CR
TOTAL CAPITAL INFUSION

₹1.35 LAKH CR Through bonds	₹0.18 LAKH CR Budget support	₹0.58 LAKH CR Equity capital from market
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What it means...
NPA-hit banks will get capital to step up lending
Special emphasis on MSMEs will help create jobs
Move likely to be fiscal deficit-neutral

Recapitalisation Plan for PSBs

Non-Performing Assets

Definitions:

- NPA or Non-Performing Assets are **loans or advances that are in default** or are in arrears on scheduled payments of principal or interest, usually for a period of 90 days.

Data on NPAs

- All the 38 listed banks accounted for gross NPAs totalling over **Rs 10.17 lakh crore** in the quarter ended March 2018. In comparison, the gross NPAs of all the banks in the country had amounted to **Rs 8.40 lakh crore** as on December 31, 2017.
- Leading corporate houses and companies accounted for approximately 77 per cent of the total gross NPAs from domestic operations for the banks.

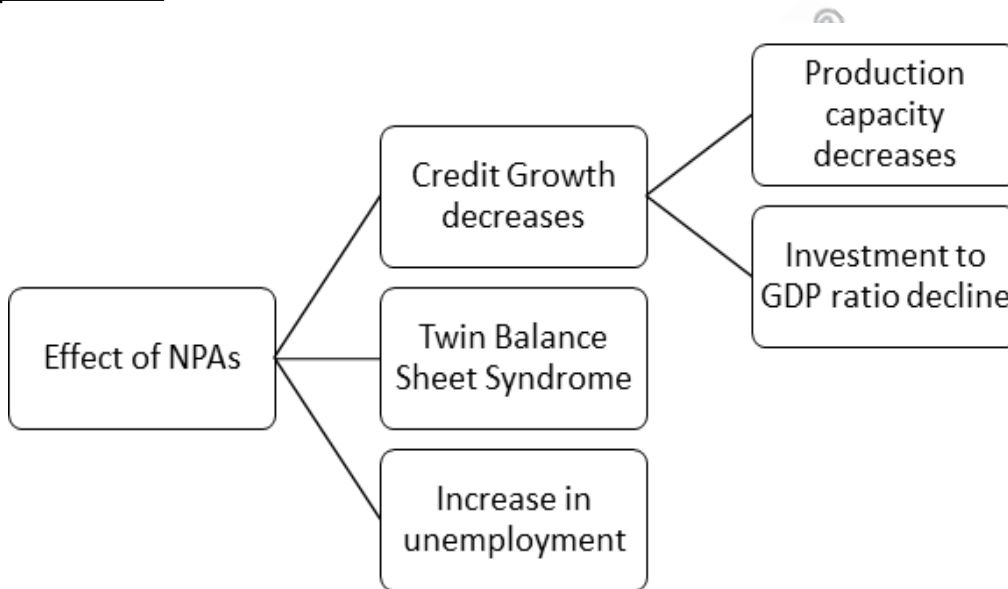
Agricultural NPA

- According to RBI data, agriculture NPAs rose over 23 per cent from Rs 48,800 crore in 2016 to Rs 60,200 crore in 2017.
- Farm sector bad loans constitute 8.3 percent of the total banking sector NPAs of March 2017. However, it is fairly less than compared to **non-priority sector with accounts for 76.7% of total NPAs**
- Compared to non-priority sector credit where borrowers have defaulted 20.83 percent of the credit, farmers have defaulted only 6 percent of their total credit.

Power Sector NPA

- Around 22% of India’s installed power-generation capacity burdens Indian banks as non-performing assets (NPA).
- The Parliamentary Standing Committee on Energy report noted that there were **34 stressed assets in the sector with an overall capacity of 40 GW** and a total **outstanding debt of nearly Rs 2 lakh crore**.

Impact of NPA



Impact of NPA

Banking Reforms Roadmap

- The reform agenda, aimed at **EASE – Enhanced Access and Service Excellence**, is based on six themes. Capital infusion is dependent on PSB performance on these reform themes
 - 1) Customer Responsiveness
 - 2) Responsible Banking
 - 3) Credit Off-take
 - 4) PSBs as UdyamiMitra
 - 5) Deepening Financial Inclusion & Digitalisation: micro-insurance, digitalisation
 - 6) Ensuring outcomes: Governance/HR

7. Factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).

Travel and Tourism

Report of the World Travel and Tourism Council (WTTC)

- In 2017 India's travel and tourism sector ranks **7th in the world in terms of its total contribution to the country's GDP**
- The total contribution of Travel & Tourism to GDP was 9.4% of GDP in 2017

Infrastructure

Roadways

- Nearly **5 lakh road accidents** take place in the country **every year**, in which close to 1.5 lakh lives are lost.
- Road traffic fatalities constitute **16.6% of all deaths**, making this the sixth leading cause of death in India.
- As a signatory to the Brasilia Declaration on Road Safety, India has committed to reducing, by 2020, the number of road crash fatalities and serious injuries by 50%. This will be possible to achieve with the passage of the **Motor Vehicles bill 2017**.

Scheme

1. Pradhan Mantri Gramin Sadak Yojana

- 82% of the target has been achieved by 2017.

2. Bharatmala Prayojana

- The Ministry of Road Transport and Highways has decided to develop around 1,900 km of roads as green-field expressways out of which 800 km will be taken up in the Bharatmala Prayojana Phase-I.
- Bharatmala will provide NH linkage to 550 districts, as against around 300 Districts

Infrastructure status to Logistics



Infrastructure Status to Logistics

Ports

Data

- Inland Container depots ICDs in India containerize only 17 to 18% cargo, below the international standards of 76 to 77 %
- Involvement of ICD will help in reducing the logistics cost, as currently it account for 14-15% of manufacturing costs, which is among the highest in the world.

URBAN INFRASTRUCTURE

NOTES

Facts

- India's **annual per capita spending on cities is \$50** which is **less than that of China (\$362)**, South Africa (\$508) and U.K. (\$1772).

Schemes

- Credit linked subsidy under **Pradhan Mantri Awas Yojana- Housing for All**
- **National Investment and Infrastructure Fund (NIIF)** for infrastructure development in commercially viable projects, both Greenfield and Brownfield, including stalled projects.

Electric Vehicles

Facts

- India is expected to save over 5 crore litres of fuel every year leading to a reduction of over **5.6 lakh tonnes of annual CO2 emission** with 20,000 EVs on road.
- Cost for an electric car is just 85 paise/km against Rs 6.5/km for normal cars. Thus EVs help us achieve autonomy from expensive petroleum imports
- Recent targets by NITI Aayog indicate 40% of personal vehicles and public transportation in the country should go completely electric by 2030.

Related Scheme

1. **FAME India Scheme:** The scheme has 4 focus areas i.e. Technology development, Demand Creation, Pilot Projects and Charging Infrastructure.

Universal Electrification

- **Definition:** Existing definition to declare a village electrified is coverage of a mere 10% of households and common facilities such as schools, panchayats and health centres.

Facts

- According to DDUGJY website, 99.8% of census villages have been electrified by February, 2018.
- "Intensive electrification" (household electrification) has been completed in around 80% of villages.
- In India only around 71% of all households have electricity with considerable rural-urban gap.
- DDUGJY website shows that only six states had 24-hour power supply in rural areas in December 2017.

Energy Transition index

- It was released by World Economic Forum.
- India has been ranked at 78th position which is lower than Brazil and China
- Transmission and Distribution (T&D) or Aggregate Technical & Commercial (AT&C) losses are around 20% in 2015-16
- **Present AT&C loss - Total AT&C Loss is 25.05% (Aug 2018)**

ENERGY ACCESS

Definition

- **International Energy Agency (IEA)** defines energy access as "a household having reliable and affordable access to both clean cooking facilities and to electricity, which is enough to supply a basic bundle of energy services initially, and then an increasing level of electricity over time to reach the regional average".

Facts

- India is **world's third largest energy consumer** after the US and China.
- In 2014, 1.06 billion people lived without access to electricity— Approx 40 % were in India.
- 25% (45 million) of rural households across the India have no electricity
- Currently, about 2.8 billion people lack access to clean cooking and 2.3 billion people are expected to remain without access to clean cooking by 2030.
- Renewables will make up 40 % of total power generation by 2040.
- India's refining capacity would grow by around two-thirds by 2040, becoming third-largest refining centre behind the US and China.

Schemes for improving energy access

1. **Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY):** It focuses on feeder separation (rural households & agricultural) and strengthening of sub-transmission & distribution infrastructure including metering at all levels in rural areas.
2. **UDAY (Ujwal DISCOM Assurance Yojana)** for improvement in financial and operational efficiencies of State Power Distribution Companies (DISCOMs)
3. **Pradhan Mantri Sahaj Bijli Har Ghar Yojna (Saubhagya Scheme):** To supply electricity to all households by December 2018.
4. **UJALA (Unnat Jyoti by Affordable LEDs for All)Yojana:** Under it subsidised LED bulbs were distributed to public.
5. **Pradhan Mantri Ujjwala Yojana-** Scheme for Providing Free LPG connections to Women from BPL Households.

Biomass

Definition:

Biomass energy constitutes wood fuels (including charcoal, wood waste wood), crop residues (such as bagasse, rice husk and crop stalks) and animal dung (including biogas).

Facts

- As per Census 2011, about **65.9 percent of households** depend on solid biomass, including firewood, crop residue and cow dung as primary fuel for cooking in India.
- About 32% of the total primary energy use in the country is derived from biomass.
- Bio-fuels are expected to contribute **5000 MW** to the overall renewable energy target of 175,000 MW by 2022
- Under NBMMP, about **47.5 Lakh biogas plants** have already been installed in the country upto 31st March, 2014.
- **Potential:** India has a potential of about **18 GW** of energy from Biomass.
- **Economy based on Biomass:** Biomass power industry attracts investments of over Rs.600 crores every year, generating more than 5000 million units of electricity and yearly employment of more than 10 million man-days in the rural areas

Renewable Energy

Facts

- Renewable energy, accounted for 18.37 per cent of the total installed power capacity in India in 2017

Renewable Energy Policies in a Time Of Transition

- Heating is the largest energy end-use, accounting for over 50% of total final energy consumption in 2015, with over 70% of that met by fossil fuels.
- Transport is the second largest energy end use sector, accounting for 29% of total final energy consumption in 2015, and 64.7% of world oil consumption.

METHANOL ECONOMY

Definition

- It is known as wood alcohol, it is colourless, obtained both naturally and artificially, biodegradable, flammable, poisonous, and renewable source of energy.
- it is a single carbon compound made from the destructive distillation of wood and also produced from coal, natural gas, biomass (i.e. products which are capable of producing syngas),

Facts

- Country’s 90% of demand of methanol is met by the import.
- China is the leading producer of Methanol in the world.
- India has the 5th largest coal reserves (feedstock of methanol) which can be utilised for methanol and DME (Dimethyl ether) production.
- India is the 6th highest consumer of fossil fuel and would become 3rd largest consumer by 2030.
- Adoption of methanol will minimise fossil consumption e.g. Methanol will reduce 20% diesel consumption by next 5-7 year

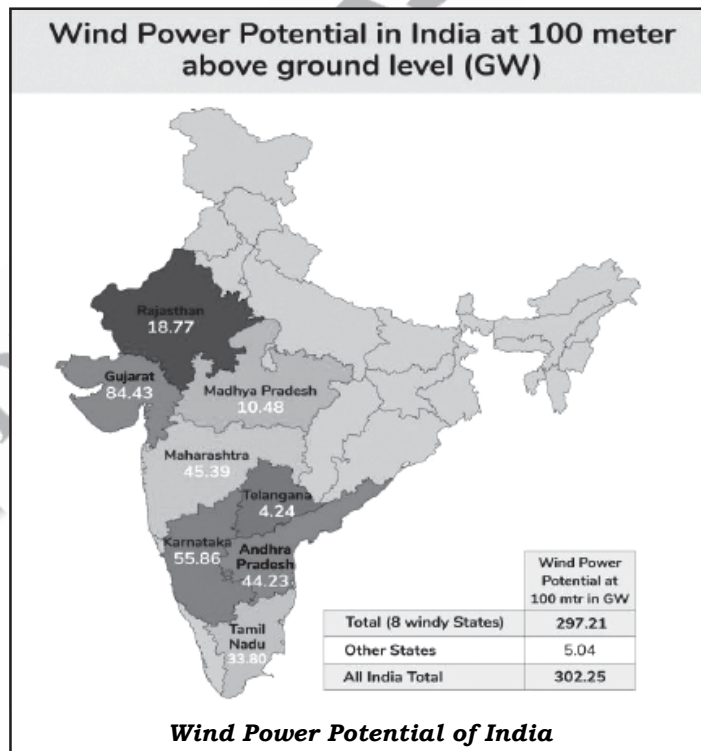
WIND POWER IN INDIA

Facts

- India’s overall installed capacity with renewables accounts for over 17% (April 2017).
- Contribution of wind power is at 56.2% solar power is at 21.8 %
- India is at 4th position in term of wind power installed capacity after China, USA and Germany
- **India’s Integrated Energy Policy** projects 800 GW installed capacity in 2031-32 out of which 40 % will come from renewable energy.

Government Steps and initiatives

- 1. National Offshore Wind Energy Policy:** It paves the way for setting up of offshore wind power projects and research and development activities, in waters, in or adjacent to the country, up to the seaward distance of 200 Nautical Miles (EEZ of the country) from the baseline. It removes the land availability barrier for wind power generation and utilizes 7600 km coastline in India.
- 2. Guidelines for Development of Onshore Wind Power Projects:** To facilitate development of wind projects in an efficient, cost-effective and environmentally benign manner.
- 3. Green Energy Corridors Project:** Power evacuation and transmission infrastructure for renewables is being augmented as part of the “Green Energy Corridors” project.
- 4. Draft Wind-Solar Hybrid Policy:** It aims to add wind-solar hybrid capacity of 10 GW by 2022.



Agriculture

NOTES

Data

- Less than 1% of the Agricultural GDP in India is spent on research.
- **Average landholding sizedecreasing** from 2.3 ha in 1971 to 1.16 ha in 2011.
- According to recent estimates of the Central Statistics Office, the growth of Gross Value Added in agriculture declined from 4.1 per cent in 2016-17 to barely 2.1 per cent in 2017-18.
- Water-demand varies across states given differing weather conditions. In Punjab, over 5,330 litres go into producing 1 kg, while in Bengal this needs 2,700 litres.

Farmer Suicide

- 6,926 farmers and agricultural labourers committed suicide in the state during 2000–10 as per the census-based study.
- Among the victim farmers, about 79% were small and marginal farmers cultivating up to two hectares of land.

Source of Credit in Rural area

- **NABARD Report:** Around one-third of total households take loan from money lenders and other non-financial institutions.
- Although around 60 per cent of households take loans from financial institutions, the average amount of loan from non-institution is more than double than any financial institution.
- The average loan per household from non-institutional sources is Rs 63, 645 whereas average loan from financial institution is Rs 28, 207.
- As per a report submitted by the RBI to the Parliamentary Standing Committee on Agriculture in response to its queries, **only 42.2% of agricultural credit disbursed in 2016-17 went to small and marginal farmers**

Problem in Sugarcane Agriculture

- The cost of sugar production in India is **one of the highest in the world** mainly due to high sugar cane cost, uneconomic production process, inefficient technology and high taxes exercised by the state and the central governments.
- The **per capita annual consumption** of sugar is about **10 kg in India, whereas it is about 20 kg in the world**

India's Agriculture Export

- India's agri export - little over 2% of world agri-trade (estimated at US\$ 1.37 Trillion).
- India's rank among major exporter - 9th (WTO 2015)
- **Indian agricultural exports grew at 9% compared to China (8%), Brazil (5.4%) and US (5.1%) between 2007 and 2016.**
- Agricultural export is **10 percent of Indian exports and is the fourth-largest exported principal commodity.**

Government initiatives for farmers' welfare

1. Pradhan Mantri Fasal Bima Yojana
2. Soil health cards
3. Pradhan Mantri Krishi Sinchayee Yojana
4. National Agriculture Market (eNAM)

Recommendations of Ashok Dalwai committee, on doubling farmers' incomes (DFI)

- Improve Institutional Arrangement/Overhaul of the Union agriculture ministry



- **Liberalize the definition of a ‘farmer’** to include cultivators, lessee farmers and sharecroppers
- **Undertake land reforms** such as incentivizing land pooling through legislating the Model Land Leasing Act 2016, draft a Model Contract Farming Act, encouraging Farmer producer organisations and comprehensive digitisation of land records.
- Reduce production risks and market unpredictability
- **Liberalize and simplify agriculture policies** such as ensuring greater choice of inputs to farmers at right quality and rational costs, liberalizing seed chain etc.
- Improve grassroot level participation
- **Tackle climate change:** through rigorous monitoring, deploying technologies to mitigate adverse impact, preparing farmers for possible shifts in practices and habits, bringing changes in cropping system, crop selection and livestock care.

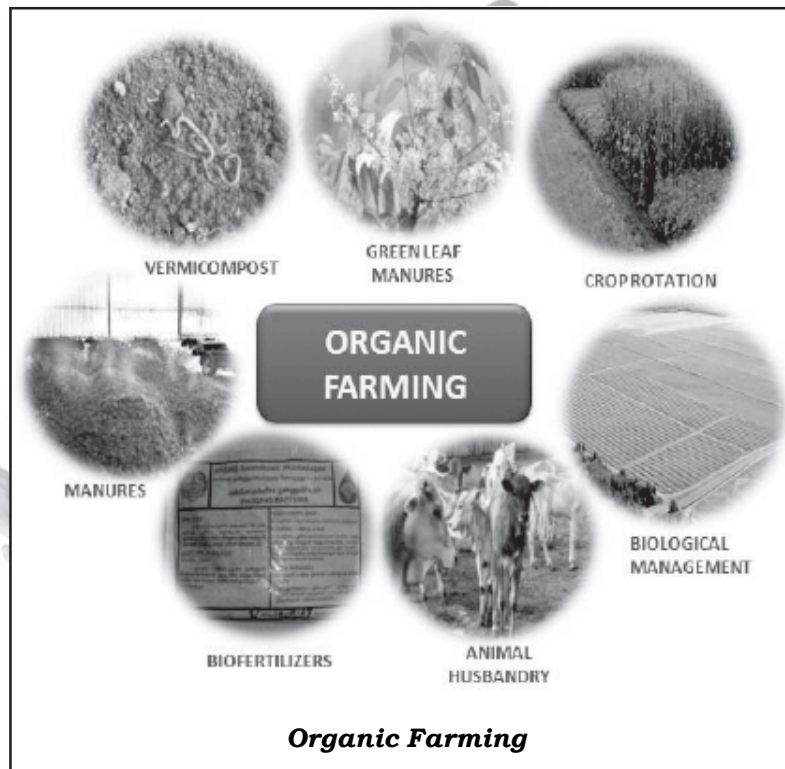
Organic Agriculture

Definition

- Organic agriculture is defined as a production system that sustains the health of soils, ecosystems and people. It depends on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects.

Facts

- India has the largest number of organic producers in the world, according to the World of Organic Agriculture Report 2018. It is home to more than 30 percent of total number of organic producers (2.7 million) in the world.
- Area under certified organic cultivation, India contributes only 2.59% (1.5 million hectares) of the total area (57.8 million hectares).



4. Different types of irrigation and irrigation systems-storage

Micro Irrigation

Definition:

It can be defined as the application of water at low volume and frequent interval under low pressure to plant root zone.

Data

- The average penetration level of Micro-irrigation in India is 5.5%, which is much lesser compared to countries like Israel, US and even China

- The task force on micro irrigation had estimated a potential of 69.5 million hectare under micro irrigation, whereas the area covered so far is only about 10 million hectares.
- A principle objective of the National Water Mission is to increase water use efficiency by 20 percent.
- Irrigation for agriculture alone accounts for over 80% of water use in India, more than any other sector.



Indian Agriculture Sector: Productivity Challenges

Economics of animal rearing

Facts

- During the past three years, **India has outpaced the global milk production** with an annual growth rate of 5.53% compared with the 2.09% achieved globally.
- India has been the **largest producer of milk** in the world for the past 15 years.
- The livestock sector contributes around **4% to India's gross domestic product (GDP)**
- **Nearly 80 per cent** of India's milk production is contributed **by small and marginal farmers**.
- Of tested birds destined for meat consumption, **87% had the super germs** based on a study published in the journal Environmental Health Perspectives.

Schemes for animal rearing

1. **Rashtriya Gokul Mission** that aims to raise the productivity of indigenous and nondescript cattle by creating a "super elite" population of indigenous cattle.

Horticulture sector in India

Facts

- India is the second **largest producer of fruits and vegetables** in the world, and a top producer of crops like banana, mango and lemons.
- Horticulture accounts for 30% of India's agricultural GDP.
- Production of horticulture crops (fruits, vegetables and spices) in 2017 has overtaken the production of food grains for the fifth year in a row.
- However, India's share in the global market accounts for just 1.7% of the global trade in vegetables and 0.5% in fruits.

Schemes

1. **Coordinated Horticulture Assessment and Management using geo-informatics (CHAMAN):** It uses Geographical Information System tools along with remote sensing data for generating action plans for horticultural development.
2. **BHUVAN** is a software application which allows users to explore a 2D/3D representation of the surface of the Earth.
3. **NADAMS:** This system is meant to provide real-time information about the prevalence and severity of droughts at district and sub-district level
4. **FASAL** (Forecasting agricultural output using space, agro-meteorological and land-based observations) this programme has been evolving into a reliable crop prediction mechanism.

SILK PRODUCTION

Facts

- India is the **second largest producer** of silk in the world. It provides employment to over 8.25 million people in the country.
- Four major types of silk produced in India: Mulberry, Tasar, Muga, Eri of which Mulberry accounts for 70% of total raw silk production
- Karnataka is the leading producer of silk followed by Andhra Pradesh

Schemes and Initiatives

1. **North East Region Textile Promotion Scheme (NERTPS)** It aims to develop and modernise the textile sector in the Northeast Region by providing the required Government support in terms of raw material, machinery, skill development etc.
2. **Integrated Scheme for the Development of Silk Industry** It is a central sector scheme implemented by Central Silk Board, It focuses on improving production, quality and productivity of domestic silk so as to reduce the country's dependence on imported silk.

SEED INDUSTRY

Facts

- The **research investment** by private companies remained at a meager **3-4% of revenue against the international norm of 10-12%**, due to complex and weak IPR regime and various licensing term for the companies.
- Seed replacement rate continues to remain **below the desired level of 20%** for most crops.

EDIBLE OIL IMPORT

Facts

- India is among major oilseed growers and edible oil importers.
- Palm oil accounts for more than half of India's total edible oil imports.

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- India's vegetable oil economy is world's fourth largest after USA, China and Brazil.
- The oilseed accounts for 13% of the gross cropped area, 3% of the Gross National Product and 10% value of all agricultural commodities
- Cabinet Committee on Economic Affairs (CCEA) **removed the decades-old ban on export of bulk edible oils, except mustard oil**
- **Counter Argument:** Country's annual edible oil demand stands at nearly 22 million tonnes and is growing by 3% to 4% per year. India meets only about 40% of its total edible oil demand.

Major Schemes

1. ISOPOM (Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize)
 - Financial assistance is provided to farmers for purchase of breeder seed, production of foundation seed, production and distribution of certified seed etc.

FISHERY SECTOR IN INDIA

Facts

- India became **second largest** fish producing country in the world
- Constituting more than 6% of the global fish production, the sector contributes to more than 1% of the GDP and over 5% of the agricultural GDP.
- There are two branches of fishery sector Inland Fisheries (65% Production) & Marine Fisheries (35%).
- Fish and fish products accounts for around 10% of the total exports of the country and nearly 20% of the agricultural exports.

Schemes and Initiatives

1. An umbrella scheme '**Blue Revolution: Integrated Development and Management of Fisheries**' has been formulated by merging all the existing schemes. It will cover inland fisheries, aquaculture and marine fisheries including deep sea fishing, mariculture and all activities undertaken by the **National Fisheries Development Board (NFDB)**.
2. "**Development of Inland Fisheries and Aquaculture**" under macro-management approach in various states. It includes Productive Utilization of Inland Saline/Alkaline Soils for Aquaculture, Integrated Development of Inland Capture Resources etc.

LEATHER INDUSTRY

Facts

- India is the **second largest** producer of footwear and leather garments in the world and accounts for 13% of the world's leather production of hides/skins.
- The entire leather product sector is de-licensed, and 100% FDI is permitted through the automatic route
- Highly labour intensive and employs over 3 million people (30% are women)

Schemes and Initiatives in leather industry

- Indian Footwear, Leather & Accessories Development Programme (IFLADP)
- Indian Leather Development Programme (ILDLP)

GARMENT SECTOR

Facts

- It contributes 14% of total Industrial Production
- Both textile and apparel sector is the **second largest employment provider** in the country employing total of nearly 7.5 % of India's workforce directly and indirectly

Schemes and Initiatives

1. **Duty Drawback Scheme** The scheme pertains to refund of duty of customs and duty of central excise that are chargeable on imported and indigenous materials used in the manufacture of exported goods
2. **Merchandise Exports from India Scheme (MEIS):** The government has doubled the rates of incentives under the MEIS for garments and made-ups exporters for a period of eight months.
3. **Scheme for Integrated Textile Parks (SITP):** Infuse funding for infrastructure of Textile parks.

5. Food processing and related industries in India

Infrastructure for food processing

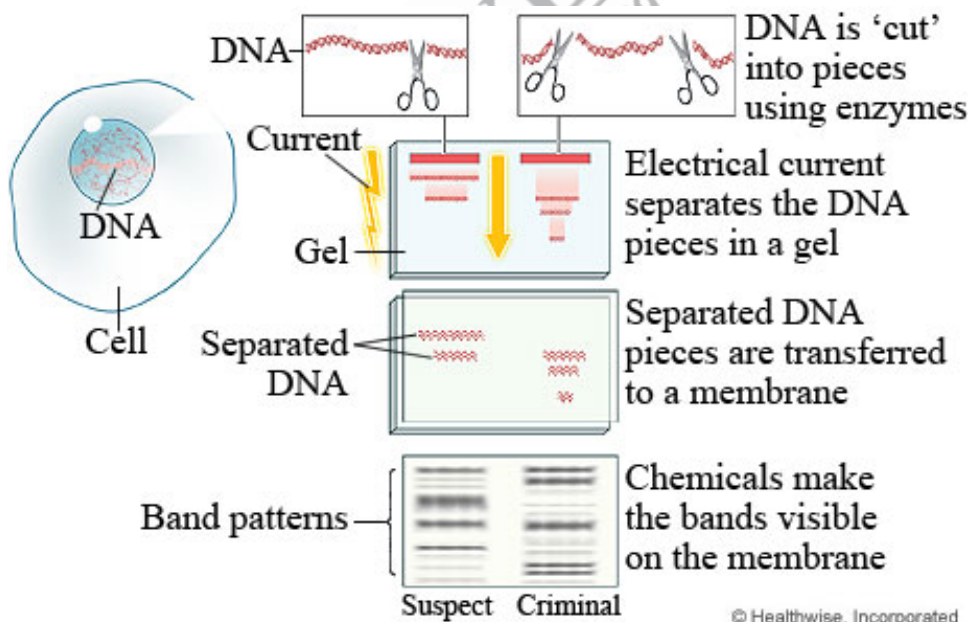
- Only 10-11 per cent of the fruits and vegetables produced in India use cold storage.
- Storage capacity needs to be increased by 40 per cent to avoid wastage.

6. Science and Technology- developments and their applications and effects in everyday life

Awareness in the field of Space; biotechnology; Computers, robotics

DNA Fingerprinting

Definition: DNA fingerprinting is a method used to identify an individual from a sample of DNA by looking at different patterns in their DNA.



DNA Finger Printing

Space Debris

- Only 7% of the total 19,000 artificial objects presently being tracked in Earth orbit are functional satellites. The remaining objects are collectively known as "space debris".

Big Data

- **Definition:** Big data is a term for data sets that are so large or complex that traditional data processing application software is inadequate to deal with them. Big data challenges include capturing data, data storage, data analysis, search, sharing, transfer, visualization, querying, updating and information privacy

Artificial Intelligence

Definitions

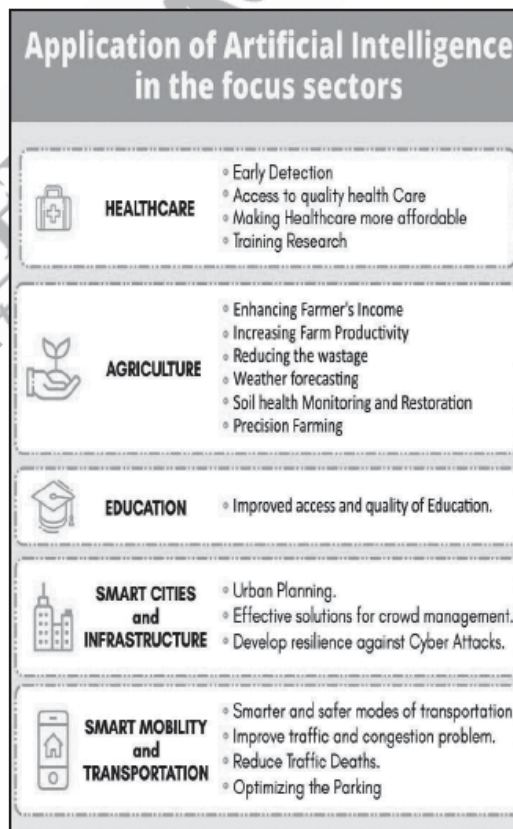
- **Artificial Intelligence** refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making.
- It enables computer system to carry out task on their own that otherwise requires human intelligence.
- **Machine Learning**, a term coined by Artur Samuel in 1959, based on the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention.
- **Deep Learning** is a technique for implementing Machine Learning. It is inspired by the structure and function of the brain called artificial neural networks

Facts

- India accounts for just 6% of global AI companies.
- The IT and ITeS services sector in India has been of tremendous importance to its economy eventually growing to account for 7.7% of India's GDP (2016) makes india potentially A.I. leader
- **Accenture** said AI has the **potential to increase** India's annual growth rate of gross value added (**GVA**) by **1.3 percentage points**, lifting the **country's income by 15 percent by 2035**.

Recent Initiatives

- Government of India has recently released its report on **the adoption of AI in India**. The report has suggested building an AI policy with a five-year mission
- The Indian government think tank NITI Aayog has already organised two **international hackathons on artificial intelligence**, & national case competition to explore the **application of artificial intelligence in the field of agritech**.



Application of Artificial Intelligence in the focus sectors	
HEALTHCARE	<ul style="list-style-type: none"> • Early Detection • Access to quality health Care • Making Healthcare more affordable • Training Research
AGRICULTURE	<ul style="list-style-type: none"> • Enhancing Farmer's Income • Increasing Farm Productivity • Reducing the wastage • Weather forecasting • Soil health Monitoring and Restoration • Precision Farming
EDUCATION	<ul style="list-style-type: none"> • Improved access and quality of Education.
SMART CITIES and INFRASTRUCTURE	<ul style="list-style-type: none"> • Urban Planning. • Effective solutions for crowd management. • Develop resilience against Cyber Attacks.
SMART MOBILITY and TRANSPORTATION	<ul style="list-style-type: none"> • Smarter and safer modes of transportation. • Improve traffic and congestion problem. • Reduce Traffic Deaths. • Optimizing the Parking

Application of AI

DATA PROTECTION FRAMEWORK

Definition

- Data protection is the process of protecting data and involves the relationship between the collection and dissemination of data and technology, the public perception and expectation of privacy and the political and legal underpinnings surrounding that data.



- It aims to strike a balance between individual privacy rights while still allowing data to be used for business purposes. Data protection is also known as data privacy or information privacy.
- **Supreme Court in Puttaswamy case** held the right to privacy as an intrinsic part of the right to life and personal liberty and recognised that 'informational privacy' is an important aspect of the right to privacy that can be claimed against state and non-state actors.

Committee

- The Justice BN Srikrishna committee submitted its report on the data protection law.

Laws Related

- **Information Technology (Reasonable Security Practices and Sensitive Personal Data or Information) Rules, 2011** provide for protection of sensitive personal data. But they deal only with the corporate sector leaving the government out of its ambit and even obviating the need of consent of provider in sharing information with government agencies.

Recommendation of Justice BN Srikrishna committee

KEY RECOMMENDATIONS

- Personal data shall be processed only for purposes that are clear, specific and lawful
- Individuals will have the right to withdraw consent
- All firms and agencies will have to appoint data protection officers
- Firms will have to ensure at least one copy of personal data to be stored in India
- They will also act as point of contact for the individuals for raising grievances
- 'Critical' personal data shall only be processed in a server or data centre located in India
- Exemptions have been provided for processing of personal data for journalistic purpose, or for a purely personal or domestic purpose
- Penalties range from 2-4% of a company's worldwide turnover, or fines between ₹5 crore and ₹15 crore, whichever is higher
- The Centre shall notify Data Protection Authority of India
- A data protection fund and a data protection awareness fund to be set up through proceeds from the penalties and the fines

Existing Acts such as Right to Information, Aadhaar and Information Technology will have to be amended

Recommendation of Justice BN Srikrishna committee



LITHIUM ION (LI-ION) BATTERY

NOTES

Definition

- These are rechargeable batteries having high energy density and commonly used in consumer electronics.
- It uses intercalated lithium compound instead of metallic lithium as its electrode and is able to store 150 watt-hours electricity per kg of battery

Facts

- India is one of the largest importers and in 2017, it imported nearly 150 Million US Dollar worth Li-Ion batteries.

ACTIVE PHARMACEUTICAL INGREDIENTS (APIs)

Definition

- Bulk drugs or APIs are the active raw materials used in a drug that give it the therapeutic effect.

Facts

- India's API imports from top five countries stood at Rs 18,372 crore in 2016-17 with China accounting for 66%.

Committees

- **V.M. Katoch committee** was formed to formulate a long-term policy and strategy for promoting domestic manufacture of APIs/bulk drugs in India

Recommendations

- **Establishment of Large Manufacturing Zones (LMZs)/ Mega Parks for APIs.**
- **Mega Parks** need to be provided with common facilities such **Effluent Treatment Plants (ETPs), Testing facilities, Assured power supply**, Common Utilities/Services such as **storage, testing laboratories, IPR management**,
- **Proper rules and regulations to check on the pollution level and the quality of output.**
- **Single window clearance and fiscal and Financial incentives** such as tax breaks, soft loans etc. should be made available.

7. *Issues relating to intellectual property rights*

Data

- **As per WIPO report 2016**, India is **ranked 10th** in terms of resident patent filing activity.
- **About 13% of the country's high-value patents** are related to green technologies in line with the world average These technologies include green buildings, carbon capture and storage, climate change mitigation technologies related to production and processing goods, and water-related adaptation technologies.

8. *Achievements of Indians in science & technology; indigenization of technology and developing new technology.*

BRAIN GAIN: INDIAN SCIENTISTS RETURNING TO INDIA

- Indian scientist working internationally and returning to India showed a 70 percent jump in last 5 years
- Funding is another major obstacle for developing a favourable environment for quality research. India invests less than 1% of its GDP in scientific research.

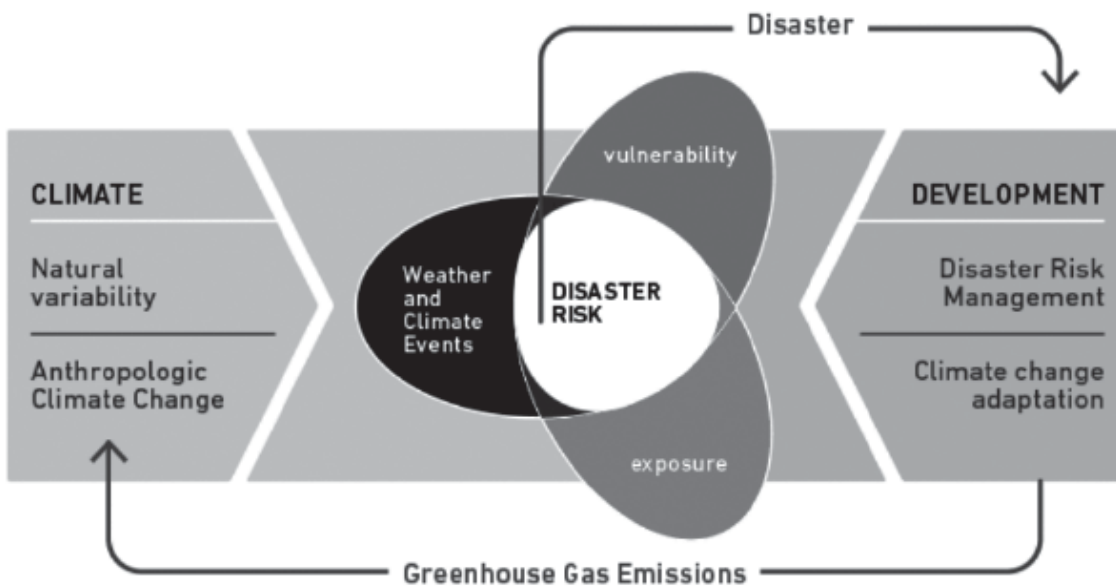
Initiatives and Schemes

- 1. Ramanujan Fellowship Program :** For Indian scientists and engineers from all over the world, especially those who wish to return to India, to take up scientific research positions at any of the scientific institutions and universities in India.
- 2. Innovation in Science Pursuit for Inspired Research (INSPIRE) Faculty Scheme:** offers a contractual research positions to Indian citizens and people of Indian origin including NRI/PIO status with PhD (in science, engineering, pharmacy, medicine, and agriculture related subjects) from any recognized university in the world

Disaster and disaster management

- **Total global disaster losses** from climate-related events in 2017 stood at US\$ 320 billion making **2017 the most expensive year on record.**

Climate change and disaster risk reduction



Disaster Risk



Fig. 2.3 Adaptation and disaster risk management approaches for reducing and managing disaster risk in a changing climate. (Source: IPCC 2012a, p. 6)

DISASTER-RELATED DISPLACEMENT IN INDIA

Facts

- UN Office for Disaster Risk Reduction (**UNISDR**) report, India has been ranked as the **world's most disaster-prone country** for displacement of residents.
- According to report, on an average 14 million people each year are displaced by due to natural disaster

Committees/International Effort.

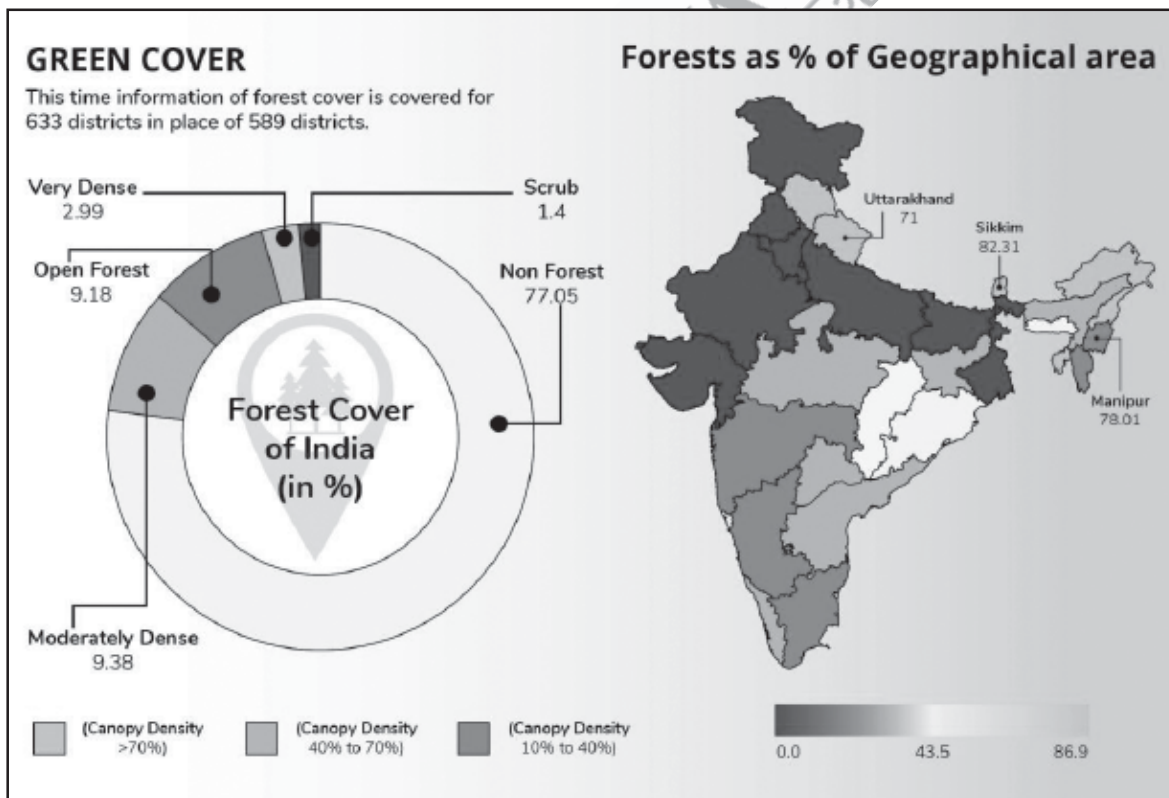
- **Sendai Framework for Disaster Risk Reduction** outlines seven clear targets and four priorities for action to prevent new and reduce existing

8. Conservation, environmental pollution and degradation, environmental impact assessment.

INDIA STATE OF FOREST REPORT 2017

Facts

- India is **ranked 10th in the world**, with 24.4% of land area under forest (21.53%) and tree cover. The target is to achieve 33% of area under forest cover
- There is an increase of 1% (8,021 sq km) in the total forest and tree cover of the country, compared to the previous assessment in 2015.
- Forest Survey of India reports show that forest cover in tribal districts, constituting 60% of the country's total forest cover, increased by 3,211 sq. km over 2001-03



Green Cover

Carbon Sink

- **According to Paris Climate Agreement**, India has pledged to create a **carbon sink of 2.5 to 3 billion tonnes of CO2** equivalent through additional forest and tree cover by 2030.

Climate change

- As per **World Meteorological Organization (WMO)**, the world experienced its **hottest five-year** period on record between **2013-17**
- Intergovernmental Panel on Climate Change (**IPCC**) show that climate change might **increase the risk of hunger and malnutrition by up to 20 percent** by 2050.
- **The production of major crops** (rice and wheat) **could reduce by 7% and 10%**, respectively, by 2030, according to the Intergovernmental Panel on Climate Change (IPCC) assessment report of 2014.
- **Parliamentary Standing Committee** on Agriculture has asserted that losses due to climate change account **for overall GDP loss of 1.5% of agricultural economy**.
- About 75% of all greenhouse gas emissions are CO₂ emissions produced through burning fossil fuels — oil, coal and natural gas — to generate energy.

Environment Performance of India

- India **ranked 177 out of 180** in recently released Environmental Performance Index.
- Its overall low ranking was **linked to poor performance in the environment health policy and deaths due to air pollution categories**.
- The **low rank of emerging economies including** China (120) and India (177) indicates strain population pressures and rapid economic growth impose on the environment.

Pollution Related Death

Facts

- Pollution was responsible for **9 million deaths** in 2015 worldwide.
- One in six people die due to pollution globally and most of them occur in developing countries like India.
- Financial cost from pollution-related death, sickness and welfare is about 6% of the global Economy.
- Over 3 million people died due to pollution in India.
 - 60% due to air pollution
 - 21% water pollution
 - 6% to occupational exposure
 - 12% linked to lead pollution.

Air pollution

- India suffered a cost of **\$550 billion, about 8.5% of GDP, due to air pollution**, according to World Bank
- A report of the Lancet Commission on pollution and health states that around **19 lakh people die prematurely every year** from diseases caused by outdoor and indoor air pollution.
- **A WHO survey** of over 1,600 cities **ranked the national capital as the most polluted**. Air pollution was 40 times higher than the permissible safety limits set by the World Health Organization (WHO) and approximately 15 times higher than the Indian standards.
- India's **14 cities has joined the list of top 20 most-polluted** cities in the world.

Source of Air pollution Delhi

- As per **IIT Kanpur Report**, 98% of the sulphur dioxide and 60% of the nitrogen oxide **in Delhi's** air were the result of pollution from **thermal power plants, industrial clusters**, restaurants, and diesel generators.
- Additionally, **the burgeoning number of automobiles on Delhi's** roads is responsible for **20% of the deadly particulate matter (PM_{2.5})**

NITROGEN EMISSION

Facts

- It has **replaced methane as the second largest Greenhouse Gas (GHG)** from Indian agriculture.
- Agricultural soils contributed to over 70% of nitrous oxide (N₂O) emissions, followed by wastewater (12%) and residential and commercial activities (6%).

Recent Initiatives

- **Soil Health Card** provides information to farmers on nutrient status of their soil along with recommendations on appropriate dosage of nutrients for crop.
- **Mandatory neem-coated urea production** to slow down the dissolution of nitrogen into soil, resulting into less nutrient requirement.
- **Bharat Stage Norms** aim to regulate the harmful emission from vehicle
- **National Air Quality Index (NAQI)** has been implemented in which Nitrogen Dioxide is one of the eight pollutants to be controlled and monitored.

Sulphur Dioxide Emissions in India

- **Increasing proportion of SO₂:** Over the last 10 years, India's SO₂ emissions have spiked by 50% and it could become the **world's largest emitter** of the toxic air pollutant.
- **Major reason:** 70% of India's electricity is from coal which contains about 3% of it is sulphur.

Water Pollution

- **About 1.8 million people die** every year of diseases like cholera. Millions of others are seriously sickened by a variety of **water-related ailments** many of which are easily preventable

E-waste

Definition

- Electronic waste is discarded electrical or electronic devices such as Mobile Phones , Computers, Televisions.

Facts

- **India is 5th largest** producer of e-waste.
- The main sources of electronic waste in India are industrial sectors, which account for **almost 71% of total waste generation.**
- **About 90.5% of the e-waste** in India is being **handled by the informal sector**

Laws Related

- The Hazardous Wastes (Management and Handling) Amendment Rules, 2003
- Guidelines for Environmentally Sound Management of E-waste, 2008
- The E-waste (Management and Handling) Rules, 2011.
- *E-Waste Management* Rules, 2016

Global E-Waste

Facts

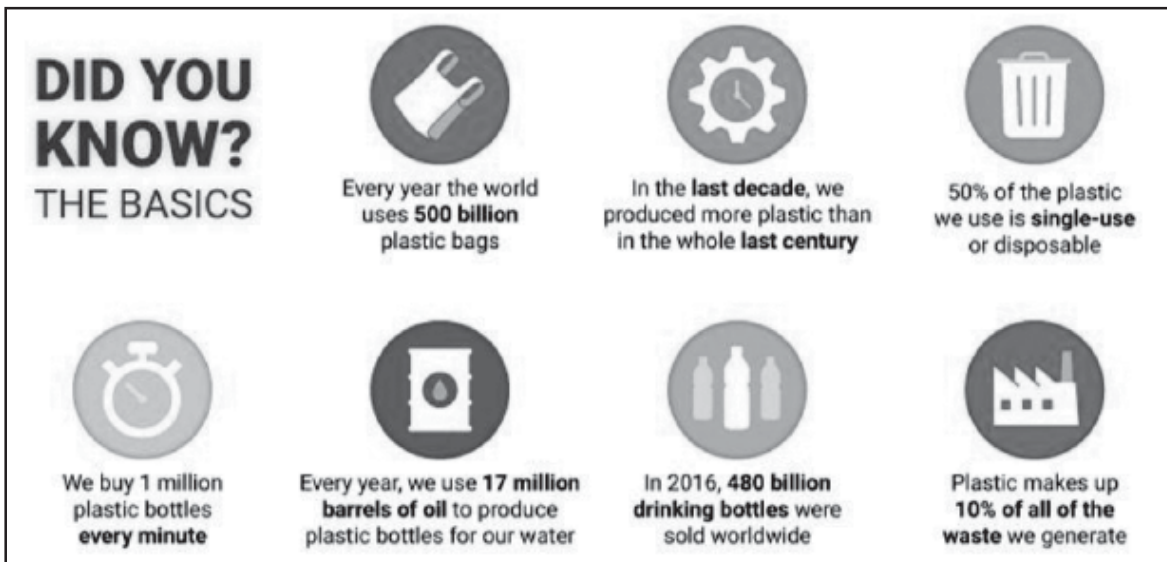
- E-waste has increased by 8% from 2014 to 2016 and expected to rise again by 17% by 2021.
- The Global E-waste Monitor 2017 report estimated that the value of recoverable precious materials like gold, silver, copper, platinum and palladium was \$55 billion in 2016.
- Only 12.5% of E-Waste is recycled, and 85% are sent to landfills and incinerators are mostly burned releasing harmful toxins in air.

Plastic Pollution

NOTES

Facts

- The **annual consumption of plastic** in India is nearly **12.8 million tonnes**, and expected to rise at a **compound annual growth rate of 10%**.
- United Nations Environment Programme (UNEP) if current pollution rates continue, there will be more plastic in the sea than fish by 2050
- **Globally, only 14% of plastics is recycled.**
- **In India**, more than 15,000 tonnes of plastic waste is generated every day, **a third of which remains uncollected.**
- **Microplastics make up 94 percent** of an estimated 1.8 trillion pieces of plastic in the patch
- An estimated **100,000 marine animals are strangled**, suffocated, or injured by plastics every year.



Plastic Pollution

Single-use Plastics

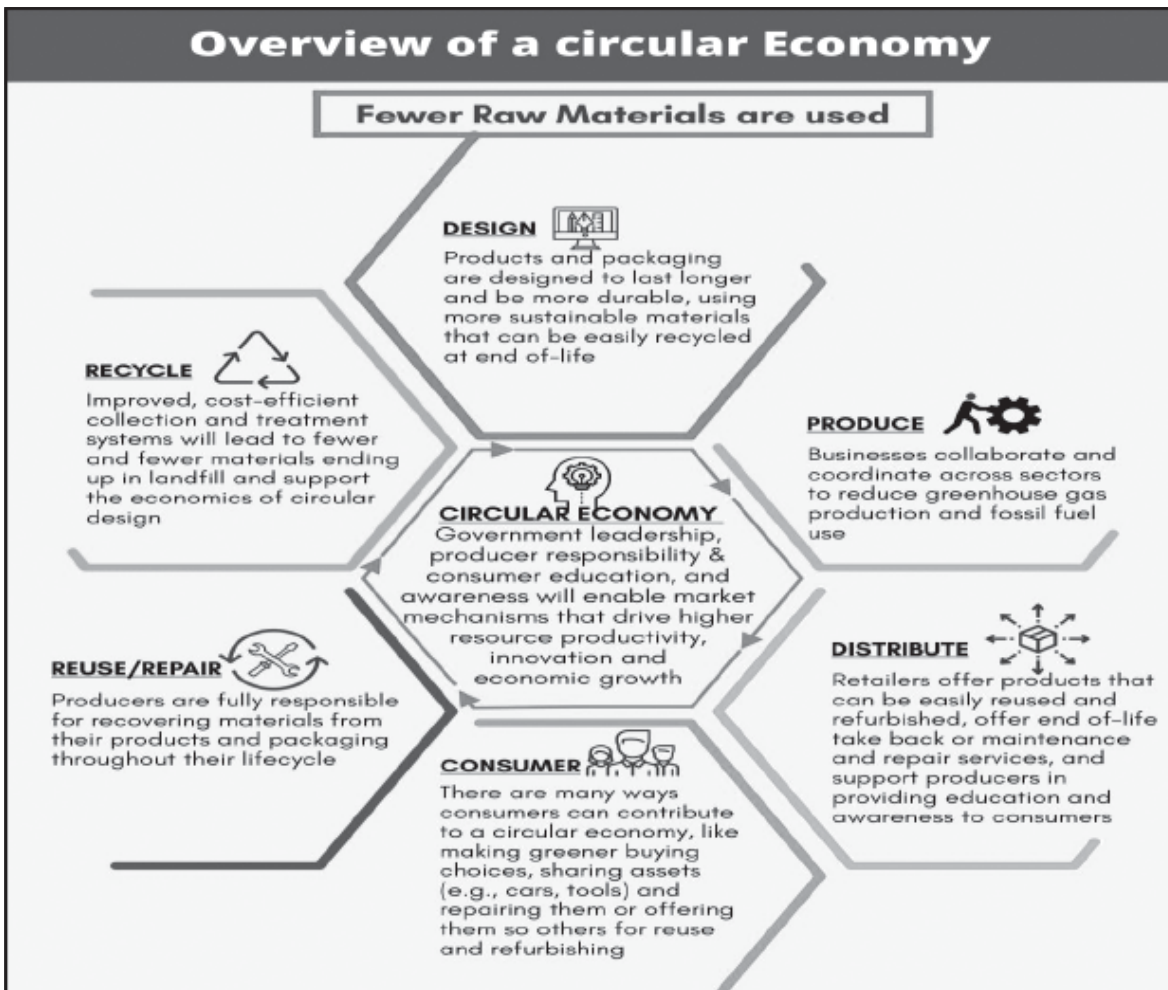
Definition:

- Also referred as disposable plastics, are commonly used for plastic packaging and include items intended to be used only once before they are thrown away or recycled
- It account for 50% of the plastic we use, with none states in India have plans in place to tackle single use plastics
- Loss of jobs and revenue: According to an study, statewide ban in Maharashtra will result in loss of up to Rs 15,000 crore and nearly 3 lakh job.

Laws Related

- Plastic Waste (Management and Handling) Rules, 2016.

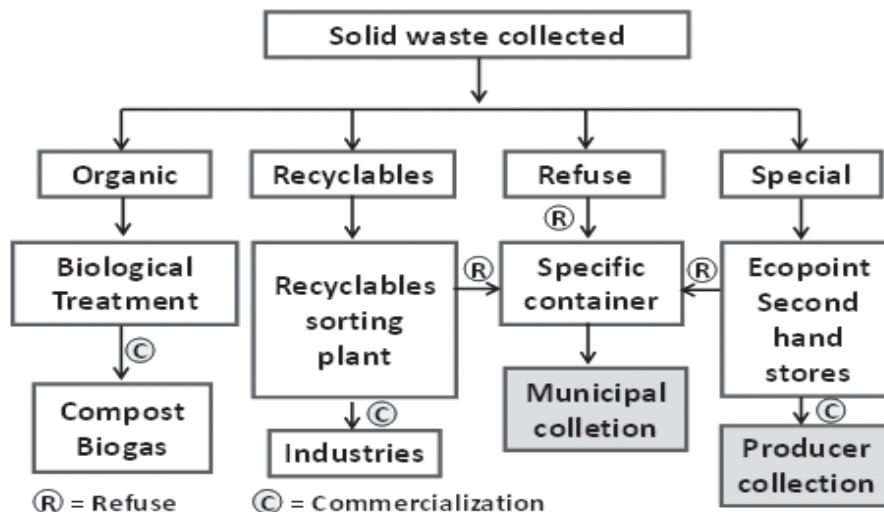
- **90%** of this plastic not being recycled
- **690** tonnes is Delhi's daily share alone
- **500-1000** years it takes for plastic to degrade
- **15,342** tonnes of waste generated in India per day (5.6 million tonnes per annum)



Circular Economy

Solid Waste Management

- **Nearly 75% of the waste** generated in India is **not treated**
- According to **World Health Organisation, 22 types of diseases can be prevented** or controlled by improving solid waste management in India.
- **Global example:** The Korean government has promoted the “SSSR Campaign” (Ahnabada Campaign), which stands for “Save, Share, Swap, and Reuse,”



Solid waste collection

SAND MINING

NOTES

Facts

- According to Ministry of Mines, in 2015-16, there were over 19,000 cases of illegal mining of minor minerals, which including sand.

Laws Related

- **Government has amended the Environment Impact Assessment (EIA) Notification 2006** to make environmental impact clearance mandatory for small-scale sand mines.

IMPACTS ON	DESCRIPTION
BIODIVERSITY	Impacts on related ecosystems (for example; fisheries)
LAND LOSSES	Both inland and coastal through erosion
HYDROLOGICAL FUNCTIONS	Change in water flows, flood regulation and marine currents
WATER SUPPLY	Through lowering of the water table and pollution
INFRASTRUCTURES	Damage To Bridges, River Embankments And Coastal Infrastructures
EXTREME EVENTS	Decline of protection against extreme events (flood, drought, storm surge)
CLIMATE	Directly through transport emissions
LANDSCAPE	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers

Impact of Sand Mining

EXCESSIVE NITROGEN IN ATMOSPHERE

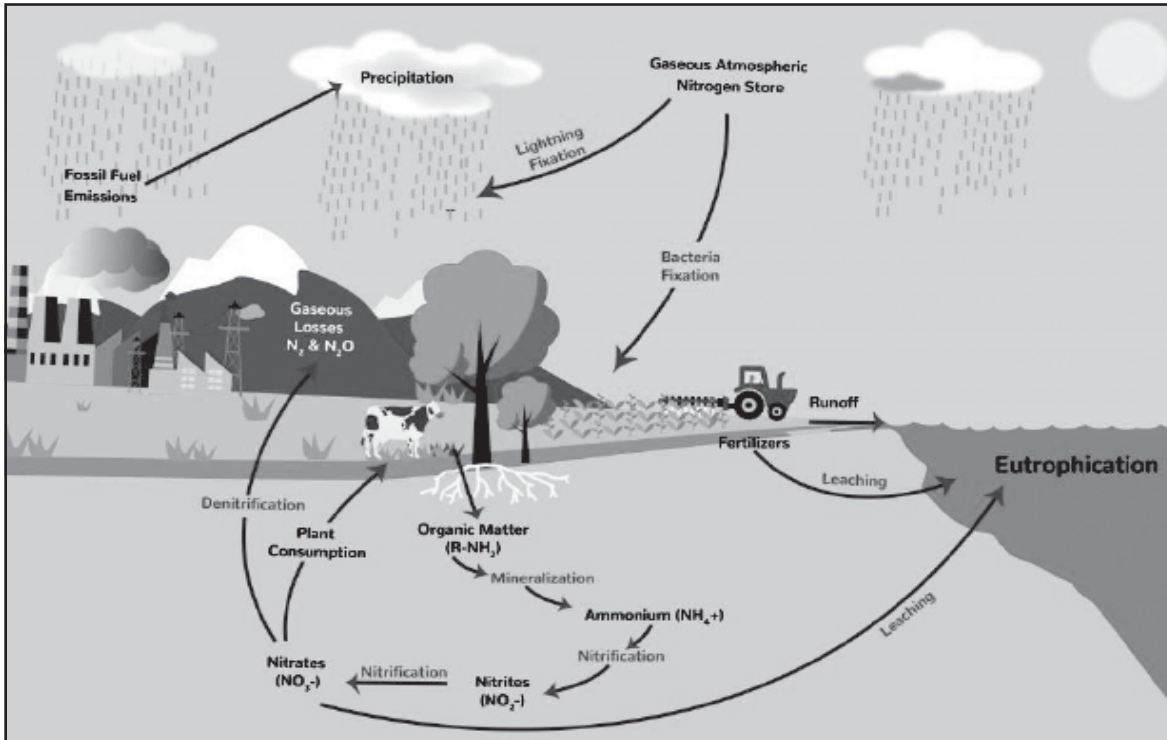
Facts

- Nitrogen is a naturally occurring element that is essential for growth and reproduction in both plants and animals. It comprises about 78% of the Earth's atmosphere
- Agriculture is the main source of nitrogen pollution in India followed by Sewage and organic solid wastes.
- Ammonia concentration in the atmosphere over India is the highest in the world due to cattle population and excessive fertilizer use.
- Nitrogen in the form nitrous oxide (N₂O) is a 300 times more potent as a GHG as opposed to CO₂
- **Health impact:** By Nitrogen Blue Baby Syndrome, reduced functioning of the thyroid gland, Vitamin A shortages etc.



Laws Related

- **Gothenburg Protocol:** It aims to Abate Acidification, Eutrophication and Ground-level Ozone..
- **Kyoto Protocol:** It aims to reduce the emissions of the Greenhouse Gases such as Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF₆) and carbon dioxide (CO₂).



Nitrogen Cycle

9. Conservation

- “**State of India’s Environment 2017:** suggests a **worrying 52 per cent increase in poaching and wildlife crimes** between 2014 and 2016.

Tiger Population

- According to the tiger census of 2014, **India is home** to 2,226 tigers which is about **60% of the world’s wild tiger population** of about 3,890.
- **About 100,000 tigers roamed the forests of the world in 1900, but their numbers dwindled steadily, hitting a low of 3,200 in 2010.**

10. Security challenges and their management in border areas

Kashmir Problem

- **Permanent solution to the Kashmir problem** was based on five Cs, which he would define as
 1. Compassion
 2. Communication
 3. Coexistence
 4. Confidence building
 5. Consistency.

Defense Expenditure

- According to **Stockholm International Peace Research Institute (SIPRI)** report **India is the largest weapons importer country**, accounting for nearly 12% of all global weapon imports between 2013-17.
- India's **self-reliance** continues to **hover at 30% to 35%**
- India has overtaken the United Kingdom in defence spending and broken into the top five.
- China's budget on defence is Approximately thrice that of India

Top 5 Global Defence Spenders

(In US \$ Billions)

- United States 602.8
- China 150.5
- Saudi Arabia 76.7
- Russia 61.2
- India 52.5
- (Source: International Institute for Strategic Studies, London)

Left Wing Extremism

- Ministry of Home Affairs has recently redrawn the red corridor by bringing down the **number of districts affected with Naxal violence from 106 to 90**, spread across 11 states and worst-affected district to 30 from 36. Chhattisgarh, Jharkhand, Odisha and Bihar are declared severely affected by Left Wing Extremism
- Incidents of violence have seen a 20% decline with a 34% reduction in related deaths in 2017 as compared to 2013 indicating success of government efforts.

AFSPA

- Supreme court said that the conferring of powers vide Section 4 of AFSPA could not be held arbitrary or violative of Article 14, 19 or 21 of the Constitution

11. Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges.

URBAN TERROR

Definition

- Urban Terror is the threat of terrorists applied to the urban environment which seeks to unsettle and disrupt urban infrastructure and life.

Examples

1. Bomb Blasts in Mumbai (1993).
2. Bomb Blasts in Delhi (2005),
3. Mumbai 26/11 Attacks (2006)

Related Law

- The **United Nations Security Council (UNSC) Resolution 1373** mandates all member countries to initiate steps in this regard.
- The **"Coastal Security Scheme"** launched in March 2006 by the Union Home Ministry
- Government has enacted Counter Terror Legislations such **POTA and TADA** which also deal with Urban Terror.

Committees

- **Kargil Review Committee** has given guidelines to manage internal security and deal with menace of Urban terror

13. Basics of cyber security

Cyber bullying

Definition:

- Cyber bullying or cyber harassment is a form of bullying or harassment using electronic forms of contact.
- Cyber bullying has become increasingly common, especially among teenagers. Harmful bullying behavior can include posting rumors about a person, threats, sexual remarks, disclose victims' personal information, or pejorative labels (i.e., hate speech)

Facts

- **Internal Security Threat Report of 2017 by Symantec India** - India the **fifth most vulnerable country** in the world in terms of cybersecurity breaches
- The recent **Wanna Cry** ransomware attack (May 2017), which infected **more than 2,30,000 computers in over 150 countries**, brought the compelling need for cybersecurity policies and laws into sharp focus.
- This **malware infected at least 48,000 computer systems** across various organizations in India.
- In India, in May 2017, a data breach at the food delivery App, Zomato, led to personal information of about 17 million users being stolen and put for sale on the Darknet.
- **Hackers stole data from 57 million Uber riders and drivers.**
- While Windows operating systems were the most vulnerable to cyberattacks, a number of Android threats have been reported in the last couple of years, including potent crypto-ransomware attacks on Android devices.

Report

Survey by Norton by Symantec.

- Eight out of 10 people in India have experienced some form of online harassment,
- 41% of women having faced sexual harassment on the web, according to a new survey commissioned by cybersecurity solutions firm,

CREATION OF SPACE, CYBER AND SPECIAL OPERATIONS COMMANDS

Definition

- **Cyber warfare** involves the actions by a nation-state or international organization to attack and attempt to damage another nation's computers or information networks through, for example, computer viruses or denial-of-service attacks.
- **Space warfare** is combat that takes place in outer space. Space warfare therefore includes ground-to-space warfare, such as attacking satellites from the Earth, as well as space-to-space warfare, such as satellites attacking satellites

Committees

- The armed forces are now finalizing the plan for **creation of three new tri-Service commands to handle space, cyber and Special Forces**, which will be "critical" in deploying capabilities for conventional as well asymmetric warfare in a unified manner.
- **The Initiative is based on the recommendations of Chiefs of Staff Committee (in 2012)** which had recommended creation of three joint commands due to their increased relevance in modern warfare.



List of Government's initiative for cyber security

1. Information Technology Act, 2000 (Amended in 2008)
2. Indian Computer Emergency Response Team (CERT-in)
3. National Cyber Security Policy 2013
4. National Critical Information Infrastructure Protection Centre (NCIIPC)
5. National Technical Research Organisation (NTRO)
6. National cyber coordination centre (NCCC)
7. Indian cyber-crime coordination centre (I4C) and Cyber Warrior Police force
8. Controller of Certifying Authorities: established under IT Act to license and regulate the working of.
9. Certifying Authorities.
10. Digital Army Programme.





ALL INDIA MAINS TEST SERIES - 2018

with Face to Face Evaluation

Modus operandi of the All India Mains Test Series

1. Copy Evaluation in front of the student

- A student can schedule his/her test according to his/her own convenience.
- After writing the test, S/he can book half an hour slot with the faculty.
- At that predetermined slot, his/her copies would be evaluated in front of him/her.
- The student can discuss his/her strengths and weaknesses based on the feedback provided by the faculty.
- A Student would be knowing the rationale behind high or low marks awarded to him/her in any particular question.
- Based on the assessment, the faculty would suggest him means of improvement.

2. Performance Tracking

- As far as practicable, the same faculty would be evaluating the answersheets of a particular student for each tests.
- Thus, Focused and personalised guidance would be provided to each student.

3. Discussion Class by Faculty

- Discussion class would be organised 1 week after the scheduled date of the test.

- Subject faculty of the topic concerned would be taking the class.
- If any student fails to attend that class, video of the same shall be provided.

4. Answer Hints shall consists of

- Structure of the Answer – It shall be indicative of the ideal framework of the answer like what should come in introduction, body and conclusion. It shall be aimed at enriching the answer writing skill of the student.
- Model Answer – An standard answer shall also be provided for every question. It shall be aimed at enriching the knowledge of the student.

5. Questions as per UPSC Pattern

- Questions would be designed to improve candidates' lateral thinking and multidisciplinary approach apart from the factual knowledge.
- Comprehensive coverage of complete GS Syllabus
- Special emphasis on issues related to current affairs.

6. Snippet: Mains Fact File

- It shall consist of value added material like facts, data, graph, diagram.
- It shall be provided free of cost.

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SNIPPET - WORKSHOP

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