Muslim Women Rights Day on 1st August to celebrate TRIPLE TALAQ law

GS-Paper-2 Governance Women and law

First watch this lecture by Ankit Sir on Triple Talaq Bill and only then you'll be able to retain these topics efficiently.

The Muslim Women (Protection of Rights on Marriage) Bill, 2019 became the first legislation to be tabled in Parliament by the Narendra Modi dispensation in its second term, with Law Minister Ravi Shankar Prasad asserting the legislation was a must for gender equality and justice. The bill was introduced following a division of votes, with 186 members supporting and 74 opposing it. The bill was introduced in the lower house to replace an Ordinance issued in February by the previous BJP-led NDA government. The Bill was earlier introduced in December 2017 but owing to dissolution of the 16th Lok Sabha last month, the previous bill had lapsed as it was pending in the Rajya Sabha. The government had promulgated the Ordinance on triple talaq twice — in September 2018 and in January 2019 — as the contentious bill remained pending in the Rajya Sabha, though it was passed by the Lok Sabha. The Bill proposes to make the practice of instant triple talaq a penal offence.

What's the issue all about- A brief history:

The case dates back to 2016 when the Supreme Court had sought assistance from the then Attorney General Mukul Rohatgi on pleas challenging the constitutional validity of “triple talaq”, “nikah halala” and “polygamy”, to assess whether Muslim women face gender discrimination in cases of divorce.

Opposing the practice of triple talaq, the Centre told the top court that there is a need to re-look at these practices on grounds of gender equality and secularism.

The Supreme Court later announced the setting up of a five-judge constitutional bench to hear and deliberate on the challenges against the practice of
The issue gained political momentum on March 2017 when the All India Muslim Personal Law Board (AIMPLB) told the Supreme Court that the issue of triple talaq falls outside the judiciary’s realm and that these issues should not be touched by the court.

However, on August 22, the Supreme Court set aside the decade-old practice of instant triple talaq saying it was violative of Article 14 and 21 of the Indian Constitution.

A bill in this regard:

In September, the government had proposed the Muslim Women (Protection of Rights on Marriage) Bill in the Parliament and sought to make triple talaq a punishable offence under the law.

At first, the Bill was passed in the Lok Sabha but it failed to secure a majority in the Rajya Sabha. The Bill was postponed till the winter session of Parliament. Following this, an ordinance was issued by the government after the bill failed to get cleared in Rajya Sabha amid protests by the Opposition.

Key provisions:

The Bill makes all declaration of talaq, including in written or electronic form, to be void (i.e. not enforceable in law) and illegal.

Definition: It defines talaq as talaq-e-biddat or any other similar form of talaq pronounced by a Muslim man resulting in instant and irrevocable divorce. Talaq-e-biddat refers to the practice under Muslim personal laws where pronouncement of the word ‘talaq’ thrice in one sitting by a Muslim man to his wife results in an instant and irrevocable divorce.

Offence and penalty: The Bill makes declaration of talaq a cognizable offence, attracting up to three years’ imprisonment with a fine. (A cognizable offence is one for which a police officer may arrest an accused person without warrant.) The offence will be cognizable only if information relating to the offence is given by: (i) the married woman (against whom talaq has been declared), or (ii) any person...
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The Bill provides that the Magistrate may grant bail to the accused: The bail may be granted only after hearing the woman (against whom talaq has been pronounced), and if the Magistrate is satisfied that there are reasonable grounds for granting bail.

The offence may be compounded by the Magistrate upon the request of the woman (against whom talaq has been declared). Compounding refers to the procedure where the two sides agree to stop legal proceedings, and settle the dispute. The terms and conditions of the compounding of the offence will be determined by the Magistrate.

Allowance: A Muslim woman against whom talaq has been declared, is entitled to seek subsistence allowance from her husband for herself and for her dependent children. The amount of the allowance will be determined by the Magistrate.

Custody: A Muslim woman against whom such talaq has been declared, is entitled to seek custody of her minor children. The manner of custody will be determined by the Magistrate.

Arguments favouring the bill:

- Bill is needed so that even Muslim women also get equality on par with other Muslim men.
- Triple talaq adversely impact rights of women to a life of dignity and is against constitutional principles such as gender equality, secularism, international laws etc.
- The penal measure acts as a “necessary deterrent”
- It significantly empowers Muslim women.
- The practice of triple talaq has continued despite the Supreme Court order terming it void.
- The practice is arbitrary and, therefore, unconstitutional
- The law is about justice and respect for women and is not about any religion or community
- It protects the rights of Muslim women against arbitrary divorce
- Instant triple talaq is viewed as sinful and improper by a large section of the community itself.
- The fine amount could be awarded as maintenance or subsistence.
Arguments opposing the bill:

- It is well established that criminalising something does not have any deterrent effect on its practice.
- Since marriage is a civil contract, the procedures to be followed on its breakdown should also be of civil nature only.
- Civil redress mechanisms must ensure that Muslim women are able to negotiate for their rights both within and outside of the marriage.
- The harsh punishment defies the doctrine of proportionality.
- Three years in prison of the convicted husband will end up penalising the already aggrieved wife and children too.
- The punishment will aggravate the insecurity and alienation of the Indian Muslim community.
- In the recent Supreme Court judgement, it never said that triple talaq is to be criminally punished.
- Invoke a secular law that already exists: Protection of Women from Domestic Violence Act (PWDVA), 2005.
- Parliament should have passed a law stating that the utterance of the words “talaq, talaq, talaq” would amount to “domestic violence” as defined in the PWDVA.
- The PWDVA was conceived as a law that ensures speedy relief — ideally within three months — to an aggrieved woman.
- While PWDVA is civil in nature, it has a reasonably stringent penal provision built into it.

Concerns:

- It could be just a piece of legislation rather than a kind than a kind of relief to the women.
- Some representatives have given it a political and religious color.
- Some Muslim women’s groups raised concerns about “maintenance” if the husband is sent to jail.
- The mutual divorce provision is missing in the proposed law and needs to be debated.

Time has come to put an end to the suffering of Muslim women who have been at the receiving end of instant talaq for several years. More than 20 Islamic countries have already banned the practice.

Source: PIB
Jute-ICARE
-GS-III | 01 August, 2021

Jute-ICARE
-An Initiative to Double the income of Jute Farmers

Improved Cultivation and Advanced Retting Exercise for Jute (Jute – ICARE) was launched in 2015 to popularize/introduce some of the better agronomic practices like microbial assisted retting among farmers intensively in a few blocks in West Bengal and Assam on pilot basis. The improved agronomic practices include –

- line sowing of jute using seed drill to increase yield by 10-15%;
- weed management in jute by wheel hoeing/nail weeder.
- distribution of quality certified seeds at 50% subsidy.
- Central Research Institute for Research in Jute and Allied Fibres (CRIJAF) developed a microbial consortium called SONA, to enhance the quantity of fibre yield by 20% as well as its quality in terms of grade by at least 1 ½ grades.
- Also, under the project, regular SMSs are sent in regional languages on improved practices in jute cultivation, to registered farmers.
- Supply of Seed drills and Nail weeders is undertaken for demonstration purpose.

The earnings of jute farmers have been increased by more than Rs. 10000 per hectare.

Some of the highlights of the action taken under the Jute ICARE programme are given below:

1. Jute ICARE programme will be taken up under Rashtriya Krishi Vikas Yojana (RKVY) and create awareness amongst farmers for use of certified jute seeds through Krishi Vikas Kendras (KVK). States have also been requested to supply farm implements under the Sub-mission in Agricultural Mission (SMAM) and construct Retting Tanks under MGNREGS and RKVY.

2. National Jute Board, Ministry of Textiles with National Seeds Corporation and Jute Corporation of India are supplying certified Jute seeds of a new variety to Jute Farmers -- 800 MT for Year 2018; and 1500 MT for Year 2019. There will be an enhancement of availability of certified seeds by 60%, in 2018 and 87.5% in
3. It has been reported that the **average height of the jute plant under the project is 10 to 13 feet** (against the normal height of 9 feet). The **JR 204 seed variety** is thus found to be very promising and productive to the farmers.

5. **Action Plans** for undertaking Front Line Demonstrations by CRIJAF and **National Institute of Research in Jute and Allied Fibres (NIRJAFT)** in Coordination with NJB, have been approved.

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What is Genetic Engineering?

- Through genetic engineering, scientists are able to move desirable genes from one plant or animal to another or from a plant to an animal or vice versa.
- In essence, genetic engineering is a technology wherein a specific gene can be selected and implanted into the recipient organism.
- The process of genetic engineering involves splicing an area of a chromosome, a gene, that controls a certain characteristic of the body. For example:
  - A gene may be reprogrammed to produce an antiviral protein.
  - A gene can be removed and can be placed into a bacterial cell where it can be sealed into the DNA chain using ligase.

Genetically Modified Seeds:

- Conventional plant breeding involves crossing species of the same genus to provide the offspring with the desired traits of both parents.
- Genus is a class of items such as a group of animals or plants with similar traits, qualities or features.
- Genetic modification aims to transcend the genus barrier by introducing an alien gene in the seeds to get the desired effects. The alien gene could be from a plant, an animal or even a soil bacterium.
- Bt cotton is the only Genetically Modified (GM) crop that is allowed in India. It has alien genes from the soil bacterium Bacillus thuringiensis (Bt) that allows the crop to develop a protein toxic to the common pest pink bollworm.
- Herbicide Tolerant Bt (Ht Bt) cotton, on the other hand is derived with the insertion of an additional gene, from another soil bacterium, which allows the plant to resist the common herbicide glyphosate.
- In Bt brinjal, a gene allows the plant to resist attacks of fruit and shoot borers.
- In DMH-11 mustard, genetic modification allows cross-pollination in a crop that self-pollinates in nature.

Legal Position of GM crops in India

- In India, the Genetic Engineering Appraisal Committee (GEAC) is the apex body that allows for commercial release of GM crops.
- In 2002, the GEAC had allowed the commercial release of Bt cotton. More than 95% of the country’s cotton area has since then come under Bt cotton.
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Genetic Engineering Appraisal Committee

- The Genetic Engineering Appraisal Committee (GEAC) functions under the Ministry of Environment, Forest and Climate Change (MoEF&CC).
- It is responsible for the appraisal of activities involving large-scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.
- The committee is also responsible for the appraisal of proposals relating to the release of genetically engineered (GE) organisms and products into the environment including experimental field trials.
- GEAC is chaired by the Special Secretary/Additional Secretary of MoEF&CC and co-chaired by a representative from the Department of Biotechnology (DBT).

Advantages of Genetic Engineering

- Genetically Modified (GM) Crops: Genetic engineering made it possible to create crop varieties regarded as “more beneficial” terms of coming up with crops with the desired traits.
- Examples- Bt Cotton
- Treatment of Genetic Disorders and Other Diseases: Through genetic engineering, genetic disorders may also be fixed by replacing the faulty gene with a functional gene.
- Disease-carrying insects, such as mosquitoes, may be engineered into becoming sterile insects.
- This will help in curbing the spread of certain diseases, e.g. malaria and dengue fever.
- Therapeutic Cloning: It is a process whereby embryonic cells are cloned to obtain biological organs for transplantation.

Challenges of Genetic Engineering:

- Irreversible Changes: Some scientists believe that introducing genetically-modified genes may have an irreversible effect with consequences yet unknown.
- GMO that can cause harmful genetic effects, and genes moving from one...
species to another that is not genetically engineered.
- It has been shown that GMO crop plants can pass the beneficial gene along to a wild population which may affect the biodiversity in the region. An example is the sunflowers genetically-engineered to fend off certain insects.
- Health Issues Related with GMO Crops: There are concerns over the inadvertent effects, such as the creation of food that can cause an allergic reaction.
- Bioethics: Genetic engineering borderlines on many moral and ethical issues. One of the major questions raised is if humans have the right to manipulate the laws and course of nature.

Dangers Associated With Genetic Engineering:
- Rapid Growth of Technology: Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) gene editing, developed only a few years ago, deploys the same natural mechanism that bacteria use to trim pieces of genetic information from one genome and insert it into another.
- This mechanism, which bacteria developed over millennia to defend themselves from viruses, has been turned into a cheap, simple, quick way to edit the DNA of any organism in the lab.
- CRISPR isn’t the only genetic technology we need to worry about. A broader field, “synthetic biology”, is making the tools for genetic engineering widely available.
- Democratisation of Biotechnology: As CRISPR is cheap and easy to use, thousands of scientists all over the world are experimenting with CRISPR-based gene editing projects with very little of this research being limited by regulations.
- The technologies have democratised to such a degree that any country can engineer viruses.
- Further, the danger comes not only from governments: Non-state actors, rogue scientists and bio-hackers have access to the same tools.
- Also, researchers have demonstrated that they can recreate deadly viruses such as that of smallpox, which took humanity decades to eradicate

Solutions:
- Leveraging Artificial Intelligence & Big Data. With Artificial Intelligence (AI) and genomic data, scientists will decipher the complex relationships between DNA and biological processes and find treatments for diseases.
- 3-D printing can help develop at home medicines, tissues, and bacteria custom-designed to suit our DNA and keep us healthy.
Gathering of Genomic Data: There is a need to develop genomic blueprints of human and other species, this information can help immensely to defend and develop vaccines against pandemics like Covid-19.

About Bt Cotton

- Bt cotton is the only transgenic crop that has been approved by the Centre for commercial cultivation in India.
- It has been genetically modified to produce an insecticide to combat the cotton bollworm, a common pest.
- The HTBt cotton variant adds another layer of modification, making the plant resistant to the herbicide glyphosate, but has not been approved by regulators.
- Fears include glyphosate having a carcinogenic effect, as well as the unchecked spread of herbicide resistance to nearby plants through pollination, creating a variety of superweeds.

World’s first GM Rubber plant in Assam

- A Rubber Board research farm on the outskirts of Guwahati now sports the world’s first genetically modified (GM) rubber plant tailored for the climatic conditions in the Northeast.
- The GM rubber has additional copies of the gene MnSOD, or manganese-containing superoxide dismutase, inserted in the plant, which is expected to tide over the severe cold conditions during winter — a major factor affecting the growth of young rubber plants in the region.
- The plant was developed at the Kerala-based Rubber Research Institute of India (RRII).
- RRII had earlier developed two high-yielding hybrid clones of rubber adapted to the climatic conditions of the Northeast.
- This is the first time any GM crop has been developed exclusively for this region after years of painstaking research in RRII’s biotechnology laboratory.
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An electric vehicle may be powered through self-contained battery, solar panels or an electric generator to convert fuel to electricity.

India’s auto industry has become one of the largest in the world due to the competitive environment in the market.

The turnover of the auto industry is equivalent to 7.1% as per the Review Report of Automotive Mission Plan 2016.

Government of India approved the National Mission on Electric Mobility in 2011 and subsequently National Electric Mobility Mission Plan (NEMMP) 2020 was unveiled in 2013.

As part of the mission, Department of Heavy Industry has formulated a scheme namely FAME – India (Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India) for implementation with effect from 1st April 2015, with the objective to support hybrid/electric vehicles market development and Manufacturing eco-system.

The upfront cost of electric vehicles is higher than the Internal Combustion Engine (ICE) vehicle. However, the operational cost of electric vehicles is lower than the ICE vehicles. Further, electric vehicles are being supported by way of demand incentives under FAME India Scheme phase II to reduce the cost difference between the electric vehicles and ICE vehicles.
National Electronic Mobility Mission Plan

- It was launched in 2013 with an aim to achieve national fuel security by promoting hybrid and electric vehicles (cars + buses) in the country.
- There is an ambitious target to achieve 6-7 million sales of hybrid and electric vehicles year on year from 2020 onwards.

FAME (Faster Adoption and Manuf of Electric Vehicles), 2015 = Mo

<table>
<thead>
<tr>
<th>IC Engine (ICE) Vehicles</th>
<th>Electric Vehicles (EV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Powertrain: IC engine</td>
<td>• Powertrain: Motor (+ Engine)</td>
</tr>
<tr>
<td>• High specific energy of fuel</td>
<td>• Low specific energy of battery</td>
</tr>
<tr>
<td>• Power density: High</td>
<td>• Power density: Low</td>
</tr>
<tr>
<td>• Emits greenhouse gases</td>
<td>• No tailpipe emissions</td>
</tr>
<tr>
<td>• Travels &gt; 300 miles / fill</td>
<td>• Travels &lt; 100 miles / charge</td>
</tr>
<tr>
<td>• Short refilling time (&lt; 5 min.)</td>
<td>• Long charging time (0.5-8 hr.)</td>
</tr>
<tr>
<td>• Fuel tank takes less space</td>
<td>• Battery takes large space</td>
</tr>
<tr>
<td>• Fuel weight is very less</td>
<td>• Batteries are very heavy</td>
</tr>
<tr>
<td>• Higher maintenance costs</td>
<td>• Lesser maintenance costs</td>
</tr>
<tr>
<td>• Braking energy not recovered</td>
<td>• Can recover braking energy</td>
</tr>
<tr>
<td>• Running cost: high</td>
<td>• Running cost: low</td>
</tr>
<tr>
<td>• Engine efficiency: ~ 30%</td>
<td>• Motor efficiency: ~ 80%</td>
</tr>
<tr>
<td>• Needs complex gear system</td>
<td>• Needs only one gear</td>
</tr>
<tr>
<td>• Noisy operation</td>
<td>• Quiet operation</td>
</tr>
<tr>
<td>• Ample refilling infrastructure</td>
<td>• Lacks charging infrastructure</td>
</tr>
<tr>
<td>• Need to pick up some speed to deliver maximum torque</td>
<td>• Produce maximum torque instantly after starting of motor</td>
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<tr>
<td>• Uses only hydrocarbons</td>
<td>• Uses electricity from many resources</td>
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India's EV Mission 2030 = Government wants all electric fleet of vehicles by 2030.

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- Indian Manufacturers source Li-ion batteries from China, Japan and South Korea. India is one of the largest importers in the World.
- In 2018, Central Electro Chemical Research Institute (CECRI) in Tamil Nadu's Karaikudi under CSIR and RAASI Solar Pvt Ltd signed an MoU for India’s 1st Li-ion battery Project.
- China dominates the Li ion battery market. NITI started National Mission on Transformative Mobility and Battery Project.
- Demand of Li-ion batteries in India will increase because of e-Vehicles policy and announcements of investments worth $1.4 billion to make India 1 of the largest manufacturing hubs for e-Vehicles by 2040.

For the Hindu Editorial on e-Vehicle batteries: [click here](#)

Source: PIB

Government efforts for Manufacturing sector

**Production Linked Incentive scheme**: Keeping in view India’s vision of becoming Aatmanirbhar and enhancing India’s Manufacturing capabilities and exports, an outlay of Rs 1.97 lakh crore has been announced in Union Budget 2021-22 for production linked incentive scheme (PLI schemes) for 13 key sectors for 5 years starting from fiscal year 2021-22. On 12th May, 2021, MHI has approved a production linked incentive scheme (PLI scheme) for Advance Chemistry Cell (ACC) in the country. The total outlay of the scheme is Rs. 18,100 Crore for five years. The scheme envisages to establish a competitive ACC battery manufacturing set up in the country (50 GWh). Additionally 5 GWh of niche ACC technologies is also covered under the scheme. The scheme proposes a production linked subsidy based on applicable subsidy per KWh and percentage of value addition achieved on actual sales made by the manufacturers who set up production units.
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National Hydrology Project
GS-II | 03 August, 2021

NWIC (National Water Informatics Center) to maintain a comprehensive water resources data.

1. Under Ministry of Jal Shakti - Headed by Joint Secretary Level Officer.
2. Data will come through India - WRIS (Water Resource Information System)
3. It is a **Component of National Hydrology Project (NHP)** and in consonance with National Water Mission.

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   1. It is a **Central Sector Scheme. At State, Dist & Village access.**
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To read about Jal Jeevan Mission: [click here](#)

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**Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)**

GS-III | 03 August, 2021

- 65 out of 141 million hectares of net area sown is presently covered under irrigation. If the irrigation is assured, farmers tend to invest more in farming technology and imgs.
- PMKSY was initiated in 2015 with an aim to enhance **physical access of water on farm and expand cultivable area under assured irrigation**, improve on-farm water use efficiency, introduce sustainable water conservation practices, etc.
- It is an umbrella scheme, consisting of two major components being implemented by this Ministry, namely, **Accelerated Irrigation Benefits Programme (AIBP), and Har Khet Ko Pani (HKKP).**
- HKKP, in turn, consists of four sub-components, being
  1. **Command Area Development (CAD),**
  2. **Surface Minor Irrigation (SMI),**
  3. **Repair, Renovation and Restoration (RRR) of Water Bodies,** and
  4. **Ground Water (GW) Development component.**
- In addition, PMKSY also consists of **two components** being implemented by other Ministries.
  1. **Per Drop More Crop (PDMC) component** is being implemented by Department of Agriculture, Cooperation and Farmers Welfare, **Ministry of Agriculture & Farmers Welfare.**
2. Watershed Development component (WDC) of PMKSY is being implemented by Department of Land Resources, Ministry of Rural Development.  

- **Vision** of PMKSY = To ensure access to irrigation to all agricultural farms in country, to produce 'per drop more crop'.  
- **Tenure:** 5 years from 2015-16 to 2019-20.  
- **Mission** is administered by Jal Shakti Ministry in a mission mode. Per Drop More Crop component will be administered by Dept of Agri, Cooperation and Farmers Welfare (DAC&FW).  
- **Funding:** 50000 crore. PMKSY funds will be provided to the State Governments as per the pattern of assistance of Centrally Sponsored Schemes decided by Ministry of Finance and NITI Aayog.  
- For AIBP as well as CAD component of HKKP, funding arrangements are being made through Long Term Irrigation Fund (LTIF) with borrowings from NABARD. Central assistance is released through LTIF as and when eligible proposals are received from States.  
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  1. Accelerated Irrigation Benefit Programme (AIBP) of Ministry of Water Resources;  
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- **Objectives**  
  1. Convergence of investments in irrigation at the field level (prepare district and sub district level water use plans).  
  2. Har Khet Ko Pani: Enhance physical access of water on the farm and expand cultivable area under assured irrigation.  
  3. More Crop Per Drop: Enhance the adoption of precision - irrigation and other water saving technologies.  
  4. Integration of water source, distribution and its efficient use, to make best use of water through appropriate technologies and practices.  
  5. Improve on - farm water use (OFWU) efficiency to reduce wastage and increase availability both in duration and extent.  
  7. For rainfed areas, use watershed approach towards soil and water conservation, arresting runoff, providing livelihood etc.  
  8. Explore the feasibility of reusing treated municipal waste water for peri - urban agriculture.
9. Attract greater **private investments** in irrigation.
10. It uses area development approach, adopting **decentralized state level planning** i.e. States can make their irrigation development plans and take up projects.

- **Components:** It has 4 components
  1. **Accelerated Irrigation Benefit Programme (AIBP):** Faster completion of Major and Medium irrigation projects.
  2. **Har Khet Ko Pani:** Minor irrigation, repair of water bodies, rainwater harvesting, Command area development, Groundwater development, improve water distribution system, supplement MGNREGA, IWMP and create traditional water storage systems.
  3. **Per Drop More Crop:** Preparation of State/ District Plan, Jal Sinchan (sprinklers, rainguns in farms), Jal Sanrakshan (moisture conservation), ICT Interventions through NeGP - A for water use efficiency, precision irrigation technologies etc.
  4. **Watershed Development:** ridge area treatment, in situ conservation, converging with MGNREGA.

- **Coverage:** All the States and UTs including North Eastern States are covered under the programme.

Source: PIB
Electric car uses alternate fuel electricity instead of petrol or diesel.
An electric vehicle, uses one or more electric motors or traction motors for propulsion.
There is a growing acceptance for hybrid and electric cars in the country and more and more manufacturers are entering this niche segment with an express objective of lowering the fuel import bill and running cost of vehicles.
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  2. Har Khet Ko Pani: Enhance physical access of water on the farm and expand cultivable area under assured irrigation.
  3. More Crop Per Drop: Enhance the adoption of precision - irrigation and other water saving technologies.
  4. Integration of water source, distribution and its efficient use, to make best use of water through appropriate technologies and practices.
  5. Improve on - farm water use (OFWU) efficiency to reduce wastage and increase availability both in duration and extent.
  7. For rainfed areas, use watershed approach towards soil and water conservation, arresting runoff, providing livelihood etc.
  8. Explore the feasibility of reusing treated municipal waste water for peri - urban agriculture.
9. Attract greater **private investments** in irrigation.
10. It uses area development approach, adopting **decentralized state level planning** i.e. States can make their irrigation development plans and take up projects.

- **Components**: It has 4 components
  1. **Accelerated Irrigation Benefit Programme (AIBP)**: Faster completion of Major and Medium irrigation projects.
  2. **Har Khet Ko Pani**: Minor irrigation, repair of water bodies, rainwater harvesting, Command area development, Groundwater development, improve water distribution system, supplement MGNREGA, IWMP and create traditional water storage systems.
  3. **Per Drop More Crop**: Preparation of State/ District Plan, Jal Sinchan (sprinklers, rainguns in farms), Jal Sanrakchan (moisture conservation),, ICT Interventions through NeGP - A for water use efficiency, precision irrigation technologies etc.
  4. **Watershed Development**: ridge area treatment, in situ conservation, converging with MGNREGA.

- **Coverage**: All the States and UTs including North Eastern States are covered under the programme.

Source: PIB
Government efforts to clean river

Cleaning and rejuvenation of rivers is an ongoing activity. It is the **responsibility of the States/Union Territories (UTs) and local bodies** to ensure required **treatment** of sewage and industrial effluents to the prescribed norms before discharging into river and other water bodies, coastal waters or land to prevent and control of pollution therein.

- For conservation of rivers, this Ministry has been supplementing efforts of the States/UTs by providing **financial and technical assistance** for abatement of pollution in identified stretches of rivers in the country through the Central Sector Scheme of **Namami Gange for rivers in Ganga basin** and the Centrally Sponsored Scheme of **National River Conservation Plan (NRCP)** for other rivers.
- In addition, sewerage infrastructure is created under programs like **Atal Mission for Rejuvenation & Urban Transformation (AMRUT)** and **Smart Cities Mission** of Ministry of Housing & Urban Affairs.
- As per the Provisions of the **Environment (Protection) Act, 1986 and the Water (Prevention & Control of Pollution), the Act 1974**, industrial units are required to install effluent treatment plants (ETPs) and treat their effluents to comply with stipulated environmental standards before discharging into river and water bodies. Accordingly, Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) monitor industries with respect to effluent discharge standards and take action for non-compliance under provisions of these Acts.
- The Central Government has notified **General Discharge Standards** and also industry specific effluent discharge standards under the Environment (Protection) Rules, 1986 which are required to be complied by the industrial units, STPs and/or the CETPs for prevention and control of pollution in water bodies. In case of non compliance with the prescribed norms, punitive actions are taken by the regulatory bodies under the relevant statutory provisions.
- CPCB has issued directions from time to time to the concerned State Pollution Control Boards (SPCBs) and the urban local bodies to ensure required treatment of municipal and industrial waste waters before discharging to rivers Satluj, Beas and their tributaries to prevent...
contamination of these rivers. Based on inspections carried out by CPCB in June, 2021, actions have been initiated as per the statutory provisions against the STPs, CETPs and the ETPs of grossly water polluting units found non-compliant.

- Besides, in compliance of the orders of National Green Tribunal (NGT) in Original Application No.673/2018 regarding rejuvenation of polluted river stretches in the country, States/UTs are required to implement approved action plans for restoration of the polluted stretches in their jurisdiction as identified by CPCB in their report of 2018, within the stipulated timelines. As per the orders of NGT, regular review on implementation of action plans is undertaken in the States/UTs and also at Central level.
- Proposals for pollution abatement works in towns along polluted river stretches are received from the States/UTs from time to time for consideration under NRCP and sanctioned based on their prioritization, conformity with NRCP guidelines, availability of plan funds, etc.
- NRCP has so far covered polluted stretches on 34 rivers in 77 towns spread over 16 States in the country at a sanctioned cost of Rs.5965.90 crore and sewage treatment capacity of 2522.03 million litres per day (MLD) has been created under the programme. Under the Namami Gange programme, a total of 346 projects, including 158 projects for sewage treatment of 4948 MLD and sewer network of 5213 kms., have been sanctioned at a cost of Rs.30235 crore.
- This has resulted in reduction of pollution load being discharged hitherto in various rivers and the output of the initiatives yield improvement in terms of water quality of the rivers.

Source: PIB

Trade Receivables Discounting System (TReDS)
GS-III | 04 August, 2021

- Trade Receivable Discounting System (TReDS) is working as per the guidelines issued by RBI. It is an electronic platform for facilitating the discounting of trade receivables of MSMEs through multiple financiers.
- Government of India has also instructed Central Public Sector Enterprises
and all companies with a turnover of Rs. 500 Crore or more to get themselves on-boarded on TReDS.

- It is for facilitating the financing of trade receivables of MSMEs from corporate buyers through multiple financers is called TReDS.
- It includes discounting of both invoices as well as Bills of Exchange.
- MSME sellers, Corporate Buyers and Financiers - both banks and Non banks will be direct participants in TReDS.
- It would be governed by regulatory framework put by RBI under Payment and Settlement Systems Act, 2007.
- Who can participate? Whoever has the Capital of Rs. 100 crores out of which atleast 40% must belong to promoters themselves for 5 years. Then it is to be reduced to 30% within 10 years and 26% within 12 years.

Source: PIB

FASAL and CHAMAN Scheme
GS-III | 04 August, 2021

- The Ministry of Agriculture & Farmers’ Welfare is funding various projects for Crop Production Forecasting, which includes FASAL Scheme (Forecasting Agricultural output using Space, Agro-meteorology and Land based observations) and CHAMAN (Coordinated Horticulture Assessment and Management using geo-iNformatics).
- FASAL is used for crop production forecasting of field crops while CHAMAN is for horticulture crops.
- In both the projects, Indian Space Research Organization (ISRO) has played a major role in developing methodologies. However, currently the programmes are being operationalized by Mahalanobis National Crop Forecast Centre (MNCFC) of Department of Agriculture & Farmers’ Welfare, with technology support from ISRO.
- Nine crops which are assessed under FASAL are Rice, Wheat, Tur, Rabi Pulses, Rapeseed & Mustard, Rabi Jowar, Cotton, Jute and Sugarcane. The seven crops which are being assessed under CHAMAN project are Potato, Onion, Tomato, Chilli, Mango, Banana and Citrus.
- The Government is using satellite based estimates for planning and decision making purposes with respect to storage, pricing and import/export. In
addition to this satellite based indices are used for drought assessment and satellite data is also being used for various applications under Pradhan Mantri Fasal Bima Yojana (PMFBY), Crop Intensification in Rice fallow areas and horticulture expansion in North-eastern States.

- The Government has identified various advanced technologies which includes **Space and Geo-spatial technology** as one of the major technologies. Areas identified for space technology applications are crop estimation, drought assessment, horticulture development, crop insurance, pest & disease impact assessment, crop loss assessment, soil resource mapping, crop intensification, precision farming, sustainable agriculture and climate change impact on agriculture.

- The **KISAN project launched by Ministry of Agriculture & Farmers’ Welfare** carried out various pilot studies for evaluating the role of satellite technology in crop yield estimation.

- Based on these studies and many consequent pilot studies carried out by the Ministry, currently, the satellite remote sensing is being used for various operational applications under PMFBY, such as Smart Sampling for Crop Cutting Experiments (CCEs), Yield Dispute Resolution and Direct Yield Estimation. The PMFBY guidelines have devised SoPs for use of satellite data for various aspects of crop insurance.

- The Government of India proposes to migrate to technology based yield estimation from the conventional CCE based yield estimation. Towards this, the Government is conducting large-scale pilot studies by engaging various agencies. During Kharif 2019, pilot studies were conducted by 13 agencies in 64 districts of 15 States for 9 crops which were validated during Rabi 2019-20 in 15 blocks of 6 States.

- In Kharif 2020, large-scale pilot studies were conducted for Rice crop in 100 districts of 12 States by 8 agencies, which is being continued in Rabi 2020-21 for Rice and Wheat crop in 100 districts of 13 states. In addition, request for Expression of Interest (EoI) has been floated for conducting pilot studies in non-cereal crops.

- Government of India have also rolled out smart sampling for Rice, Wheat, Rabi Jowar, and Rapeseed and Mustard crops during last 4 seasons.

- Protocols have also been prepared for Two-Step Yield Estimation where technology will be used initially for loss categorization and then more CCEs will be conducted in ‘moderate’ or ‘severe’ areas and less CCEs will be conducted in ‘mild’ or ‘normal’ areas.
UPSC "PT" DNA (Daily News Analysis)

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UPSC "PT" DNA (Daily News Analysis)

Source: PIB
1. PMNRF was instituted in 1948 by Jawaharlal Nehru to assist displaced persons from Pakistan.
2. Fund is used to tackle natural calamities like floods, cyclones and earthquakes. The fund is also used to help with medical treatment like kidney transplantation, cancer treatment and acid attack.
3. The fund consists entirely of public contributions and does not get any budgetary support. Not in CSR.
4. It accepts voluntary contributions from Individuals, Organizations, Trusts, Companies and Institutions etc.
5. The fund is recognized as a Trust under the Income Tax Act and approval of PM is important.
6. Contributions towards PMNRF are notified for 100% deduction from taxable income under section 80(G) of the Income Tax Act, 1961.

Source: PIB

Fast Track Special Courts (FTSCs)

• To bring more stringent provisions and expeditious trial and disposal of such cases, the Central Government enacted "The Criminal Law (Amendment) Act, 2018" and made provision of stringent punishment including death penalty for perpetrators of rape.
• This led to the establishment of the Fast Track Special Courts (FTSCs).
• Fast Track Special Courts are dedicated courts expected to ensure swift dispensation of justice.
• They have a better clearance rate as compared to the regular courts and hold speedy trials.
• Besides providing quick justice to the hapless victims, it strengthens the deterrence framework for sexual offenders.
• Currently covering 28 States, it is proposed to be expanded to cover all 31 states which are eligible to join the Scheme.
• It is supporting the efforts of State/UT Governments for providing time bound justice to hapless victims of sexual offences in the country including the Prime Minister’s National Relief Fund (PMNRF)
remote and far-flung areas.

- Cabinet chaired by the Prime Minister Shri Narendra Modi has approved the continuation of 1023 Fast Track Special Court (FTSCs) including 389 exclusive POCSO Courts as a Centrally Sponsored Scheme (CSS) from 01.04.2021 to 31.03.2023 with an outlay of Rs. 1572.86 crore (Rs.971.70 crore as Central Share and Rs.601.16 crore as State share). Central Share is to be funded from Nirbhaya Fund. The Scheme was launched on 02.10.2019.

**Impacts of Fast Track Special Courts**

- Further the commitment of the Nation to champion the cause of safety and security of women and girl child.
- Reduce the number of pending cases of Rape & POCSO Act.
- Provide speedy access to justice to the victims of sexual crimes and act as a deterrent for sexual offenders.
- Fastracking of these cases will decrease the backlog of the judicial system and the burden of case pendency.

Source: PIB

**The Airports Economic Regulatory Authority of India (Amendment) Bill, 2021**

- The Airports Economic Regulatory Authority of India (Amendment) Bill, 2021 seeks to amend the Airports Economic Regulatory Authority of India Act, 2008.
- The 2008 Act established the [Airport Economic Regulatory Authority (AERA)](https://www.airports.gov.in). **AERA regulates tariffs and other charges** (such as airport development fees) for aeronautical services rendered at major airports in India.
- **Major airports**: The 2008 Act designates an airport as a major airport if it has an annual passenger traffic of **at least 35 lakh**. The **central government** may also designate any airport as a major airport by a notification. The Bill adds that the central government may group airports and notify the group as a major airport.
- The bill allows tariff determination of a 'group of airports' by way of amending...
The definition of 'major airport.'

- The bill amends the provisions of the law in relation to tariffs for single airports.
- The intention of the government is to develop not only the high traffic volume & profitable airports but also the low traffic volume of non-profitable airports.
- The revenue earned by AAI from these airports will be utilized for the development of airports in **Tier-II and Tier-III cities**. It would help encourage the development of smaller airports.
- This approach would help in the development of more airports through the PPP route thus, expanding the air connectivity to relatively remote and far-flung areas.

Source: PIB

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**Civil Aviation sector in India**

**Background**

- Civil aviation in India, the world's third-largest civil aviation market as of 2020, traces its origin back to 1911, when the first commercial civil aviation flight took off from a polo ground in Allahabad carrying mail across the Yamuna river to Naini.
- Air India is India's national flag carrier after merging with Indian in 2011 and plays a major role in connecting India with the rest of the world.
- India will be the third-largest civil aviation market in the world by 2024. It recorded an air traffic of 131 million passengers in 2016, of which 100 million were domestic passengers.

**Airports Authority of India (AAI)**

1. AAI was established in 1995. It is a **mini ratna** company involved in building, upgrading, maintaining and managing airport infrastructure.
2. **GAGAN**: GPS Aided Geo Augmented Navigation is an augmentation system to enhance the accuracy and integrity of GPS signals. It is **implemented jointly by AAI and ISRO**.
3. Govt raised FDI limit from 49% to 100% in scheduled and non-scheduled air transport services.

4. Indira Gandhi Rashtriya Udan Akademi (IGRUA) set up at Fursatganj, Raebareli (UP).
5. Rajiv Gandhi National Aviation University (RGNAU) is at Fursatganj, Raebareli (UP).

National Civil Aviation Policy, 2016:

- This is the 1st policy since independence.
- It aims at creating an ecosystem to push growth of civil aviation sector which would promote tourism, increase employment and lead to balanced regional growth.

Reforms in Civil Aviation sector

The Government has taken several measures for reforms in civil aviation sector of the country by providing top-class infrastructure and facilities. It includes:

- AAI has taken up development programme to spend around Rs. 25,000 crores in next 4-5 years for expansion and modification of existing terminals, new terminals, expansion or strengthening of existing runways, aprons, Airport Navigation Services (ANS), control towers, technical blocks etc. to meet the expected growth in aviation sector.
- Government of India (GoI) has accorded ‘in-principle’ approval for setting up of 21 Greenfield Airports across the country. So far, six Greenfield airports namely, Shirdi in Maharashtra, Durgapur in West Bengal, Pakyong in Sikkim, Kannur in Kerala, Orvakal in Andhra Pradesh and Kalaburagi in Karnataka have been operationalized.
- Promotion of private investments in existing and new airports through the PPP route.
- Under Regional Connectivity Scheme (RCS) – Ude Desh ka Aam Nagrik (UDAN), as on 27 July, 2021, 359 routes have commenced connecting 59 unserved/underserved airports, including 2 water aerodromes and 5 heliports.
- Route rationalization in the Indian airspace in coordination with Indian Air Force for efficient airspace management, shorter routes and lower fuel consumption.
- Through Air Bubble Arrangements, efforts have been made to ensure fair and equitable treatment to our carriers in the international sector.
Government has supported airlines through various policy measures with an aim to improve their global competitiveness such as rationalisation of taxes, creation of a conducive aircraft leasing and financing environment, effective use of bilateral traffic rights and improvement in air navigation facilities etc.

Government has encouraged the airlines to buy modern wide body aircraft. So far Vistara Airlines has acquired two new wide body aircraft.

The aviation sector including airlines, airports, and related services have come under financial stress on account of COVID-19 pandemic. The details of major steps taken by the Government to revive the civil aviation sector during this period, inter alia, are as follows:

- Provide support to airlines through various policy measures.
- Provide airport infrastructure through Airports Authority of India and the private operators.
- Promotion of private investments in existing and new airports through the PPP route.
- Provide an efficient Air Navigation System.
- Through Air Bubble Arrangements, efforts have been made to ensure fair and equitable treatment to our carriers in the international sector.
- Goods and Services Tax (GST) rate reduced to 5% from 18% for domestic Maintenance, Repair and Overhaul (MRO) services.
- A conducive aircraft leasing and financing environment has been enabled.
- Route rationalization in the Indian airspace in coordination with Indian Air Force for efficient airspace management, shorter routes and lower fuel consumption.
- Coordination with stakeholders to resolve issues.

**Connectivity with Northeast through UDAN scheme**

- The first direct flight operations between Imphal (Manipur) & Shillong (Meghalaya) was flagged off yesterday under the RCS-UDAN (Regional Connectivity Scheme — Ude Desh Ka Aam Nagrik) of the Government of India. The operationalization of this route fulfills the objectives of the Government of India to establish strong aerial connectivity in priority areas of NorthEast India. The officials of the Ministry of Civil Aviation (MoCA) and Airport Authority of India (AAI) were present during the launch of the flight operations.

For the Airports Economic Regulatory Authority of India: [click here](#)
Samagra Shiksha Scheme revised for 5 years from 2021 to 2026
GS-III | 05 August, 2021

Background

- **Union Budget, 2018-19** has announced that school education would be treated holistically and without segmentation from pre-primary to class XII. It is, in this context, that the Department launched the Integrated Scheme for School Education, **Samagra Shiksha in 2018** by subsuming the erstwhile Centrally Sponsored Schemes of:
  1. Sarva Shiksha Abhiyan (SSA),
  2. Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and
  3. Teacher Education (TE).
- The scheme treats school education as a continuum and is in accordance with Sustainable Development Goal for Education (SDG-4).
- The scheme not only provides support for the implementation of the RTE Act but has also been aligned with the recommendations of **NEP 2020** to ensure that all children have access to quality education with an equitable and inclusive classroom environment which should take care of their diverse background, multilingual needs, different academic abilities and make them active participants in the learning process.
- The scheme covers 1.16 million schools, over 156 million students and 5.7 million Teachers of Govt. and Aided schools (from pre-primary to senior secondary level).

The major interventions, across all levels of school education, proposed under the scheme are:

- Universal Access including Infrastructure Development and Retention;
- Foundational Literacy and Numeracy,
- Gender and Equity;
- Inclusive Education;
- Quality and Innovation;
Financial support for Teacher Salary;
Digital initiatives;
RTE Entitlements including uniforms, textbooks etc.;
Support for ECCE;
Vocational Education;
Sports and Physical Education;
Strengthening of Teacher Education and Training;
Monitoring;
Programme Management; and
National Component.

New interventions in Samagra Shiksha Abhiyan

Following new interventions have been incorporated in the revamped Samagra Shiksha based on the recommendations of the National Education Policy 2020:

- In order to enhance the direct outreach of the scheme, all child centric interventions will be provided directly to the students through DBT mode on an IT based platform over a period of time.
- The scheme will have an effective convergence architecture with various Ministries/ developmental agencies of the Centre and State Governments. The expansion of vocational education will be done in convergence with the Ministry of Skill Development and Entrepreneurship and other Ministries providing funding for Skills. The existing infrastructure of schools and ITIs and Polytechnics will be used to ensure optimum utilization of the facilities, not only for school going children but also for out of school children.
- Provision of training of Master Trainers for training of Anganwadi workers and In-service teacher training for ECCE teachers.
- Provision of upto Rs 500 per child for Teaching Learning Materials (TLM), indigenous toys and games, play based activities per annum for pre-primary sections in Government Schools.
- NIPUN Bharat, a National Mission on Foundational Literacy and Numeracy to ensure that every child achieves the desired learning competencies in reading, writing and numeracy at the end of grade III and not later than grade V has been launched under the scheme with provision of TLM upto Rs 500 per child per annum, Rs 150 per teacher for teacher manuals and resources, Rs 10-20 lakh per district for assessment.
- Specific training modules under NISHTHA by NCERT to train Secondary teachers and Primary teachers.
- Strengthening of infrastructure of schools from pre-primary to senior secondary, earlier pre-primary was excluded.
- Incinerator and sanitary pad vending machines in all girls' hostels.
• Addition of new subjects instead of Stream in existing senior secondary schools.
• Transport facility has been extended to secondary level @ upto Rs 6000 per annum.
• For out of school children at 16 to 19 years of age, support will be provided to SC, ST, disabled children, upto Rs 2000 per child per grade to complete their secondary/senior secondary levels through NIOS/SOS.
• Financial support for State Commission for Protection of Child Rights @ Rs 50 per elementary school in the state, for protection of child rights and safety.
• Holistic, 360-degree, multi-dimensional report showing progress/ uniqueness of each learner in the cognitive, affective, and psychomotor domains will be introduced in the form of Holistic Progress Card (HPC).
• Support for activities of PARAKH, a national assessment centre (Performance, Assessments, Review and Analysis of Knowledge for Holistic Development)
• Additional Sports grant of upto Rs. 25000 to schools in case atleast 2 students of that school win a medal in Khelo India school games at the National level.
• Provision for Bagless days, school complexes, internships with local artisans, curriculum and pedagogical reforms etc included.
• A new component Appointment of Language Teacher has been added in the scheme- components of training of teachers and bilingual books and teaching learning material added, besides support for salary of teachers.
• Provision made for all KGBVs to be upgraded to class XII.
• Enhanced financial support for existing Stand-alone Girls’ Hostels for classes IX to XII (KGBV Type IV) of upto Rs 40 lakh per annum (earlier Rs 25 lakh per annum).
• Training for 3 months for inculcating self-defence skills under 'Rani Laxmibai Atma Raksha Prashikshan' and amount increased from Rs 3000 to Rs 5000 per month.
• Separate provision of stipend for CWSN girls @ Rs. 200 per month for 10 months, in addition to student component from pre-primary to senior secondary level.
• Provision of annual identification camps for CWSN at block level @Rs. 10000 per camp and equipping of Block Resource centres for rehabilitation and special training of CWSN.
• Provision for Establishment of New SCERT has been included and new DIETs in districts created upto 31st March 2020.
• Setting up of assessment cell preferably at SCERT to conduct various achievement surveys, develop test materials & item banks, training of various
stakeholders & test administration, data collection analysis and report generation, etc.

- The academic support of BRCs and CRCs has been extended for pre-primary and Secondary level also.
- Support under Vocational Education extended to Government aided schools also in addition to Government Schools and grant/number of job roles/sections linked to enrolment and demand.
- Provision of Classroom cum workshop for Vocational Education in schools serving as Hub for other schools in the neighbourhood. Provision of transport and assessment cost for schools serving as spokes has been made.
- Provision of ICT labs, Smart classrooms including support for digital boards, smart classrooms, virtual classrooms and DTH channels have been provided.
- Child tracking provision included for students of Government and Government aided schools.
- Support for Social Audit covering 20% of schools per year so that all schools are covered in a period of Five years.

Implementation strategy

The Scheme is implemented as a Centrally Sponsored Scheme through a single State Implementation Society (SIS) at the State level. At the National level, there is a Governing Council/Body headed by the Minister of Education and a Project Approval Board (PAB) headed by Secretary, Department of School Education and Literacy. The Governing Council/body will be empowered to modify financial and programmatic norms and approve the detailed guidelines for implementation within the overall Framework of the scheme. Such modifications will include innovations and interventions to improve the quality of school education.

Impacts of Samagra Shiksha Abhiyan

The Scheme aims to universalize access to school education; to promote equity through the inclusion of disadvantaged groups and weaker sections, and to improve the quality of education across all levels of school education. The major objectives of the Scheme are to Support States and UTs in:

- Implementing the recommendations of the National Education Policy 2020 (NEP 2020);
- Implementation of Right of Children to Free and Compulsory Education (RTE) Act, 2009;
- Early Childhood Care and Education;
Emphasis on Foundational Literacy and Numeracy; 
Thrust on Holistic, Integrated, Inclusive and activity based Curriculum and Pedagogy to impart 21st century skills to the students; 
Provision of quality education and enhancing learning outcomes of students; 
Bridging Social and Gender Gaps in School Education; 
Ensuring equity and inclusion at all levels of school education; 
Strengthening and up-gradation of State Councils for Educational Research and Training (SCERTs)/State Institutes of Education and District Institutes for Education and Training (DIET) as nodal agency for teacher training; 
Ensuring safe, secure and conducive learning environment and maintenance of standards in schooling provisions and 
Promoting vocational education.

Source: PIB

Steps to stop illegal mining in Rajasthan

First read the whole Mining sector of India and then read the following write up. Your retention level will increase exponentially.

About Sand

- Sand is a minor mineral under Section 3(e) of the Mines and Minerals (Development & Regulation) Act, 1957.
- Section 15 of the MMDR Act, 1957, empowers the State Governments to make rules for regulating the grant of minor mineral concessions.
- Moreover, Section 23C of the MMDR Act 1957, empowers the State Governments to make rules for preventing illegal mining, transportation and storage of minerals and for the purposes connected therewith.
- **Thus, minor minerals are regulated at the level of State Government.**
- As per the report of the Government of Rajasthan, State Government is taking all necessary steps to stop illegal sand mining and has constituted Special investigation team (SIT) in all districts under chairmanship of district collectors including representatives of police, mines, forest and transport department.

Rajasthan illegal mining
Government of Rajasthan has informed that Hon'ble Supreme Court vide its order dated 16.11.2017 has banned all the 82 mining lease/quarry holders in the State of Rajasthan from carrying out mining of sand and bajri unless a scientific replenishment study is completed and the matter is fully considered by the Ministry of Environment, Forest and Climate Change and an environmental clearance is granted or rejected.

After getting fresh environmental clearances sand mining in three leases has been resumed in June 2021.

According to State of Rajasthan, after ban of sand mining by Hon’ble Supreme Court, the State Government has reported 36594 cases of illegal sand mining and transportation of sand, registered 3286 FIRs, seized 37435 vehicles/machinery and has recovered Rs 226.15 crore as penalty, till 30th June 2021.

For the issue of Illegal mining in India: [click here](#)

**Mining of Granite**

- Granite being a building stone comes under Minor Mineral, as defined under clause (e) of section 3 of the Mines and Minerals (Development & Regulation) Act, 1957 (MMDR Act).
- As per section 15 of the MMDR Act, 1957, State Governments have been empowered to make rules for regulating the grant of mining leases or other mineral concessions in respect of minor minerals and for purposes connected therewith.
- Therefore, the administration of mining of minor minerals including granite is completely within the domain of the respective State Governments.
- However, the Granite Conservation and Development Rules (GCDR), 1999 has been framed by Central Government which aims at bringing uniform rules for conservation, systematic development and scientific exploitation of granite resources.
- Further, Ministry of Mines vide order dated 23.04.2021 has constituted a Granite and Marble Development Council for a period of three years to prescribe a uniform framework with regard to systematic and scientific exploration of Granite and Marble minerals throughout the country.

Source: PIB
India and World Bank sign $250 million project for DRIP-2

First read the comprehensive note of Dam safety policies and institutions in India.

- **India ranks third globally after China and the United States of America, with 5334 large dams in operation.** In addition, about 411 dams are under construction at present. There are also several thousand smaller dams. These dams are vital for ensuring the water security of the Country. Indian dams and reservoirs play an important role in the economic and agricultural growth of our country by storing approximately 300 billion cubic meter of water annually.
- These dams present a major responsibility in terms of asset management and safety. Due to deferred maintenance and other health issues, these dams have associated risks in case of failure. The consequences of dam failure can be catastrophic, in terms of loss of human life and property, and damage to ecology.

**India and World Bank for DRIP-2**

- The Second Dam Rehabilitation and Improvement Project (DRIP-2) will strengthen dam safety by building dam safety guidelines, bring in global experience, and introduce innovative technologies.
- Another major innovation envisaged under the project, that is likely to transform dam safety management, is the introduction of a risk-based approach to dam asset management that will help to effectively allocate financial resources towards priority dam safety needs.
- The project will be implemented in approximately 120 dams across the states of Chhattisgarh, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Rajasthan, and Tamil Nadu, and at the national level through the Central Water Commission (CWC). Other states or agencies may be added to the project during project implementation.
- World Bank support to dam safety in India includes the recently closed DRIP-1 ($279 million + $62 million Additional Financing) that improved the safety and sustainable performance of 223 dams in six states of India and one central agency.
Other important measures that DRIP-2 will support include flood forecasting systems and integrated reservoir operations that will contribute to building climate resilience; the preparation and implementation of Emergency Action Plans to enable vulnerable downstream communities to prepare for and enhance resilience against the possible negative impacts and risks of climate change; and the piloting of supplemental revenue generation schemes such as floating solar panels.

Features of DRIP-2

- This new Scheme will strengthen dam safety initiatives taken by Government of India through physical rehabilitation of selected dams by addressing various concerns to improve safety and operational performance, institutional strengthening in various ways, incidental revenue generation for sustainable operation & maintenance of dams etc.
- The Scheme is designed to infuse global know-how, innovative technologies in dam safety.
- Another major innovation envisaged under the project, that is likely to transform dam safety management in the country, is the introduction of a risk-based approach to dam asset management that will help to effectively allocate financial resources towards priority dam safety needs.
- Also, Scheme implementation will equip the Indian dam owners to gear up their human resources to comprehensively handle many important activities envisaged in proposed Dam Safety Legislation.
- The programme will enable states and dam owners to extend these safety protocols and activities beyond the selected dams to all other dams within their jurisdiction, overall enhancing the culture of dam safety in the country.
- This programme complements the provisions in the Dam Safety Bill 2019, by ensuring capacity building of the dam owners as well as the proposed regulators, as well as creating necessary protocols for dam safety. It is likely to generate employment opportunities equivalent to approximately 10,00,000 person days for unskilled workers, and 2,50,000 person days for working professionals.
- The first phase of the DRIP programme, which covered 223 dams in 7 states, improved the safety and operational performance of selected dams, along with institutional strengthening through a system wide management approach, has been recently closed in March 2021.
- In order to carry forward the momentum gained through ongoing DRIP, and expand it vertically and horizontally, the new Scheme, DRIP Phase II, co-
financed by World Bank (WB) and Asian Infrastructure Investment Bank (AIIB) with US$250 million each, covers large dams in 19 states of the country.

- This Scheme is especially focused on mitigating the risks of dam failure and ensuring safety of people, riverine ecology and property located downstream of these selected dams, through structural as well as non-structural measures like physical rehabilitation, preparation of Operation and Maintenance Manuals, Emergency Action Plans, Early Warning System and various other measures.
- Life of these selected reservoirs will be extended further by addressing health and safety concerns of these selected dams; in turn, these assets will provide planned benefits efficiently for longer period to public at large in terms of various direct benefits like irrigation, drinking water, hydel power, flood control etc.
- In addition to physical rehabilitation, as mentioned before, equal emphasis has been given for capacity building of dam owners in order to ensure availability of trained and skilled manpower for better operation of dams during all seasons in a year. Customized training programmes for various technical and managerial aspects will assist dam owners to create a pool of knowledge to deal with matters of dam safety confidently and scientifically.
- In view of the size of India’s dam portfolio and challenges in operating and maintaining these existing assets, Government of India is making all out efforts to ensure the availability of a pool of dam safety professionals across the country. The provision for partnerships with premier Academic Institutions like IISc and IITs and capacity building of five (5) Central Agencies along with dam owners will strengthen the theme “AtmaNirbhar Bharat”. It will ensure long term sustainability of required knowledge and human resources to assist our dam owners. India will also position herself as a knowledge leader on dam safety, particularly in South and South East Asia.
Various Central Sector Schemes/ Centrally Sponsored Schemes are implemented by Central Ministries/Departments under **10% Gross Budgetary Support (GBS)**.

Besides, Ministry of Development of North Eastern Region in coordination with Central Ministries/Departments is focusing on the development of physical and social infrastructure in order to improve connectivity and socio economic development in North Eastern Region.

Some of the new infrastructure schemes/projects approved during the last five years for the development of North Eastern States under the Central Sector Scheme of Government inter-alia include:

- **Greenfield Airports**: new Greenfield Airport at Holongi, Arunachal Pradesh; Dibrugarh Airport in Assam; Imphal Airport in Manipur; Barapani Airport in Meghalaya;
- **Rail connectivity**: New Rail line in Assam such as Sibsagar – Jorhat (62 Km); Salona- Khumtai (99Km); Tezpur- Silghat (25 Km); Mahisasan (India)-Zero Point (Bangladesh) New Line (3 Km); Doubling Rail line in Assam such as Saraighat Bridge doubling line (7 Km); Kamakhya-New Guwahati Quadruppling (21 Km); Doubling of Lumding- Tinsukia Jn-Dibrugarh (381 Km);
- **Connectivity**: Bharat Net and Wi-Fi Connectivity for Village Panchayats in North Eastern Region;
- **Development of National Waterway-2** (River Brahmaputra, 891 Km) Sadia to Bangladesh Border and **National Waterway-16** (River Barak, 121 Km) Bhanga-Lakhipur Stretch Including Indo-Bangladesh Protocol (IBP) route;
- **Bio Refinery Plant, Numaligarh, Assam**;
- **AIIMS at Guwahati**;
- **North Eastern Region Power System Improvement Project** (NERPSIP) in six North Eastern Region States of Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura and Comprehensive Scheme for Strengthening Transmission and Distribution System in Arunachal Pradesh and Sikkim.
- Ministry of DoNER has commissioned the **Sector Specific, State specific holistic development plans in sectors** like (a) Bamboo (b) Oil Palm (c)
Horticulture (d) Handicrafts and Handlooms.

- The Ministry of Development of North Eastern Region, through its schemes of Non-Lapsable Central Pool of Resources (NLCPR), schemes of North Eastern Council (NEC), North East Road Sector Development Scheme (NERSDS) has also taken steps to bridge the social and physical infrastructure gaps in North Eastern Region (NER).
- **North Eastern Development Finance Corporation Ltd. (NEDFi)** under the Ministry of Development of North Eastern Region (MDoNER) has set up the North East Venture Fund (NEVF) in September, 2017, with a view to encourage entrepreneurs and Start-ups in North Eastern Region. The prime focus of the fund is to act as an enabler to **stimulate enterprise building** in the North Eastern Region and thereby contributing towards creation of the ecosystem required for nurturing and development of enterprises in North Eastern Region.

Protection of Culture and Tradition of North-East

- To protect and promote the rich and diverse traditions and culture of NE Region, the Government of India has set up North East Zone Cultural Centre (NEZCC) at Dimapur and Eastern Zonal Cultural Centre (EZCC) at Kolkata (autonomous organizations under Ministry of Culture).
- In addition, there is one autonomous organization namely **Central Institute of Himalayan Culture Studies, Dahung** (Arunachal Pradesh) and the following three grantee bodies located in the North Eastern States which are engaged in preserving and promoting the folk art and culture of the NE Region:
  - Centre for Buddhist Studies, Tawang Monastery, Arunachal Pradesh;
  - Namgyal Institute of Tibetology, Gangtok; and
  - GRL Monastic School, Bomdila, Arunachal Pradesh.
- As per **North Eastern Council (NEC)** General Guidelines 2020, promotion of North Eastern Region (NER) is one of the focus sectors under ‘Schemes of NEC’. Projects relating to art and culture of the region are supported under the scheme. During the last five years, 10 projects costing Rs.36.40 crore and three tribal festivals costing Rs.0.34 crore were sanctioned under the scheme.
- NEC has been supporting various festivals organised by State Governments of NER and NGOs including state festivals like Sangai Festival (Manipur), Behdienkhlam Festival (Meghalaya), Hornbill Festival (Nagaland) etc. across the region to ensure greater participation of the people from various
parts of the country, promote tourism as well as enhance cultural connection with other parts of the country.

- **OCTAVE** is a festival of the North East that is organized by all Zonal Cultural Centres to promote folk culture of the North Eastern States and connect these States with the rest of India.

Source: PIB

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**Administrative Reforms in India**

Administrative reforms are a continuous process and the Government follow the maxim “Minimum Government - Maximum Governance”. Government from time to time brings administrative reforms, to encourage greater efficiency, transparent and corruption free governance, accountability and reduce scope for discretion.

Some of the major steps are as follows:

- **Launch of “Mission Karmayogi”** - National Programme for Civil Services Capacity Building (NPCSCB), a new national architecture for civil services capacity building has been launched. It is a comprehensive reform of the capacity building apparatus at individual, institutional and process levels for efficient public service delivery;
- **e-Samiksha** - A real-time online system for monitoring and follow up action on the decisions taken by the Government at the Apex level in respect of implementation of important Government programmes / projects;
- **e-Office Mission Mode Project (MMP)** has been strengthened for enabling Ministries/Departments to switchover to paperless office and efficient decision making;
- **Self-certification of documents for appointments** - From June, 2016, recruiting agencies issue provisional appointment letters based on submission of self-certified documents by the candidates;
- **Discontinuation of interview in recruitment of junior level posts** - From January, 2016, interview has been dispensed with for recruitment to all Group ‘C’, Group ‘B’ (Non-Gazetted posts) and other equivalent posts in all
Government of India Ministries/ Departments/ Attached Offices/ Subordinate Offices/ Autonomous Bodies/ Public Sector Undertakings to curb malpractices and for bringing objectivity to the selection process;  
- **Appointment at senior positions** - Multi-source feedback for empanelment for the posts of Joint Secretary and above has been introduced;  
- **Citizen Charters** - Government has mandated Citizen Charters for all Ministries/Departments which are updated and reviewed on a regular basis. The Citizen Charters of Central Government Departments are available at the respective web-sites of Ministries/Departments and https://goicharters.nic.in/public/website/home;  
- Intensive review for weeding out inefficient and Officers of doubtful integrity by premature retirement;  
- Use of **Integrated Government Online Training Programme** for online module based training;  
- **Good Governance Index 2019** - was launched, which assesses the Status of Governance and impact of various interventions taken up by the State Government and Union Territories (UTs). The objectives of GGI are to provide quantifiable data to compare the state of governance in all States and UTs, enable States and UTs to formulate and implement suitable strategies for improving governance and shift to result oriented approaches and administration;  
- Comprehensive restructuring of the Scheme for ‘Prime Minister’s Awards for Excellence in Public Administration’ in 2014 and thereafter in 2020;  
- To promote **e-Governance** in a holistic manner, various policy initiatives and projects have been undertaken to develop core and support infrastructure;  
- **National Conference on e-Governance** - provides a platform for government to engage with experts, intellectuals from industry and academic institutions to exchange experiences relating to e-Governance initiatives;  
- **National e-Governance Service Delivery Assessment** - aims at assessing the States, UTs and Central Ministries on the efficiency of e-Governance service delivery;  
- **Centralized Public Grievance Redress and Monitoring System (CPGRAMS)** - The Government is undertaking CPGRAMS reforms in the top grievance receiving Ministries/Departments by enabling questionnaire guided registration process and providing for automatic forwarding of grievances to field level functionaries thereby reducing the redress time;  
- Increasing efficiency in decision making in Central Secretariat by reducing the channel of submission to 4, adoption of e-Office version 7.0, digitization of central registration units, greater delegation of virtual private networks
Rashtriya Mahila Kosh to be discontinued

The Government had set up Rashtriya Mahila Kosh (RMK). It was established in 1993 as a national level autonomous body for socio-economic empowerment of women, especially those in the rural and unorganized sector, by providing them concessional, collateral free micro-credit.

The operating model followed by RMK has been of extending loans to Intermediary Micro-Finance Organizations (IMOs) which further on lend for entrepreneurial activities of women.

However, as per recommendations in the report on ‘Rationalisation of Government Bodies’, prepared by the Principal Economic Adviser to the Government of India in November, 2020, the Government has decided to close down RMK as it has lost its relevance and utility in the present scenario with substantial alternative credit facilities becoming available to women through various governmental initiatives and efforts such as Jan Dhan Yojana, PM Mudra Yojana etc and also to avoid duplicacy of efforts.

The detailed objectives for setting up the Rashtriya Mahila Kosh (RMK) have been

- To promote or undertake activities for the promotion of or to provide credit as an instrument of socio-economic change and development through the provision of a package of financial and social development services for the development of women.
- To promote and support schemes for improvement of facilities for credit for women:

  1. for sustenance of their existing employment,
  2. for generation of further employment,
3. for asset creation,
4. for asset redemption and
5. for tiding over consumption, social and contingent needs;

- To demonstrate and replicate participatory approaches in the organization of women’s groups for effective utilization of credit resources leading to self-reliance;
- To promote and support experiments in the voluntary and formal sector using innovative methodologies to reach poor women with credit and other social services;
- To sensitize existing government delivery mechanisms and increase the visibility of poor women as a vital clientele with the conventional institutions;
- To promote research, study, documentation and analysis, including provision of fellowships and scholarships, of credit and its management and of successful experiences at various levels in order to promote replication and dissemination of successful credit extension and management methodologies;
- To promote the federation and networking of women’s organisations for shaping & exchange of experience and information and to develop skills in response management & social mobilization;
- To promote and support the expansion of entrepreneurship skills among women;
- To cooperate with and secure the cooperation of the Central Government, State Governments and Union Territory Administration, credit institutions, industrial and commercial organisations and non-government, voluntary and other organisations and bodies in promoting the objects of the Kosh;
- To accept subscriptions, grants, contributions, donations, loans, guarantees, gifts, bequests etc. on such terms and obligations not inconsistent with the aims and objects of the Kosh; and
- To do all such lawful acts and things as may be necessary or conducive for furthering the objects of the Kosh.
- There shall be no discrimination on the ground of religion, community, caste or class, creed or race in carrying out the aims and objects of the Kosh.

Source: PIB

Hydrogen Fuel Cell
• **Hydrogen Fuel is produced through**
  1. **Steam methane reforming**: Extraction of hydrogen from methane. But these release CO2 and CO which leads to Climate change.
  2. **Electrolysis**: Separating hydrogen and oxygen atoms.
• **HFC contains NOx as pollutants since Hydrogen (molecule) uses Nitrogen as the impurity. If water is added, pollution can be reduced.**
• To cool down Hydrogen gas into a liquid state, temperature has to be brought down at 20 K. Hence it is difficult to use this fuel efficiently.
• **Hydrogen Economy is the vision of using Hydrogen as a low Carbon Energy source; replacing Natural gas as heating fuel or Gasoline as transport fuel.**
• **Applications of Hydrogen Fuel**
  1. It can provide power for cars, aeroplanes, boats, electric motor.
  2. But it is very difficult to store hydrogen in either cryogenic tank or High-pressure tank.
• **Advantages of Hydrogen Fuel**
  1. When we burn Hydrogen, it **emits only Water Vapour (no CO2).**
  2. Hydrogen is less polluting and has the ability to run a fuel cell engine compared to an internal combustion engine.
• **Applications**
  1. Fuel system is most suitable to fulfill distributed stationary power applications.
  2. It is working as an efficient, clean and reliable backup power generator.
  3. Fuel Cell distributed power generation systems are emerging as a **promising alternative to grid power.**
• **Polymer Electrolyte Membrane Fuel Cells (PEMFC)**
  1. PEMFC **convert the chemical energy stored in hydrogen fuel directly and efficiently to electrical energy with water as the only by product** without the need for grid power as required by conventional battery backup systems.
  2. **Potential**: To reduce energy use, pollutant emissions and dependence on fossil fuels and providing sustainable electricity.
  3. **Advantage**: Operational capability at low-temperatures with applications in decentralised power generation systems.

**Hydrogen Energy Mission in 2021-22**

- In her Budget Speech on 1 February 2021, the Finance Minister announced the launch of a **Hydrogen Energy Mission in 2021-22** for generating Hydrogen from green power sources.
- Accordingly, the Ministry of New and Renewable Energy (MNRE) has drafted
a National Hydrogen Energy Mission document which would inter-alia aim to scale up Green Hydrogen production and utilization across multiple sectors, including transportation.

- Further, in September 2016, Ministry of Road Transport and Highways (MoRTH) has notified Hydrogen as a fuel for automotive application for Bharat Stage VI vehicles.
- In September 2020, MoRTH has specified the safety and type approval requirements for hydrogen fuel cell vehicles in Automotive Industry Standard (AIS) 157.
- Also, in September 2020, 18% blend of Hydrogen with CNG (HCNG) has been notified as an automotive fuel.
- An R&D project titled “Design and Development of 20 kW Low Temperature Polymer Electrolyte Membrane Fuel Cell (given above) with high indigenous content” has been sanctioned by MNRE to International Advanced Research Centre for Powder Metallurgy and New Materials, Chennai at a total project cost of Rs 21.42 crores (with MNRE share of Rs 17.74 crore). Rs 7.9 crores has been released under this project in 2019-2020.
- Further, Department of Science and Technology has launched Hydrogen and Fuel Cell Program and Advanced Hydrogen and Fuel Cell program to support research on Hydrogen and Fuel Cell.
- Various hydrogen powered vehicles have been developed and demonstrated under projects supported by Government of India. These include
  1. 6 Fuel Cell buses (by Tata Motors Ltd.),
  2. 50 hydrogen enriched CNG (H-CNG) buses in Delhi(by Indian Oil Corporation Ltd. in collaboration with Govt. of NCT of Delhi),
  3. 2 hydrogen fuelled Internal Combustion Engine buses (by IIT Delhi in collaboration with Mahindra & Mahindra),
  4. 15 hydrogen fuelled 3-wheelers (by IIT Delhi in collaboration with Mahindra & Mahindra),
  5. 2 Hydrogen-Diesel dual fuel cars(by Mahindra & Mahindra) and
  6. one fuel cell car (by CSIR-National Chemical Laboratory, CSIR-Central Electrochemical Laboratory and CSIR-National Physical Laboratory).

Source: PIB
The Lok Sabha passed the Bill to formalise the Commission for Air Quality Management For National Capital Region and Adjoining Areas. The body has a full-time chairperson and a range of members consisting of both representatives from several Ministries as well as independent experts and will have the final say on evolving policy and issuing directions to address air pollution in Delhi and the adjoining regions.

The Centre, facing flak earlier this year from farmers protesting the farm laws, had committed to removing a clause in the Air Commission Bill that would penalise farmers for burning stubble, an important contributor to noxious air quality. The text of the Bill does away with this clause.

The body first came into being in October, 2020 on the back of an ordinance—a temporary measure—and the law requires that a formal Bill be presented to Parliament within six weeks of it reconvening—in this case—January 29 when the Budget Session began. Before a Bill is tabled in Parliament, it needs to be approved by the Union Cabinet. However, in spite of several Cabinet meetings since January, it wasn’t taken up for discussion due to which, the tenure of the body expired, without ever making it to Parliament.

As The Hindu had reported in March, members who were part of the Commission said they were taken aback by the sudden dissolution of the body. The dissolution happened despite the nodal Union Environment Ministry submitting the paper work to the Union Cabinet Secretariat, required to give legal backing to the Commission. The Commission was revived on April 13 after another ordinance was promulgated by the President.

The Centre had said the new organisation would be a ‘permanent’ body to address pollution in the National Capital Region Delhi and address sources of pollution in Delhi, Punjab, Rajasthan, Haryana and Uttar Pradesh. The all-powerful body assumed several powers to coordinate action among States, levy fines—ranging up to ₹1 crore or five years of prison—to address air pollution.

While the Central Pollution Control Board and its State branches have the powers to implement provisions of the Environment Protection Act for air, water and land pollution, in case of dispute or a clash of jurisdictions, the Commission’s writ would prevail specific to matters concerning air pollution.
MPLAD Scheme: Critical Analysis
GS-II | 06 August, 2021

MPLAD Scheme: Critical Analysis

- Virtually half of the belated ₹2,200 crore allotted for completing the ongoing MPLADS projects in 2020-21 simply lapsed, as the Finance Ministry granted “barely a week” to the Ministry of Statistics and Programme Implementation (MoSPI) to release the funds — inviting the ire of the Standing Committee on Finance.
- The resultant funding crunch would have hit several local area development projects under implementation across the country, especially in the five States that went to polls this year as no funds were released for these States and constituencies citing the model code of conduct (MCC).
- Spending under the Members of Parliament Local Area Development Scheme (MPLADS) had already halved before the government suspended the scheme for two years in April last year and diverted the funds for managing the COVID-19 pandemic.
- From ₹5,012 crore spent during 2018-19, an expenditure of just ₹2,491.45 crore was taken up under the scheme in 2019-20.

Unfinished projects

- Each MP is granted ₹5 crore under the scheme, adding up to ₹3,950 crore a year for 790 MPs, to undertake development projects in their respective constituencies. After the scheme’s suspension, several MPs and parliamentary committees, including the Standing Committee on Finance (SCF), had asked the government to release MPLADS funds due from previous years for projects already sanctioned.
- On March 16 this year, an SCF report on the Statistics Ministry’s demands for grants pointed out that many MPLADS projects that began earlier were “left unfinished midway despite the sanction letters being issued and funds for the same were withheld”, citing the suspension of the scheme. The panel had sought the release of funds for these projects so that MPs...
could fulfil their promises to the public.

Condition attached

- The very same day, the Department of Expenditure (DoE) conveyed its intent to allot ₹2,200 crore for such projects to the Statistics Ministry.
- However, the actual allotment of funds by the Department of Economic Affairs (DEA) took place on March 22, with the condition that the funds must be spent or allotted further for eligible projects “within financial year 2020-21 itself, so that the amount is not lapsed”.
- The Statistics Ministry said it cleared eligible proposals received till March 31 noon, amounting to ₹1,107.5 crore, leading to a balance ₹1,092.5 crore lapsing.
- In a fresh report tabled in Parliament on Tuesday, the SCF headed by BJP MP Jayant Sinha sharply criticised this “ad-hocism” and noted: “The Committee are unable to comprehend the reason as to why ₹2,200 crore were allotted to MoSPI barely one week before the end of FY 2020-21... This constitutes a serious lapse in fiscal management with negative consequences for communities across India.”
- “Only those proposals which were not found eligible due to lack of documents and non-fulfilment of eligibility criteria as per MPLADS guidelines, and in those districts where the model code of conduct was under implementation due to Assembly elections in five States/UT and by-elections in some constituencies, the Ministry was not able to release pending instalments,” MoSPI informed the committee.
- The Statistics Ministry said it wrote to the Finance Ministry on April 7 to allot the remaining funds towards MPLADS this year so that the pending instalments as on March 31, 2020 may be released.

‘Tighten norms’

- The Finance Ministry also asked the Statistics Ministry to further tighten the scheme’s guidelines by September this year, so that “if a work sanctioned by an MP is not used for five years, it will automatically lapse even if there is a committed liability for the work to be completed”.
- Currently, funds released to district authorities under MPLADS is not lapsable, while funds not released by the government in a particular year are carried forward.
What is Agroforestry?

- Agroforestry is a collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence.
- In agroforestry systems there are both ecological and economical interactions between the different components.
- Agroforestry can also be defined as a dynamic, ecologically based, natural resource management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels.
- **Agroforestry is currently practiced on 13.5 million hectares in India, but its potential is far greater.** Already an estimated 65 % of the country’s timber and almost half of its fuel wood come from trees grown on farms.

Types of Agroforestry in India

There are three main types of agroforestry systems:
**Agrisilvicultural systems** are a combination of crops and trees, such as alley cropping or homegardens.

**Silvopastoral systems** combine forestry and grazing of domesticated animals on pastures, rangelands or on-farm.

The three elements, namely trees, animals and crops, can be integrated in what are called **agrosylvopastoral systems** and are illustrated by homegardens involving animals as well as scattered trees on croplands used for grazing after harvests.

### National Policy on Agro-Forestry

- Agroforestry is defined as a land use system **which integrate trees and shrubs on farmlands and rural landscapes** to enhance productivity, profitability, diversity and ecosystem sustainability.
- It is a dynamic, ecologically based, natural resource management system that, through integration of woody perennials on farms and in the agricultural landscape, diversifies and sustains production and builds social institutions.
- Major policy initiatives emphasize the role of agroforestry for efficient nutrient cycling, organic matter addition for sustainable agriculture and for improving vegetation cover. These policies include:
  1. National Forest Policy 1988,
  2. the National Agriculture Policy 2000,
  3. Planning Commission Task Force on Greening India 2001,
  5. National Policy on Farmers, 2007 and
  6. Green India Mission 2010

- However, agroforestry has not gained the desired importance as a resource development tool due to various factors.
- **India became the world's first country to adopt a comprehensive agroforestry policy.**

- There would be an investment of US $30 to 40 million attached the new policy.
- The policy is not only seen as crucial to India’s ambitious goal of achieving **33 % tree cover** but also to providing many of the other benefits discussed during the Congress, such as increasing food and nutrition, supplying fodder, fuelwood and timber for India’s growing population.
- The policy promises greater coordination across the wide range of agroforestry programs currently operating in different ministries, such as agriculture, rural development and environment.
- It will be implemented through a **newly established mission or board**
Basic objectives

- Encourage and expand tree plantation in complementarity and integrated manner with crops and livestock to improve productivity, employment, income and livelihoods of rural households, especially the small holder farmers.
- Protect and stabilize ecosystems, and promote resilient cropping and farming systems to minimize the risk during extreme climatic events.
- Meet the raw material requirements of wood based industries and reduce import of wood and wood products to save foreign exchange.
- Supplement the availability of agroforestry products (AFPs), such as the fuel-wood, fodder, non-timber forest produce and small timber of the rural and tribal populations, thereby reducing the pressure on existing forests.
- Complement achieving the target of increasing forest/tree cover to promote ecological stability, especially in the vulnerable regions.
- Develop capacity and strengthen research in agroforestry and create a massive people’s movement for achieving these objectives and to minimize pressure on existing forests.

Strategy

- **Establishment of Institutional Setup at National level to promote Agroforestry**
  
  1. An institutional mechanism, such as a Mission or Board is to be established for implementing the agroforestry policy.
  2. It will provide the platform for the multi-stakeholders to jointly plan and identify the priorities and strategies, for inter-ministerial coordination, programmatic convergence, financial resources mobilization and leveraging, capacity building facilitation, and technical and management support.
  3. The Ministry of Agriculture has the mandate for agroforestry. Agroforestry Mission / Board will be located in the Department of Agriculture and Cooperation (DAC) in the Ministry of Agriculture (MoA).
  4. The actual implementation may involve convergence and dovetailing with a number of programmes.
  5. Agroforestry research and development (R&D), including capacity development and pilot studies / testing and action research should be the responsibility of the ICAR

- **Simple regulatory mechanism** - There is a need to create simple mechanisms / procedures to regulate the harvesting and transit of
agroforestry produce within the State, as well as in various States forming an ecological region. There is also the need to simplify procedures, with permissions extended on automatic route as well as approval mode through a transparent system within a given time schedule.

- Development of a sound database & information system
- Investing in research, extension and capacity building and related services
- Improving farmers’ access to quality planting material
- Providing institutional credit and insurance cover for agroforestry
- Facilitating increased participation of industries dealing with agroforestry produce
- Strengthening farmer access to markets for tree products.
- Incentives to farmers for adopting agroforestry
- Promoting sustainable agroforestry for renewable biomass based energy

Benefits of National Agro Forestry Policy

- Agroforestry is crucial to smallholder farmers and other rural people because it can enhance their food supply, income and health.
- Agroforestry systems are multifunctional systems that can provide a wide range of economic, sociocultural, and environmental benefits.
- Agroforestry produces food, fuel and fiber, contributes to nutritional security, sustains livelihoods, helps prevent deforestation, increases biodiversity, protects water resources and reduces erosion.
- Agroforestry is also viewed as a means to reduce rural unemployment, with timber production on farms currently generating 450 employment-days per hectare per year in India.
- The climate change mitigation and adaptation benefits of agroforestry are also a significant driving force behind the policy.
- As land-holding size is shrinking, combining tree farming with agriculture is the only way to optimize farm productivity.
- Over 80 per cent farmers in India are small land-holders, owning less than two hectares or less and 60 per cent of the cultivated area; they rely on rains for irrigation. These rainfed farms are under stress because of absence of assured irrigation and low biodiversity. Agroforestry is seen as a solution for them to meet the challenges of food, nutrition, energy, employment and environment security.

Submission on Agro Forestry

- To tap the potential of agroforestry, Department of Agriculture & Farmers
Welfare is implementing the Sub-Mission on Agroforestry (SMAF) Scheme since 2016-17. 

- There is a provision of **financial assistance to farmers** under the Scheme for plantation activities along with **development of various types of nurseries** for producing quality planting materials like seeds, seedlings, clones, improved varieties to meet the requirement of quality planting materials/seeds for the farmers.
- **Capacity building and training** is also one of the important interventions of the scheme to support the agroforestry sector.
- To increase market linkages and access and to promote consumption of agroforestry goods, the scheme is implemented in those States which have relaxed felling and transit regulations for important agroforestry species.
- Further, initiatives have been taken for **formation of 15 Farmer Producers Organization (FPOs)** in the Agroforestry Sector to link the farmers with market and industry in an organized manner.
- The Scheme promotes the plantation of trees only for land holding farmers.
- Upto 5% of allocated funds is utilized for capacity building and training activities like training of farmers/field workers, skill development, awareness campaign, publications, seminars/workshops, conference etc. to raise awareness of the scheme among the farmers.

Source: PIB

Agriculture Export Policy, 2018
GS-III | 07 August, 2021

- India, with a large and diverse agriculture, is among the **world’s leading producer of cereals, milk, sugar, fruits and vegetables, spices, eggs and seafood products**.
- Indian agriculture continues to be the backbone of our society and it **provides livelihood to nearly 50% of our population**.
- India is supporting 17.84 per cent of world’s population, 15% of livestock population with **merely 2.4 per cent of world’s land and 4 per cent water resources**.
- Hence, continuous innovation and efforts towards productivity, pre & post-harvest management, processing and value-addition, use of technology and
infrastructure creation is an imperative for Indian agriculture.
- Various studies on fresh fruits and vegetables, fisheries in India have indicated a loss percentage ranging from about 8% to 18% on account of poor post-harvest management, absence of cold chain and processing facilities.
- Therefore, agro processing and agricultural exports are a key area and it is a matter of satisfaction that India’s role in global export of agricultural products is steadily increasing.
- **India is currently ranked tenth amongst the major exporters globally as per WTO trade data for 2016.**
- India’s share in global exports of agriculture products has increased from 1% a few years ago, to 2.2% in 2016.

**Vision and objectives**

The Agriculture Export Policy is framed with a focus on

- Agriculture export oriented production,
- Export promotion,
- Better farmer realization and
- Synchronization within policies and programmes of Government of India.

**Vision**

- Harness export potential of Indian agriculture, through suitable policy instruments, to **make India global power in agriculture and raise farmers income.**

**Objectives**

- To double agricultural exports from present ~US$ 30+ Billion to ~US$ 60+ Billion by 2022 and reach US$ 100 Billion in the next few years thereafter, with a stable trade policy regime.
- To **diversify our export basket, destinations** and boost high value and value added agricultural exports including focus on perishables.
- To promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports.
- To provide an **institutional mechanism** for pursuing market access, tackling barriers and deal with sanitary and phytosanitary issues.
- To strive to **double India’s share in world agriculture exports** by integrating with global value chain at the earliest.
- Enable farmers to get benefit of export opportunities in overseas market.

**Policy recommendations**
The policy recommendations in this report are organized in two broad categories - strategic and operational.

**Strategic**

- **Policy Measures** - Discussions with public and private stakeholders across the agricultural value chain highlighted certain structural changes that were required to boost agricultural exports. These comprise of both general and commodity specific measures that may be urgently taken and at little to no financial cost. The subsequent gains, however, are aplenty.

- **Infrastructure and logistics** - Presence of robust infrastructure is critical component of a strong agricultural value chain. This involves pre-harvest and post-harvest handling facilities, storage & distribution, processing facilities, roads and world class exit point infrastructure at ports facilitating swift trade. Mega Food Parks, state-of-the-art testing laboratories and Integrated Cold Chains are the fundamentals on which India can increase its agricultural exports. Given the perishable nature and stringent import standards for most of the food products, efficient and time-sensitive handling is extremely vital to agricultural commodities.

- **Holistic approach to boost exports** - Agricultural exports are determined by supply side factors, food security, processing facilities, infrastructure bottlenecks and several regulations. This involves multiple ministries and state departments. Strategic and operational synergy across ministries will be key to boosting productivity and quality.

- **Greater involvement of State Governments in Agriculture Exports**

**Operational Recommendations**

- **Focus on Clusters** : There is a need to evolve and put in place institutional mechanism for effective involvement and engagement of small and medium farmers for entire value chain as group enterprise(s) within cluster of villages at the block level for select produce(s). This will help to realize actual benefit and empowerment of farming community to double their income through entire value chain.

- **Promoting value added exports**

1. Product development for indigenous commodities and value addition
2. Promote value added organic exports
3. Promotion of R&D activities for new product Development for the upcoming markets
4. Skill development
• Marketing and promotion of “Brand India”
• Attract private investments in export oriented activities and infrastructure.
• Establishment of Strong Quality Regimen
• Research and Development - Agricultural research and development (R&D) led by private industry along with higher infrastructure spend by the government will be the key to boosting agricultural exports.
• Miscellaneous - Creation of Agri-start-up fund: Entrepreneurs are to be supported to start a new venture in Agri products exports during their initial period of establishment.

Source: PIB

National Innovations in Climate Resilient Agriculture


The project aims at strategic research on adaptation and mitigation, demonstration of technologies on farmers’ fields and creating awareness among farmers and other stakeholders to minimize the climatic change impacts on agriculture.

In the strategic research, the main thrust areas covered are

1. Identifying most vulnerable districts/regions,
2. Evolving crop varieties and management practices for adaptation and mitigation,
3. Assessing climate change impacts on livestock, fisheries and poultry and identifying adaptation strategies.

So far, 7 climate resilient varieties and 650 district agricultural contingency plans have been developed besides assessing the risk and vulnerability of Indian agriculture to climate change.

Under technology demonstrations, location specific technologies have been demonstrated in 151 climatically vulnerable districts.

In the past nine years, 16,958 training programs have been conducted throughout the country under NICRA project to educate stakeholders on
various aspects of climate change and resilient technologies, covering 5,14,816 stakeholders so as to enable wider adoption of climate resilient technologies and increase in yields.

- State-of-the-art infrastructure facilities have been established by ICAR in the National Agricultural Research and Education System (NARES) across the country to facilitate the climate change research. Unique infrastructure facilities viz. High Throughput Plant Phenomics, Free Air Temperature Enrichment facility (FATE), Free Air CO2 Enrichment facility (FACE), CO2 Temperature Gradient Chambers (CTGC), Gas chromatography, Atomic absorption spectrophotometers, Environmental growth chamber, UV-VIS spectrophotometer, Thermal imaging system, Psychrometric chambers etc. have been established at various ICAR institutes to facilitate the climate change research.
- The construction and operation of psychometric chambers have been undertaken for studying the effect of different environmental conditions viz., temperature, humidity, and air movement on livestock, with special reference to cattle and buffaloes, environmental growth chambers with CO2 and temperature controls and special calorimetric system to study livestock response to heat stress.
- Custom hiring centers (CHCs) have been established in 121 NICRA villages to ensure availability of farm implements for timely operations.

Source: PIB

Rural Healthcare Services
GS-III | 07 August, 2021

- NHM support is also provided for provision of a range of free services related to maternal health, child health, adolescent health, family planning, universal immunisation programme, and for major diseases such as Tuberculosis, vector borne diseases like Malaria, Dengue and Kala Azar, Leprosy etc.
- Other major initiatives supported under NHM include Janani Shishu Suraksha Karyakram (JSSK) (under which free drugs, free diagnostics, free blood and diet, free transport from home to institution, between facilities in case of a referral and drop back home is provided), Rashtriya Bal Swasthya Karyakram (RBSK) (which provides newborn and
child health screening and early interventions services free of cost for birth defects, diseases, deficiencies and developmental delays to improve the quality of survival), implementation of Free Drugs and Free Diagnostics Service Initiatives, **PM National Dialysis Programme** and implementation of National Quality Assurance Framework in all public health facilities including in rural areas.

- Mobile Medical Units (MMUs) & Tele-consultation services are also being implemented to improve access to healthcare particularly in rural areas.
- As part of Ayushman Bharat, the Government is supporting the States for transformation of Sub Health Centres and Primary Health Centres into **1.5 lakh Health and Wellness** Centres across the country by December, 2022 for provision of **Comprehensive Primary Health Care (CPHC)** that includes preventive healthcare and health promotion at the community level with continuum of care approach. Under this programme, CPHC services of an expanded range of services, that are universal and free to users, with a focus on wellness, are provided, closer to the community. Further Ayushman Bharat, Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) provides health coverage up to Rs 5 Lakh per family per year to around 10.74 crore poor and vulnerable families as per Socio Economic Caste Census (SECC).
- Financial support is also provided to States for providing hard area allowance, performance-based incentives, providing accommodation and transport facilities in rural and remote areas including tribal areas, sponsoring training programmes, etc to engaged human resources to address the issue of shortage of doctors and specialists in the public health facilities.
- In the 15 years of implementation, the NHM has enabled achievement of the Millennium Development Goals (MDGs) for health. It has also led to significant improvements in maternal, new-born, and child health indicators, particularly for maternal mortality ratio, infant and under five mortality rates, wherein the rates of decline in India are much higher than the global averages and these declines have accelerated during the period of implementation of NHM.

**Report of NITI Aayog (March 2021), collated the three Studies done on the aspects of Governance, Human Resources, Financing and Health outcomes and the key findings of the Report are as follows:**

- There has been significant improvement in the infrastructure facilities during NHM period with an increase in number of beds in the government hospitals as well in the community health centers (CHCs) from 0.44 in 2005 to 0.7 in
The focus on infrastructure improvement resulted in construction of more than 46,000 health facilities, with a significant increase in the total number of first referral units (FRUs) (940 in 2005 to 3057 in 2019).

The number of doctors, nurses in PHCs and CHCs also increased during the NHM periods. An additional 200,000 healthcare providers (from auxiliary nurse-midwives (ANMs) to specialists’ doctors) and 850,000 village level ASHA in rural areas were recruited during the NHM period.

There is strong evidence to show that increased infrastructure and increased human resources has had a positive effect on improving the availability, affordability and accessibility of maternal and child services, leading to improved antenatal and postnatal care and improved maternal and child outcomes.

Maternal and child indicators such as the IMR, NMR and MMR have shown a marked improvement in the NHM period. There has been a remarkable decline in under five mortality rate (U5MR) from 78 to 37 per thousand live births from 2005 to 2019.

The infant mortality rate (IMR) declined from 58 per 1000 live births to 32 per 1000 live births during 2013-18.

The neonatal mortality reduced from 38 per thousand live births to 22 per thousand live births, with a percentage decline of 42.1% from 2005 to 2019. Maternal mortality ratio (MMR) declined by 52%, from 257 per lakh live births in 2004-06 to 122 per lakh live births, in 2015-17.

Improvements in maternal and child indicators can be attributed to better implementation of facility based newborn care including sick newborn care units (SNCUs), evidenced from systematic review.

Various studies showed that Janani Suraksha Yojana (JSY) strategy had a strong evidence in promoting institutional delivery and reducing perinatal mortality. JSSK had a role in providing free diagnostics by improving the affordability.

There is strong evidence that shows that child health strategies such as Facility Based Newborn Care (FBNC), Home Based Post Natal Care (HBPN), Integrated Management of Neonatal and Childhood Illness (IMNCI) and immunization improved the availability, affordability and accessibility of child health services especially for the rural and poor community.

There has been steady decline in out-of-pocket expenditure for under five child hospitalization, institutional deliveries and catastrophic hospitalizations as per consecutive rounds of NSS surveys. Multiple schemes launched by
The government like free transport, free diagnostics, free dialysis, and free drug / Jan Aushadhi Kendras are initiatives that have contributed to reducing OOPE.

Source: PIB

SANKALP Scheme
GS-III | 07 August, 2021

SANKALP Scheme

- **Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) Scheme** is a World Bank loan assisted programme of the Ministry of Skill Development and Entrepreneurship (MSDE) with three key Result Areas (RA), namely
  - Institutional Strengthening at Central, State, and District level;
  - Quality Assurance of skill development programmes; and
  - Inclusion of marginalized population in skill development programmes.
- The implementation period of SANKALP is till March, 2023.

The positive outcome so far is seen in the following areas:

- Strengthening of the District Skill Committees leading to demand-driven approach for the implementation of the Pradhan Mantri Kaushal Vikas Yojana (PMKVY).
- District-level skill planning through District Skill Development Plans.
- Focus on improving access to skill training for Women, SC/ST and other marginalized weaker sections of the society.

The institutions strengthened so far under SANKALP are as under:

- State Skill Development Missions through State Incentive Grants.
- District Skill Committees through Mahatma Gandhi National Fellowship (MGNF) program and capacity building training.
- Gram Panchayats by bringing skill training and certification within their ambit.
- Sector Skill Councils by linking them up with opportunities for industry-skilled manpower connection in districts.
- National Skill Development Corporation (NSDC) being an important...
implementing partner of pilot projects.
• National Instructional Media Institute (NIMI) by augmenting resources through their management of the MGNF Program.
• SANKALP is a supporting programme to skill training schemes which focuses inter-alia on improvement of quality, strengthening of institutions and inclusion of weaker sections in skill training.

SANKALP has undertaken several initiatives to contribute to improvement in employability, some of which are as under:

• Strengthening of District Skill Committees for improved access to and demand driven skill trainings for employment.
• Emphasis on skill certification in Recognition of Prior Learning (RPL) at Gram Panchayat level for improving employment qualitatively.
• Funded development of an IT system namely “Skill India Portal” to capture the data for skilling related activities across the country.
• Global Skill Gap study was conducted to identify the global gaps in demand and supply of skilled manpower as well as overseas employment opportunities for skilled workers from India. The Report helped in identifying important countries of interest as destination and job roles of interest.
• Released Rs. 273.49 Crore as State Incentive Grants to 30 States/ UTs and Rs. 13.91 Crore to aspirational districts for implementation of SANKALP Scheme in the States/UTs.
• Improving quality of trainers in Auto sector in collaboration with Automotive Skill Development Council (ASDC), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Maharashtra State Skill Development Society (MSSDS) at Aurangabad, Maharashtra.
• A Gender Action Plan (GAP) has been prepared for promoting inclusion of women in Short term skilling and livelihood opportunities.

Source: PIB

Colombo Security Conclave among India, Sri Lanka and Maldives
GS-II | 07 August, 2021
India, Sri Lanka and the Maldives have agreed to work on “four pillars” of security cooperation, covering areas of marine security, human trafficking, counter-terrorism, and cyber security, in a recent virtual meeting of top security officials of the three countries.

The discussion comes nine months after National Security Adviser Ajit Doval visited Colombo for deliberations with Secretary to Sri Lanka’s Ministry of Defence, Kamal Gunaratne, and Defence Minister of Maldives, Mariya Didi, in which the three countries agreed to expand the scope of intelligence sharing.

Their meeting marked the revival of NSA-level trilateral talks on maritime security in the Indian Ocean Region after a gap of six years.

Following up on that, the Deputy NSA-level meeting this week identified “four pillars” of cooperation in Marine Safety and Security, Terrorism and Radicalisation, Trafficking and Organised Crime, and Cyber security.

The ‘Colombo Security Conclave’ among the three neighbouring countries seeks to “further promote” maritime security in the Indian Ocean Region, and was initiated by President Gotabaya Rajapaksa in 2011, when he was Secretary to the Ministry of Defence, according to a media release from the Sri Lankan Army.

The initiative, grounded in military and security collaboration, assumes significance in the region, in the wake of the current geostrategic dynamic that India shares with Sri Lanka and the Maldives. Earlier this year, India aired security concerns over China being awarded development projects in an island off Sri Lanka’s northern province, close to India’s southern border.

On the other hand, the Maldives’s engagement with members of the India-United States-Japan-Australia grouping, known as the ‘Quad', has been growing over the last year, especially in the area of defence cooperation. The Ibrahim Mohamed Solih government signed a ‘Framework for a Defence and Security Relationship’ agreement with the United States last year, an initiative that India welcomed.

In November 2020, the Maldives received a Japanese grant of $7.6 million for the Maldivian Coast Guard and a Maritime Rescue and Coordination Center. Meanwhile, Male’s foreign policy choices are increasingly being challenged by sections, mostly opposition groups, wary of “Indian boots on the ground”.

Source: TH
First watch this lecture by Ankit Sir on Plastic pollution in India and then read this news, your retention level will increase exponentially.

- Unregulated inflow of relief to the Sunderbans has resulted in a new crisis in the cyclone-battered region: plastic waste. Several NGOs, experts, and even officials of the District Police and the Forest Department have pointed out that the plastic accumulating on the isolated islands of the fragile ecosystem are cause for great concern.
- Ecologist Diya Banerjee has been pointing out the issue from as early as June, days after Cyclone Yaas inundated large parts of the Sunderbans in the last week of May 2021.
- What we are seeing is tonnes of plastic in the remote areas of the Sunderbans, like Gosaba, Mousuni, Bali, Patharpratima and Kultali.
- People residing in these areas are not responsible in any way for the huge plastic waste; it is outsiders who are introducing and bringing a large quantity of plastics, completely oblivious and ignorant to its long-term impact on the region.
- She added that a local NGO Mahajibon had recovered about 300 kg of plastic waste from the Gosaba block days after Cyclone Yaas.
- While it is difficult to estimate the total amount of plastic waste that is arriving in about 50 inhabited islands of the Sunderbans spread across thousands of square kilometres, Sourav Mukherjee of the Kolkata Society for Cultural Heritage has estimated about 56 tonnes of plastic in the Gosaba block alone.
- Not only conservationists, even police officers have raised concerns over the huge dumping of plastic waste. The police officer urged locals and NGOs to organise cleanliness drives to remove plastic from the Sunderbans.
- Plastics would have a long-term ecological impact on the Sunderbans ecosystem.
- The presence of plastic in saline water will increase the toxicity of water gradually and also there will be eutrophication of water. Because of the presence of plastics in the water, there will be an increase in microplastics, which will slowly enter the food system.
- Sunderbans were connected to the sea and the increase of plastic in the region could lead to plastic waste entering the ocean.

For a complete note on Plastic waste management in India: click here
Pensilungpa glacier of Zanskar valley is retreating

GS-III | 08 August, 2021

The Pensilungpa Glacier located in Ladakh’s Zanskar Valley is retreating due to increase in temperature and decrease in precipitation during winters, a recent study has found.

Since 2015, the Wadia Institute of Himalayan Geology (WIHG) at
Dehradun, an autonomous body under the Department of Science and Technology, has been working on various aspects on glaciology – glacier health (mass balance) monitoring, dynamics, discharge, past climatic conditions, speculation for future climate change and its impact on glaciers in this region.

- A team of scientists from the institute ventured to study the less explored region of the Himalayas at Zanskar in Ladakh.
- Based on field observations for glacier mass balance collected via stake networking... over the glacier surface since 2016-2019, they assessed the impact of climate change through the lens of past and present response of the Pensilungpa Glacier, Zanskar Himalaya, Ladakh.
- **In stake networking, stake made of bamboo, is installed on the glacier surface using the steam drill for mass balance measurement.**
- The study also said that field observations for four years (2015–2019) showed that the glacier is now retreating at an average rate of 6.7 plus/minus 3 metre per annum.
- In the study published in the journal Regional Environmental Change, the team attributes the observed recessional trends of the Pensilungpa Glacier to an increase in the temperature and decrease in precipitation during winters.
- The study also points at the **significant influence of debris cover on the mass balance and retreat of the glacier’s endpoint**, especially in summer.
- Furthermore, the mass balance data for the three years (2016–2019) showed a negative trend with a small accumulation area ratio.
- The study also suggests that due to continuous rise in the air temperature in line with the global trend, the melting would increase, and it is possible that the precipitation of summer periods at higher altitudes will change from snow to rain, and that may influence the summer and winter pattern.

Source: TH
In India, the poor have limited access to cooking gas (LPG). The spread of LPG cylinders has been predominantly in the urban and semi-urban areas with the coverage mostly in middle class and affluent households. But there are serious health hazards associated with cooking based on fossil fuels.

According to WHO estimates, about 5 lakh deaths in India alone due to unclean cooking fuels. Most of these premature deaths were due to non-communicable diseases such as heart disease, stroke, chronic obstructive pulmonary disease and lung cancer.

Indoor air pollution is also responsible for a significant number of acute respiratory illnesses in young children.

### Significance of PM Ujjwala Yojana

- According to experts, having an open fire in the kitchen is like burning 400 cigarettes an hour.
- Providing LPG connections to BPL households will ensure universal coverage of cooking gas in the country.
- This measure will empower women and protect their health.
- It will reduce drudgery and the time spent on cooking.
- It will also provide employment for rural youth in the supply chain of cooking gas.

### Target beneficiaries

- Under the scheme, an adult woman belonging to a poor family not having LPG connection in her household, is an eligible beneficiary under the expanded scheme.
- Release of LPG connection under this Scheme shall be in the name of the women belonging to the BPL family.

Initially, the Government covered the following categories under the Scheme

- Beneficiaries listed in the SECC 2011 list
- All SC/STs households beneficiaries of Pradhan Mantri Awas Yojana(PMAY) (Gramin)
- Antyoday Anna Yojana (AAY)
- Forest dwellers
- Most Backward Classes (MBC)
- Tea & Ex-Tea Garden Tribes
Benefits to Citizens

- Under the scheme, **five crore LPG connections** are to be provided to BPL households.
- The Scheme provides a **financial support of Rs 1600 for each LPG connection** to the BPL households, **interest free loan** to purchase stove and refill by Oil Marketing Companies.
- The administrative cost of Rs. 1600 per connection, which includes a cylinder, pressure regulator, booklet, safety hose, etc. would be borne by the Government.

Pradhan Mantri Garib Kalyan Yojana scheme for the PMUY beneficiaries

- As part of Pradhan Mantri Garib Kalyan Yojana scheme for the PMUY beneficiaries to enable them to combat COVID 19 crisis, availability of up to 3 refills for 14.2 kg cylinders and advance Retail Selling Price being transferred by OMCs to the PMUY customer's bank account, which can be withdrawn to obtain the refill from the distributor has been announced. The scheme is valid until 30 September 2020.

PM to launch Ujjwala 2.0

- During **Ujjwala 1.0** launched in 2016, a target was set to **provide LPG connections to 5 crore women members of BPL households.**
- Subsequently, the **scheme was expanded in April 2018 to include** women beneficiaries from seven more categories (SC/ST, PMAY, AAY, Most backward classes, tea garden, forest dwellers, Islands).
- Also, the target was revised to **8 Crore LPG connections.** This target was achieved in August 2019, seven months ahead of the target date.
- In the Union budget for **FY 21-22**, provision for an **additional one crore LPG connection** under the PMUY scheme was announced. These one crore additional PMUY connections (under Ujjwala 2.0) aim to provide deposit-free LPG connections to those **low-income families who could not be covered under the earlier phase of PMUY.**
- Along with a deposit free LPG connection, Ujjwala 2.0 will provide first refill and hotplate free of cost to the beneficiaries. Also, the enrollment procedure will require minimum paperwork.
• In Ujjwala 2.0, migrants will not be required to submit ration cards or address proof. A self-declaration for both ‘family declaration’ and as a ‘proof of address’ will suffice. Ujjwala 2.0 will help achieve the Prime Minister’s vision of universal access to LPG.

Source: PIB

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National Legal Services Authority
GS-II | 09 August, 2021

• The National Legal Services Authority (NALSA) has been constituted under the Legal Services Authorities Act, 1987 to provide free Legal Services to the weaker sections of the society and to organize Lok Adalats for amicable settlement of disputes. NALSA is located at New Delhi. Hon’ble Mr. Justice N. V. Ramana, The Chief Justice of India is the Patron-in-Chief.
• In every State, State Legal Services Authority has been constituted to give effect to the policies and directions of the NALSA and to give free legal services to the people and conduct Lok Adalats in the State. The State Legal Services Authority is headed by Hon’ble the Chief Justice of the respective High Court who is the Patron-in-Chief of the State Legal Services Authority.
• In every District, District Legal Services Authority has been constituted to implement Legal Services Programmes in the District. The District Legal Services Authority is situated in the District Courts Complex in every District and chaired by the District Judge of the respective district.
• Free legal services entail the provision of free legal aid in civil and criminal matters for those poor and marginalized people who cannot afford the services of a lawyer for the conduct of a case or a legal proceeding in any court, tribunal or before an authority.

Provision of free legal aid may include:

• Payment of court fee, process fees and all other charges payable or incurred in connection with any legal proceedings;
• Providing Advocate in a legal proceedings;


- Obtaining and supply of certified copies of orders and other documents in legal proceedings.
- Preparation of appeal, paper book including printing and translation of documents in legal proceedings.
- Rendering of any service in the conduct of any case or other legal proceeding before any court or other Authority or tribunal.
- Giving of advice on any legal matter.

**Eligible persons for getting free legal services**

The sections of the society as enlisted under Section 12 of the Legal Services Authorities Act are entitled for free legal services, they are:

- Women and children
- Members of SC/ST
- **Industrial workmen**
- **A victim of trafficking** in human beings or beggar as referred to in Article 23 of the Constitution
- **Victims of mass disaster, violence, flood, drought, earthquake, industrial disaster.**
- A mentally ill or otherwise disabled person
- Person in custody, including custody in a protective home within the meaning of clause (g) of Section 2 of the Immoral Traffic (Prevention) Act, 1956(104 of 1956); or in a juvenile home within the meaning of clause(j) of Section 2 of the Juvenile Justice Act, 1986 (53 of 1986); or in a psychiatric hospital or psychiatric nursing home within the meaning of clause (g) of Section 2 of the Mental Health Act, 1987(14 of 1987); or
- Persons whose annual income is less than Rs 9,000 or such other higher amount as may be prescribed by the State Government, if the case is before a court other than the Supreme Court, and less than Rs 12,000 or such other higher amount as may be prescribed by the Central Government, if the case is before the Supreme Court.

**Free Legal Services can be availed from:**

- Supreme Court Legal Services Committee, 109, Lawyers Chambers, Supreme Court of India, New Delhi for Supreme Court Cases.
- State Legal Services Authority
- High Court Legal Services Committee situated at High Court Complex in every High Court for High Court cases.
- District Legal Services Authority situated in the District Courts Complex in every District.
Maritime Security open debate at UNSC
GS-II | 09 August, 2021

- Prime Minister Shri Narendra Modi will chair the High-level Open Debate on ‘Enhancing Maritime Security – A Case for International Cooperation’ on 9th August. Shri Narendra Modi, would be the first Indian Prime Minister to preside over a UN Security Council Open Debate.
- The meeting is expected to be attended by several Heads of State & Government of member states of the United Nations Security Council, and highlevel briefers from the UN System and key Regional Organizations. The Open Debate will focus on ways to effectively counter maritime crime and insecurity and strengthened coordination in the maritime domain.
- The UN Security Council has discussed and passed resolutions on different aspects of maritime security and maritime crime. However, this will be the first time that maritime security will be discussed in a holistic manner as an exclusive agenda item in such a high level open debate. Given that no country alone can address the diverse aspects of maritime security, it is important to consider this subject in a holistic manner in the United Nations Security Council.
- A comprehensive approach to Maritime Security should protect and support legitimate maritime activities, while countering traditional and non-traditional threats in the maritime domain.
- The Oceans have played an important part in India’s history right from the time of the Indus Valley Civilization.
- Based on our civilizational ethos that sees the seas as an enabler of shared peace and prosperity, Prime Minister Shri Narendra Modi put forward the vision of SAGAR - an acronym for ‘Security and Growth for all in the Region’ in 2015.
- This vision focuses on cooperative measures for sustainable use of the oceans, and provides a framework for a safe, secure, and stable maritime domain in the region.
- In 2019, at the East Asia Summit, this initiative was further elaborated
through the **Indo-Pacific Oceans’ Initiative (IPOI)** with a focus on seven pillars of maritime security including

1. Maritime Ecology;
2. Maritime Resources;
3. Capacity Building and Resource Sharing;
4. Disaster Risk Reduction and Management;
5. Science, Technology and Academic Cooperation;
6. Trade Connectivity and

- The participation of world leaders in the session is part of the broader global message about the consensus over India providing leadership of the UNSC as the world deals with conflicts in Afghanistan, Myanmar and Yemen among others.

### Indo-Pacific Oceans Initiative (IPOI)

- The Indo-Pacific Oceans Initiative (IPOI) was first suggested by Prime Minister Narendra Modi during the **14th East Asian Summit**.
- It is also part of the SAGAR mission to expand and facilitate regional cooperation of India’s maritime neighbours.
- The Indo-Pacific Oceans Initiative’s objective is to strengthen maritime boundaries. To this end partnerships based on the principle of free trade and sustainable use of maritime resources is stressed upon.
- A partnership between ‘like-minded’ nations is the core principle of the IPOI. Such partnerships should have three common goals in the Indian Ocean Region (IOR) which are **wealth creation, welfare promotion, and cooperative win-win strategies**.
- The proverbial cog in such mutual cooperation is to promote welfare via a democratic model of governance win by creating a rules-based order that promotes free trade and work together in order to create wealth.

### Kashmir issue at UNSC

- The current stint is the eighth time that India has held the Presidency of the top U.N. body.
Yet out of all the tenures, it is the first in 1950-51 that left lasting lessons about how difficult international affairs can be at the level of the chair of the President.

It was in 1950-51 that the issue of Kashmir took a critical turn at the Security Council which took the Indian delegation by surprise.

India was still struggling with the initial phase of freedom and the Kashmir issue had opened up almost immediately with the war of 1947-48. The issue arrived at the UN on January 1, 1948 as India urged the UNSC to discuss the battle that began with the invasion of tribal irregulars from Pakistan.

The Indian submission marked the origin of the “Jammu and Kashmir Question”. The title of the dispute was changed on January 22, 1948 to “The India-Pakistan Question”.

The period from 1948 to 1951 was heated as far as the Kashmir issue was concerned as there was little flexibility on display by either India or Pakistan as the UN involvement through the first UN Representative Owen Dixon failed to resolve the situation.

In this backdrop, on March 30, 1951, the UNSC took up an Anglo-American resolution on Kashmir and laid out a process of continuation that would give the Kashmir issue a long shelf life at the UNSC where it was formally taken up last time in 1971 before the August 2019 discussion on the issue by China in the backdrop of India’s abrogation of Article 370 by the government of Prime Minister Modi.

What was particularly embarrassing about the 1951 resolution was that the Kashmir issue concerned the President of the UNSC — India — and yet neither the U.S. nor the U.K. hesitated from going ahead with it.

The Resolution 91 decided to replace the United Nations Commission for India and Pakistan (UNCIP) with UNMOGIP (UN Military Observer Group in India and Pakistan).

It also decided to appoint a UN Representative for India and Pakistan in continuation of the role of Sir Owen Dixon.

The second decision almost institutionalised the Kashmir issue in the U.N.

Source: TH
University Grants Commission (UGC) is implementing schemes, awards, fellowships, chairs and programmes under which financial assistance is provided to institutions of higher education as well as faculty members working in North Eastern States to undertake quality research covering areas of knowledge across disciplines. Some of the initiatives taken for improving quality of higher education are

- Choice Based Credit System (CBCS);
- Universities with Potential for Excellence;
- Centre with Potential for Excellence in particular area;
- Consortium for Academic Research and Ethics (CARE);
- Basic Science Research
- Scheme for Trans-disciplinary Research for India’s Developing Economy (STRIDE)
- Deen Dayal Upadhyaya (DDU) Kaushal Kendras
- Scholarship Scheme (ISHAN UDAY) for North-Eastern Region;
- New Methodology of Grading by NAAC
- UGC (Minimum Standards and Procedure for award of M.Phil/Ph.D Degree) Regulations, 2016;
- UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016.

All India Council of Technical Education (AICTE) has taken several steps over the years for framing appropriate policies on technical education needed to design and implement various schemes for educational advancement and achieving the objective of creating favorable environment to ensure speedy socio-economic development in North East States. This includes equipping all necessary infrastructure upgradation of colleges, special coaching, educational concessions, better teaching learning material and infrastructure for North East region students. Some of the Schemes are

- Research Promotion Scheme for North East Region;
- Short Term Training Programme for NER;
- Faculty Development Programme for NER;
- Scheme of Funds for Regeneration of Traditional Industries (SFURTI);
- Post Graduate Scholarship Scheme;
- Doctoral Fellowship;
- Pragati Scholarship Scheme;
Saksham Scholarship Scheme;
Campus Accommodation & Facilities Enhancing Social Experience;
Grant for Augmenting Infrastructure in NER;
Scheme for Promoting Interests, Creativity and Ethics among Students;
Grant for Organizing Conference;
Establishment of Idea Development, Evaluation & Application Laboratory in Institutions; and
E-Shodh Sindhu (Subscription to e-Journals).

Source: PIB

National Biofuel Policy, 2018
GS-III | 10 August, 2021

About Ethanol:

- About 5% of the ethanol produced in the world in 2003 was actually a petroleum product.
- It is made by the catalytic hydration of ethylene with sulfuric acid as the catalyst.
- It can also be obtained via ethylene or acetylene, from calcium carbide, coal, oil gas, and other sources.
- **Bio-ethanol** is usually obtained from the conversion of carbon-based feedstock. Agricultural feedstocks are considered renewable because they get energy from the sun using photosynthesis, provided that all minerals required for growth (such as nitrogen and phosphorus) are returned to the land.
- Ethanol can be produced from a variety of feedstocks such as sugar cane, bagasse, miscanthus, sugar beet, sorghum, grain, switchgrass, barley, hemp, kenaf, potatoes, sweetpotatoes, cassava, sunflower, fruit, molasses, corn, stover, grain, wheat, straw, cotton, other biomass, as well as many types of cellulose waste and harvesting, whichever has the best well-to-wheel assessment.
- An alternative process to produce bio-ethanol from algae is being developed by the company Algenol.

National Policy on Biofuels-2018
The National Policy on Biofuels-2018 approved by the Government envisages an indicative target of 20% blending of ethanol in petrol and 5% blending of bio-diesel in diesel by 2030.

**National Policy on biofuels- salient features:**

- **Categorization**: The Policy categorises biofuels as “Basic Biofuels” viz. First Generation (1G) bioethanol & biodiesel and “Advanced Biofuels” – Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.

- **Scope of raw materials**: The Policy expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.

- **Protection to farmers**: Farmers are at a risk of not getting appropriate price for their produce during the surplus production phase. Taking this into account, the Policy allows use of surplus food grains for production of ethanol for blending with petrol with the approval of National Biofuel Coordination Committee.

- **Viability gap funding**: With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.

- **Boost to biodiesel production**: The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.

**Expected benefits:**

- **Import dependency**: The policy aims at reducing import dependency.

- **Cleaner environment**: By reducing crop burning & conversion of agricultural residues/wastes to biofuels there will be further reduction in Green House Gas emissions.

- **Health benefits**: Prolonged reuse of Cooking Oil for preparing food, particularly in deep-frying is a potential health hazard and can lead to many diseases. Used Cooking Oil is a potential feedstock for biodiesel and its use
for making biodiesel will prevent diversion of used cooking oil in the food industry.

- **Employment Generation**: One 100klpd 2G bio refinery can contribute 1200 jobs in Plant Operations, Village Level Entrepreneurs and Supply Chain Management.
- **Additional Income to Farmers**: By adopting 2G technologies, agricultural residues/waste which otherwise are burnt by the farmers can be converted to ethanol and can fetch a price for these waste if a market is developed for the same.

**Significance of Biofuels:**

- Globally, biofuels have caught the attention in last decade and it is imperative to keep up with the pace of developments in the field of biofuels.
- Biofuels in India are of strategic importance as it augers well with the ongoing initiatives of the Government such as Make in India, Swachh Bharat Abhiyan, Skill Development and offers great opportunity to integrate with the ambitious targets of doubling of Farmers Income, Import Reduction, Employment Generation, Waste to Wealth Creation.

**Classification of Biofuels:**

- **1st generation biofuels** are also called conventional biofuels. They are made from things like sugar, starch, or vegetable oil. Note that these are all food products. Any biofuel made from a feedstock that can also be consumed as a human food is considered a first generation biofuel.
- **2nd generation biofuels** are produced from sustainable feedstock. The sustainability of a feedstock is defined by its availability, its impact on greenhouse gas emissions, its impact on land use, and by its potential to threaten the food supply. No second generation biofuel is also a food crop, though certain food products can become second generation fuels when they are no longer useful for consumption. Second generation biofuels are often called “advanced biofuels.”
- **3rd generation biofuels** are biofuel derived from algae. These biofuels are given their own separate class because of their unique production mechanism and their potential to mitigate most of the drawbacks of 1st and 2nd generation biofuels.
Major Types of Biofuels

Bioethanol

- It is derived from corn and sugarcane using fermentation process.
- A litre of ethanol contains approximately two thirds of the energy provided by a litre of petrol.
- When mixed with petrol, it improves the combustion performance and lowers the emissions of carbon monoxide and sulphur oxide.

Biodiesel

- It is derived from vegetable oils like soybean oil or palm oil, vegetable waste oils, and animal fats by a biochemical process called “Transesterification.”
- It produces very less or no amount of harmful gases as compared to diesel.
- It can be used as an alternative for the conventional diesel fuel.

Biogas

- It is produced by anaerobic decomposition of organic matter like sewage from animals and humans.
- Major proportion of biogas is methane and carbon dioxide, though it also has small proportions of hydrogen sulfide, hydrogen, carbon monoxide and siloxanes.
- It is commonly used for heating, electricity and for automobiles.

Biobutanol

- It is produced in the same way as bioethanol i.e. through the fermentation of starch.
- The energy content in butanol is the highest among the other gasoline alternatives. It can be added to diesel to reduce emissions.
- It serves as a solvent in textile industry and is also used as a base in perfumes.

Biohydrogen

- Biohydrogen, like biogas, can be produced using a number of processes such as pyrolysis, gasification or biological fermentation.
- It can be the perfect alternative for fossil fuel.

Ethanol Blending Policy
With the vision to boost agricultural economy, to reduce dependence on imported fossil fuel, to save foreign exchange on account of crude oil import bill & to reduce the air pollution, Government has fixed target of 10% blending of fuel grade ethanol with petrol by 2022 & 20% blending by 2025.

With a view to support sugar sector and in the interest of sugarcane farmers, the Government has also allowed production of ethanol from B-Heavy Molasses, sugarcane juice, sugar syrup and sugar; and encouraging sugar mills to divert excess sugarcane to ethanol.

In previous sugar season 2019-20 about 9 LMT of sugar was diverted to ethanol. In current sugar season 2020-21, it is likely that more than 20 LMT of excess sugar would be diverted to ethanol.

By 2025, it is targeted to divert 50-60 LMT of excess sugar to ethanol, which would solve the problem of high inventories of sugar, improve liquidity of mills thereby help in timely payment of cane dues of farmers. In past 3 sugar seasons about Rs. 22,000 cr revenue was generated by sugar mills/distilleries from sale of ethanol to OMCs.

To increase production of fuel grade ethanol and to achieve blending targets, the Govt of India has allowed use of maize and rice with FCI for production of ethanol.

Government has declared that rice available with FCI would continue to be made available to distilleries in coming years.

The extra consumption of surplus food grains would ultimately benefit the farmers as they will get better price for their produce and assured buyers; and thus will also increase the income of crores of farmers across the country.

Government has fixed price of ethanol from maize as Rs 51.55/litre & rice available with FCI as Rs 56.87/litre for ethanol supply year 2020-21. For FY 2020-21, Government has fixed the price of FCI rice to Rs 2000/quintal for production of ethanol.

For FY 2021-22, Government has decided to continue the price of FCI rice to Rs 2000/quintal for production of ethanol.

This will give confidence to industry about the stability in raw material price and its availability. For the purpose of supply of surplus rice for the production of ethanol, distilleries are at liberty to choose the nearest FCI depot as per requirement/logistics.

In current ethanol supply year (ESY) 2020-21 (December to November) to achieve 8.5% blending target, about 325 Cr ltrs ethanol is required to be supplied to OMCs.

As on 26.04.2021, about 349 cr ltrs ethanol have been allocated by OMCs to
sugar mills/ distilleries, out of which contracts of about 302 cr ltrs have been signed by distilleries & 124 cr ltrs have been supplied. Efforts are being made by DFPD & MoPNG / OMCs to ensure achievement of blending target. Also, in next ESY 2021-22, it is likely to supply more than 400 cr ltrs of ethanol to OMCs to achieve 10 % blending.

- With a view to increase existing capacities further, DFPD has notified modified interest subvention scheme on 14.01.2021 for setting up new grain-based distilleries/ expansion of existing grain-based distilleries, dual feed distilleries & molasses-based distilleries to produce ethanol & production of ethanol from other 1G feed stocks. 422 proposals with a capacity of 1684 cr ltrs for a loan amount Rs. 42000 crore have been approved by DFPD. It is expected that from the proposals approved, more than 600 cr ltrs may come up in next 2 to 4 years. Thus, the ethanol distillation capacity from these projects and ongoing projects may reach to 1500 cr ltrs by 2024-25 which would be sufficient to achieve 20% blending target.

- Sugarcane and ethanol is produced mainly in three states viz Uttar Pradesh, Maharashtra and Karnataka: Transporting ethanol to far flung States from these three states involves huge transportation cost.

- By bringing new grain based distilleries in the entire country would result in distributed production of ethanol and would save a lot of transportation cost and thus prevent delays in meeting the blending target & would benefit the farmers across the country.

- For production of ethanol, there is sufficient availability of feed stocks; & Govt. has also fixed remunerative prices of ethanol derived from various feed stocks. Moreover, OMCs being the assured buyer for ethanol has given comfort for purchase of ethanol from distilleries for next 10-15 years.

- Hence, these ethanol projects are viable. Ministry of Environment, Forest & Climate Change has also streamlined the process of getting environment clearance (EC) for ethanol projects. Department of Financial Services and State Bank of India have also issued Standard Operating Procedure (SOP) for sanctioning and disbursal of loans for ethanol projects which would expedite sanctioning and disbursal of loans.

- Production of ethanol would not only facilitate diversion of excess sugar to ethanol but would also encourage farmers to diversify their crops to cultivate particularly maize/corn which needs lesser water.

- It would enhance production of ethanol from various feed stocks thereby, facilitate in achieving blending targets of ethanol with petrol and would reduce import dependency on crude oil, thereby, realizing the goal of Atmanirbhar
Bharat.

- It will also enhance income of farmers as setting up of new distilleries would not only increase demand of their crops but would assure farmers of getting better price for their crops.

Source: PIB

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**Five principle framework for Maritime security**

Prime Minister Shri Narendra Modi will chair the **High-level Open Debate on ‘Enhancing Maritime Security – A Case for International Cooperation’** on 9th August. Shri Narendra Modi, would be the first Indian Prime Minister to preside over a UN Security Council Open Debate. He outlined 5 Principle Framework for Maritime Security. These are:

1. The first was **removing barriers to maritime trade**. In this context, Mr. Modi highlighted SAGAR (‘Security and Growth for all in the Region’) — a 2015 Indian framework for regional maritime security.

2. **Maritime disputes “should be resolved peacefully and in accordance with international law”**, adding that this was “extremely important for promoting mutual trust and confidence, and ensuring global peace and stability”. “It was with this understanding, and maturity, that India resolved its maritime boundary with its neighbour Bangladesh,” the Prime Minister said. Mr. Modi underlining the need for maritime disputes to be resolved peacefully is presumably aimed at China’s actions in the South China Sea, where it has militarised islands and unilaterally enforced its claims over disputed waters.

3. The third principle was that **countries jointly tackle maritime threats from non-state actors and natural disasters**.

4. Fourth, he said the **maritime environment and marine resources needed to be conserved**, highlighting pollution from plastic waste and oil spills.

5. Fifth, Mr. Modi called for **responsible maritime connectivity**, saying a structure was required to boost maritime trade, with the development of global norms and standards.

The UNSC adopted a ‘Presidential [India’s] Statement’ which reaffirmed that the

Source: TH

Tribals in Rajasthan seek more panchayats in scheduled areas

The tribal outfits in Rajasthan have demanded inclusion of over 165 village panchayats of seven districts in the scheduled areas under the Tribal Sub-Plan (TSP) to facilitate the control of local communities over minor minerals and minor forest produce as well as development activities in the region. It will also ensure statutory protection of the tribal population.

On the occasion of the International Day of the World’s Indigenous Peoples on 9th August, the tribal groups said the population of Scheduled Tribes in these panchayats had crossed 50%, making them eligible to be declared as scheduled areas.

Consequently, the provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996, will apply to these areas.

The scheduled areas at present comprise 5,697 villages in southern Rajasthan, having a tribal population of more than 50%, as notified in 2018. As per the 2011 Census, the total population of scheduled areas was 64.63 lakh, in which the tribals were 45.57 lakh, making up 70.43% of the population.

The tribal groups have also been spearheading a movement for creation of a separate State, Bhil Pradesh, to be carved out of the tribal-dominated areas of Rajasthan, Gujarat, Madhya Pradesh and Maharashtra. The issue has gained strength after the victory of two Bharatiya Tribal Party (BTP) candidates in Dungarpur district in the 2018 State Assembly election.

In addition to the BTP, the tribal groups also submitted memorandums addressed to the President on this subject in several districts in the four States last month. BTP State president Velaram Ghogra said the tribals were not getting full benefit of reservation in the TSP areas despite forming the majority. “The government should stop its drive to bring the tribals to the so-
called mainstream, because they are living in harmony with nature and taking care of precious natural resources,” he said.

- The demand is also apparently linked with political developments last year, when the BTP withdrew its support to the ruling Congress over the latter allegedly blocking the election of a BTP-backed independent candidate to the post of Zila Pramukh in Dungarpur during the panchayat elections.
- As an ally of the ruling party, the BTP had voted for the Congress’ candidates in the Rajya Sabha elections held in June last year and backed Chief Minister Ashok Gehlot during the subsequent political turmoil. BTP MLAs Rajkumar Roat and Ram Prasad supported the Congress during the confidence vote on the floor of the State Assembly on August 14, 2020.

Source: TH
Why in news?

- The government is eyeing a sale of its residual stakes in erstwhile public sector firms like Paradeep Phosphates, Hindustan Zinc and Balco, which were privatised during the Atal Behari Vajpayee regime, a top finance
The government still owns 49% stake in aluminium producer Balco and 29.5% in Hindustan Zinc, with the latter’s sale held up since 2016 following a Supreme Court stay. With both the firms staying highly profitable after the transfer of management control to a private player, these stakes could yield a significant bonanza for the exchequer.

Expressions of interest were expected to be invited soon for the sale of Container Corporation of India (CONCOR), once the government framed a land lease policy for the firm’s holdings, Mr. Pandey said.

The IDBI Bank sale process had also begun.

Government intends to complete the privatisation of Air India, BPCL, Shipping Corporation of India, BEML, Pawan Hans and Nilanchal Ispat Nigam Limited. These are the transactions where we have got sufficient interest from bidders and are now completing the second stage of the due diligence and financial bidding,” he informed.

On asset monetisation, the Secretary said GAIL was likely to come up with an offering soon through the Infrastructure Investment Trust (InvIT) structure, though there were still some pending structural issues that needed to be smoothened as per the learnings of the maiden InvIT from PowerGrid Corporation. More airports would also be offered as public-private partnership ventures, he added.

What is Disinvestment?

By disinvestment we mean the sale of shares of public sector undertakings by the Government. The shares of government companies held by the Government are earning assets at the disposal of the Government. If these shares are sold to get cash, then earning assets are converted into cash, So it is referred to as disinvestment.

Disinvestment also refers to sale or liquidation of an assets or subsidiary of an organization or government but on any condition Government’s share should not go below 51%.

It is done by Dept of Investment and Public Asset Management (DIPAM), Ministry of Finance from 2016.

Disinvestment Policy of India

Industrial Policy Resolution, 1956 talks about the growth of the country through PSUs. Hence, from 2nd Five Year Plan we started focusing on
PSEs. PSUs are wealth of Nation and it ensures that wealth rests in hands of people, promote public ownership of CPSEs. Govt must retain at least 51% of shareholding and management control of PSUs. Strategic disinvestment by way of sale of substantial portion of Govt in identified CPSEs upto 50% or more along with transfer of management control.

Phases of Disinvestment

- **Phase I:** In 1991 PVNR Gov initiated disinvestment: In 1991 policy it was announced that government would disinvest upto 20% of its equity in selected PSUs mainly through Mutual Fundss and FIIs (Financial institutions investors).
- **Phase II:** More people allowed in disinvestment like FII, Employees of the Company etc.
- **Phase III**
  1. The Govt appointed C Rangarajan Committee: who recommended ~49% of disinvestment.
  2. Atal Bihari Vajpayee adopted major disinvestment policy Paradeep Phosphates, Hindustan Zinc and BALCO. It talked about Stake Sale.
  3. **Stake sale** is a larger share that can be sold to LIC or other profitable PSUs not individual investors.
  4. PSUs were bifurcated into 2: Strategic (defense, atomic) and Non strategic.

National Investment Fund

- In 2005, Govt came out with National Investment Fund under Public Accounts of India.
- Purpose of the fund was to receive disinvestment proceeds of CPSEs.
- Money from disinvestment is put upon this money is invested in stock market or other investment instruments the income of which
  1. 75% of returns are used in social sector like MGNREGA, Housing for All, AIBP, Health, Education, Employment etc.
  2. 25% can be utilized for Profitable PSUs and revival of PSUs.
- This fund was professionally managed by 3 Fund Managers: UTI, SBI and LIC. But CCEA restructured the NIF and decided to do away with the management of the disinvestment proceeds by the Fund Managers of NIF. Now from 2013, all the money is credited to
Public Accounts.

Special National Investment Fund

- It is kept outside the Consolidated Fund of India to transfer the shares of only certain loss making CPSEs which are non-compliant with the rule that minimum 10% of shares issued be held by public.
- Only shares are transferred here and not receipts from the sale of shares of CPSEs.

Phase IV: Current Disinvestment (Budget 2021-22)

- The government budgeted Rs 1.75 lakh crore from stake sale in public sector companies and financial institutions, including 2 PSU banks and one insurance company, in the next fiscal year.
- Unveiling the PSE policy in Budget 2021-22, Finance Minister Nirmala Sitharaman said barring four strategic areas, public sector companies in other sectors will be divested. The policy would give a clear roadmap for disinvestment in strategic and non-strategic sectors.
- She said strategic sale of IDBI Bank, BPCL, Shipping Corp, Container Corporation, Neelachal Ispat Nigam Ltd, among others, would be completed in 2021-22 fiscal year beginning April 1.
- Also legislative amendments required for LIC IPO would be brought in 2021-22. LIC was established in 1956 through an Act of Parliament. Before Govt divests a part of its stake through a public issue, it will have to ensure that it amends the LIC Act, which ensures a sovereign guarantee for all policies under Section 37 of the Act.
- She said NITI Aayog has been asked to work on next list of central public sector companies for strategic disinvestment.
- Sitharaman said a revised mechanism for fast-tracking closure of loss making PSUs would be worked out and an incentive package would be developed to incentivise states to sell stake in state PSUs.
- To monetise lands owned by CPSEs, a special purpose vehicle (SPV) would be developed.
- Finance Minister Nirmala Sitharaman had in her previous budget for 2020-21 set a target of raising Rs. 2.1 lakh crore from privatisation and sale of minority stakes in state-owned companies. This include Rs. 1.20 lakh crore from selling stake in CPSEs and Rs. 90,000 crore from stake sale in financial...
So far this fiscal, the government has garnered Rs. 19,499 crore through minority stake sale in CPSEs and share buybacks.

**Strategic Disinvestment Policy for PSEs**

- The policy, promised as part of the Atma Nirbhar Bharat package, states the government will exit all businesses in non-strategic sectors, with only a ‘bare minimum’ presence in four broad sectors.
- These strategic sectors are —
  1. Atomic energy,
  2. Space and defence;
  3. Transport and telecom;
  4. Power, petroleum, coal and other minerals; and
  5. Banking and financial services.
- It will help the exchequer stop throwing good money after bad, and funnel it into more productive endeavours.

**Bharat Bond ETF (Exchange Traded Fund) to be India’s 1st Corporate Bond ETF**

- An Exchange Traded Fund (ETF) is a type of fund that owns the underlying assets and is divided into different shares.
- It is a **marketable security (in the form of shares)** that contains a slice of cumulated shares/bonds/commodities/foreign currencies that is sliced into different shares (as in case of mutual funds).
- The government has decided to use ETF mechanism to disinvest the shares of public sector companies.
- These units can be listed in the stock exchange as ETF and can be traded like ordinary shares.
- The advantage is that **listing and trading in stock exchanges gives tradability (easy for buying and selling) to the ETF shares.**
- ETF to comprise basket of bonds issues by CPSEs, CPSUs, CPFIs and other government entities and all will be initially rated AAA with Rs. 1000 for each unit to attract retail investors.
- Each ETF will have a fixed maturity dates initially to be issued in 2 series of 3 years and 10 years.
- **Benefits of ETF**
  1. Bond ETF will provide safety (issued by CPSEs & govt owned agencies), liquidity (tradability on exchange), additional source of funding for issuers (apart from banks) and predictable tax efficient
returns.
2. It would help deepen India's bond market as it will encourage participation of those retail investors who are currently not participating in bond markets including HNI participants.
3. Retail and institutional investors will easily trade this ETF shares as the ETF has high liquidity as in the case of ordinary shares.
4. For the government, ETF route will help to avoid the cumbersome exercise of several IPOs (Initial Public Offerings). Otherwise, each PSU disinvestment necessitate separate listing or IPOs. Similarly, investor participation will go up.

**Difference between ETF and Mutual Funds**

- Mutual fund is like an ETF as it is a unit that comprised of equities of different companies.
- But ETF and mutual funds differ with respect to tradability.
- Mutual Fund selling price will be the price of shares at the close of the day. On the other hand, shares of ETF are traded throughout the day.
- And at any moment, ETF can be bought and sold.
- In this respect, **ETFs have more liquidity and marketability**.
- Another difference is that Mutual Fund is managed by a financial company and its fund managers; whereas the ETF is managed by the investor himself (unless deputed).

Source: TH
• The Shanghai Cooperation Organisation, also known as the **Shanghai Pact**, is a Eurasian political, economic, and military organization which was founded in 2001 in Shanghai.

**Founding SCO members**: China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan. The cooperation was renamed to Shanghai Cooperation Organisation after Uzbekistan joined the organisation in 2001.

**The SCO’s main goals are**:
1. Strengthening mutual trust and neighbourliness among the member states;
2. Promoting their effective cooperation in politics, trade, the economy, research, technology and culture, as well as in education, energy, transport, tourism, environmental protection, and other areas;
3. Making joint efforts to maintain and ensure peace, security and stability in the region; and
4. Moving towards the establishment of a democratic, fair and rational new international political and economic order.

- **Presently, the SCO comprises eight member states.** namely the Republic of India, the Republic of Kazakhstan, the People’s Republic of China, the Kyrgyz Republic, the Islamic Republic of Pakistan, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan.
- India and Pakistan joined the SCO as full members in 2017.
- **The SCO counts four observer states,** namely the Islamic Republic of Afghanistan, the Republic of Belarus, the Islamic Republic of Iran and the Republic of Mongolia.
- **The SCO countries has six dialogue partners,** namely the Republic of Azerbaijan, the Republic of Armenia, the Kingdom of Cambodia, the Federal Democratic Republic of Nepal, the Republic of Turkey, and the Democratic Socialist Republic of Sri Lanka.
- **The SCO Summits**
  1. 2019 Summit - Bishkek, Kyrgyzstan
  2. 2020 Summit – St. Petersbourgh, Russia. Theme- Reformed Multilateralism
  3. The 2021 Summit will be chaired by Tajikistan in Dushanbe.
About Regional Anti-Terrorist Structure (RATS)

- The Regional Anti-Terrorist Structure (RATS), headquartered in Tashkent,
Uzbekistan, is a permanent organ of the SCO. It serves to promote cooperation of member states against the three evils of terrorism, separatism and extremism. The Head of RATS SCO is elected to a three-year term. Each member state also sends a permanent representative to RATS.

Dushanbe SCO summit 2021

- The event will bring together leaders from eight SCO member states—India, China, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan, and Uzbekistan.
- National Security Adviser Ajit Doval is expected to attend a meeting of the Shanghai Cooperation Organisation in Dushanbe, Tajikistan next week, which Pakistan’s NSA Moeed Yusuf will attend as well.

Source: PIB

Common survey to count elephants and tigers

Why in news?

- From December, India will move to a system that will count tigers and elephants as part of a common survey since 2022. This will be for the first time that Tiger and Elephants will be counted in a single survey. The tiger survey is usually held once in four years and elephants are counted once in five years.
- According to the most recent 2018-19 survey, there were 2,997 tigers in India. According to the last count in 2017, there were 29,964 elephants in India.
- Since 2006, the Wildlife Institute of India (WII), Dehradun, which is affiliated to the Environment Ministry, has a standardised protocol in place that States then use to estimate tiger numbers. Based on sightings in camera traps and indirect estimation methods, tiger numbers are computed.
- Elephant numbers largely rely on States directly counting the number of elephants. In recent years, techniques such as analysing dung samples have also been deployed to estimate birth rates and population trends in
elephants.

- **Given that 90% of the area occupied by elephants and tigers is common, and once estimation methods are standardised, having a common survey can significantly save costs.**
- **In 2017, the Union Environment Ministry reported that there were 27,312 elephants on average in the country, according to figures collated from 23 States, a decline from the 29,576 elephants recorded as the mean figure in 2012.**
- **However, in 2019, it emerged that Kerala may have under-counted almost 2,700 elephants in the latest elephant census and the updated 2017 figures showed 29,964 elephants on average, or a slight increase from the mean of 2012.**
- **This was because Kerala initially relied on a direct count method and then switched to an indirect method when the count showed a decline in its elephant population.**
- **Asian elephants are listed as “endangered” on the IUCN Red List of threatened species. More than 60% of the world’s elephant population is in India, said a statement from the Environment Ministry.**
- **Speaking on the occasion, the Union Environment Minister stressed on the involvement of local and indigenous people in the Conservation of elephants and said that a bottom up approach is the way forward, which will also help in minimizing Human-Elephant Conflict as well.**
- **The Ministry also partnered with WII, NMNH, WWF-India and WTI in organising the week long programme of “Azaadi ka Amrit Mahotsav” as a precursor to the World Elephant Day, 2021.**

**About Asian Elephant**

- **Asian elephants are listed as "Endangered" on the IUCN Red List of threatened species. This has been done as most of the range states except India, have lost their viable elephant populations due to loss of habitats & poaching etc. The current population estimates indicate that there are about 50,000 -60000 Asian elephants in the world.** More than 60 % of the population is held in India.
- **Indian Elephant has also been listed in the Appendix I of the Convention of the Migratory species in the recently concluded Conference of Parties of CMS 13 at Gandhi Nagar, Gujarat in February 2020.**
- **World Elephant Day is being celebrated to bring attention of various stakeholders to support various conservation policies to help elephants, including improving enforcement policies to prevent the illegal poaching and**
trade of ivory, conserving elephant habitats, providing better treatment for captive elephants and reintroducing some captive elephants into sanctuaries.

- **Elephant is the Natural Heritage Animal of India** and India also celebrates this day to spread awareness towards conservation of the species.

**Tiger Estimation 2018**

- Click here to read about [Tiger Reserves and Tiger Census](#)
- All India Tiger Estimation 2018 has entered the Guinness World Record for being the world's largest camera trap wildlife survey. The fourth iteration of the survey, conducted in 2018-19 was the most comprehensive to date, in terms of both resource and data amassed.
- According to the report of 2018, India now has an estimated 2967 tigers out of which 2461 individual tigers have been photo captured, about 83% of the tiger population. With this number, India is home to nearly 75% of the global tiger population.
- India has already fulfilled its resolve of doubling tiger numbers, made at St. Petersburg in 2010, much before the target year of 2022.
- The All India Tiger Estimation done every four year once, It is

1. Steered by the National Tiger Conservation Authority
2. Technically supported by Wildlife Institute of India
3. Implemented by State Forest Departments and partners.

- **Tiger Reserves** are protected areas that aim at conserving the habitat to ensure a viable population of the tigers along with their prey base in their habitat.
- **India’s tiger census** has been commissioned by the union environment ministry’s National Tiger Conservation Authority (NTCA).

Source: TH

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**ISRO (Indian Space Research Organization)**

*GS-III | 13 August, 2021*

- Indian Space Research Organization (ISRO) is the space agency under [Dept of Space](#).
- **ISRO headquarters are in Bengaluru, Karnataka**.
ISRO was initiated under Dr. Vikram Sarabhai, the founding father of Indian space programme, during 1960's. Vikram Sarabhai is the father of Indian Space Program. Hence Vikram Sarabhai Space Centre is located at Kerala.

Dr. K. Sivan is the ISRO Chairman, Department of Space.

ISRO’s vision is to harness space technology for national development, while pursuing space science research and planetary exploration.

Indian space programme had 3 distinct elements such as,
1. Satellites for communication and remote sensing,
2. The space transportation system and
3. Application programmes

Antrix Corporation Limited (ACL)

ACL was established in 1992 as a Marketing arm of ISRO for promotion and commercial exploitation of space products, technical consultancy services and transfer of technologies developed by ISRO.

It is a Mini ratna company.

NewSpace India Limited (NSIL) (established in Mar 2019)

NSIL is a Central Public Sector Enterprise of Government of India and Commercial Arm of ISRO. For almost a decade, ISRO has been planning to hand the production over to public and private industries and itself focus on its core job of space R&D.

It was incorporated for commercially utilising research and development activities carried out by ISRO with an authorised share capital of Rs 100 crore and initial paid up capital of Rs 10 crore.

It is the 2nd commercial entity and a new business arm of Department of Space (Bengaluru) to promote Indian space commerce.

It is under the administrative control of Department of Space (DOS) and the Company Act 2013.

The main objective of NSIL is to scale up industry participation in Indian space programmes.

Objectives

1. Transfer of Small Satellite technology to industry: NSIL will obtain license from DOS/ISRO and sub-license the same to Industry
2. Manufacture of Small Satellite Launch Vehicle (SSLV) in collaboration with Private Sector
3. Production of Polar Satellite Launch Vehicle (PSLV) through Indian Industry
4. Production and marketing of Space based products and services, including launch and application

5. Transfer of technology developed by ISRO Centres and constituent units of DOS

6. Marketing of spin-off technologies and products/services, both in India and abroad.

- It would also be tasked to “commercially exploit the R&D work done by ISRO centres and DoS constituents”

**PT Shots**

- The first satellite launched by India is ‘Aryabhata’. It was developed and was launched using a Soviet Launcher InterCOSMOS.
- In 1980s, Bhaskara-I & II missions were pioneering steps in the remote sensing area whereas ‘Ariane Passenger Payload Experiment (APPLE)’ became the forerunner for future communication satellite system.

**ISRO’s Launch Vehicles or Indian Satellite Programme launch vehicles**

1) **GSLV (Geosynchronous Satellite Launch Vehicle)**

   - GSLV delivers the **communication** satellites to Geosynchronous Transfer Orbit (GTO) of about **36000 Km altitude**.
   - GSLV Mk II has the capability to launch satellites of mass of 2500 kg to GTO. GSLV Mk II is a 3 stage vehicle with 1st stage using solid fuel, 2nd stage using Liquid and 3rd stage using Cryogenic Upper Stage using cryogenic engine.
   - **Geostationary satellites orbit around the earth in 24 hours** and since the earth rotates with the same period, the satellite would appear fixed from any point on earth.

2) **PSLV (Polar Satellite Launch Vehicle)**

   - PSLV is ISRO’s Workhorse – Forex earner. PSLV is the 1st Indian launch vehicle to be equipped with liquid stages.
   - PSLV delivers the **EOS/ RSS satellites** in sun synchronous polar orbit and lower mass satellites (1400 kg) to elliptical GTO.
   - It is a **4-staged launch vehicle** with first and third stage using solid fuel and
second and fourth stages using liquid fuel. **Strap-on motors** also used with PSLV to augment the thrust.

- PSLV improved it's carrying capacity from 850 kg to 1.9 tonnes.
- It has 3 variants
  1. **PSLV - CA (Core Alone)** = without the solid strap on boosters.
  2. **PSLV with 6 solid strap on boosters.**
  3. **PSLV QL** with 4 strap on boosters. 1st flight of PSLV QL was PSLV C45 (EMISAT). 2nd is PSLV C50 (RISAT).
  4. **PSLV XL** = Top model with 6 extended solid strap on boosters. It was used for Chandrayaan 1 in 2008 and MOM in 2013.

- **PSLV C50** to use PSLV QL which has 4 strap on boosters. It will launch RISAT & 9 small foreign satellites from Japan, Italy, Israel & US. RISAT will be used for Agriculture, Forestry, Disaster Management support & National security.
- Till now PSLV launched 50 Indian Satellites & 222 Foreign satellites for 20 countries.

### Indian Satellite Programme of India

#### Communication Satellites

- Established in 1983 with **INSAT 1B** in the Asia Pacific region placed in the Geostationary orbit.
- The INSAT system provides services to telecommunications, television broadcasting, satellite newsgathering, societal applications, weather forecasting, disaster warning and Search and Rescue operations.
- Eg. GSAT 7A, GSAT-11, EDUSAT etc.

#### Earth Observation Satellites or Remote Sensing Satellites

- Started with IRS 1A in 1988.
- Varieties of instruments have been flown onboard these satellites like Transponder and Camera.
- **Applications** cover agriculture, water resources, urban planning, rural development, mineral prospecting, environment, forestry, ocean resources and disaster management.
- Eg. HySIS (PSLV C43); Cartosat (PSLC C40 - 100th mission); RESOURCESAT, SCATSAT, SARAL and MeghaTropiques with France; Oceansat, Technology Experiment Satellite (TES), Rohini and Bhaskara.
- **Desertification and Land Degradation Atlas** was prepared in 2016 by
Navigation Satellite: Regional Positioning System
It is to meet the Civil Aviation requirements and meet the user requirements of positioning, navigation and timing.

For Civil Aviation: **GAGAN**:
1. GPS Aided Geo Augmented Navigation is an augmentation system to enhance the accuracy and integrity of GPS signals. It is implemented jointly by AAI and ISRO. It relies on the positioning system of ISRO’s GSAT satellites.
2. **GEMINI system**: is a portable receiver linked to ISRO satellites, that is “fail proof” and warn fishermen of danger. GEMINI works on GAGAN (GPS aided Geo Augmented Navigation System).
3. South Central Railway (HQ – Secundrabad) fitted with Real Time Train Information System (RTIS) to monitor speeds and movement. It is developed by Center for Railway Information Systems (CIRE) with the help of GAGAN of ISRO and AAI.

**Indian Regional Navigation Satellite System (IRNSS)**

- For positioning, navigation and timing, ISRO is establishing a regional satellite navigation system.
- IRNSS has 3 satellites in geostationary and 4 satellites in geosynchronous orbits (inclined).
- ISRO’s NavIC (Navigation in Indian Constellation) is Indian system of 8 Satellites is an indigenous positioning or Location Based System (LBS) which works like GPS but within the 1500 km radius over the subcontinent.

**Gagan Enabled Mariner’s Instrument for Navigation and Information (GEMINI) device**

- For effective dissemination of emergency information and communication on Ocean States Forecast and mapping of Potential Fishing Zones (PFZ) to fishermen. **Ministry of Earth Sciences**.
- GEMINI is a portable receiver linked to ISRO satellites. It can send signals upto 300 nautical miles. INCOIS, Hyderabad in collaboration with AAI utilized the **GAGAN** (ISRO + AAI) satellite.
- The drawback of this device is that it only allows one-way communication, i.e, it can’t be used by fishermen to make calls. Also it is expensive.

**Bhuvan** (Sanskrit for Earth) is a Geoportal of ISRO, allowing a host of
services covering visualization, free data download, thematic map display and analysis, timely information on disaster and project-specific GIS applications. Recently an upgraded geo-imaging web portal, Bhuvan Panchayat 3.0 was launched. It uses high resolution data from Earth Observation Satellites and offers detailed information to Panchayats. It is jointly implemented by Ministry of Panchayati Raj and Dept of Space, ISRO.

Why in news?

India’s attempt to place a geoimaging satellite (GISAT-1) with its GSLV-F10-EOS-3 mission did not succeed. The GSLV-F10 rocket, which blasted off from the Satish Dhawan Space Centre at Sriharikota on Thursday, with the purpose of launching the Earth Observation Satellite EOS-3 into space, failed in its mission due to a “performance anomaly”.

- For more elaborate lecture on current updates on ISRO and Space sector of India, join our 1 Hour 2 Newspaper Batch 2021-22.
- For detailed lectures on Science & Technology and Space missions of India: Join our Science & Technology Capsule 2021-22.
- More functions and news can be found out at the isro official website: www.isro.gov.in for more space research and isro latest news.

Source: TH

National Commission for Minorities
GS-I | 13 August,2021

Why in news?

- The Delhi High Court on Thursday extended the deadline given to the Centre to nominate persons to all the vacant positions in the National Commission for Minorities by two months.
- The High Court had earlier directed that the nomination of all the vacant positions be filled on or before July 31 in order to ensure that the commission
functions efficiently and the purpose of the commission as envisaged under the National Commission for Minorities Act, 1992 is also fully given effect to.

- The Centre had sought the extension on the account of the COVID-19 situation in the country during the months of April and May.
- Abhay Ratan Baudhh, in his petition, has said that only the post of vice-chairman of the commission was functional since October 2020, while the remaining positions, including that of the chairperson and members from Buddhist, Christian, Parsi, Sikh and Jain communities remained vacant.
- The petition said that the posts started becoming vacant around April 2020 and since October 2020, only one post was functional.

**Constitutional Provisions for Minorities in India**

- The term 'Minority' is not defined in the Constitution. Constitution recognises religious and linguistic minorities through Article 29 and Article 30.
- **Article 29**: It provides that any section of the citizens residing in any part of India having a distinct language, script or culture of its own, shall have the right to conserve the same. Article 29 is applied to both minorities (religious and linguistic) and also majority. It also includes – Right to agitate for the protection of language. Hence political speeches with respect to this is ok.
- **Article 30**: All minorities shall have the right to establish and administer educational institutions of their choice. Article 30 recognises only to religious and linguistic minorities (not majority). It includes right of minority to impart education to its children in its own language.
- **Article 350-B**: Originally, the Constitution of India did not make any provision with respect to the Special Officer for Linguistic Minorities. However, the 7th Constitutional Amendment Act, 1956 inserted Article 350-B in the Constitution. It provides for a Special Officer for Linguistic Minorities appointed by the President of India. It would be the duty of the Special Officer to investigate all matters relating to the safeguards provided for linguistic minorities under the Constitution.
- Currently, the linguistic minorities are identified on a state-wise basis thus determined by the state government whereas religious minorities are determined by the Central Government.
- Supreme Court has dismissed a plea seeking guidelines to “identify and define” religious minorities in every State to protect their culture and interests. The petition sought to recognise Hindus as minorities in the States where they are low in population.

**Ministry of Minority Affairs**
The Ministry of Minority Affairs is entrusted with the work related to improvement of the socio-economic condition of the minority communities through affirmative action and inclusive development efforts, so that every citizen has equal opportunity to participate actively in building a vibrant nation.

The Department Personnel & Training does not maintain separate community wise data on recruitment.

This Ministry implements various schemes with objective to increase the participation of the disadvantaged/underprivileged children/candidates of notified minority communities and to improve the level of education, participation in employment, skill and entrepreneurship development, reducing deficiencies in civic amenities or infrastructure are implemented by this Ministry.

About National Commission for Minorities (NCM)

Ministry of Home Affairs established the National Minorities Commission of India in a resolution on January 12, 1978. Once the National Commission for Minorities Act was enacted in 1992, the Minorities Commission became a statutory body and was renamed as National Commission for Minorities.

NCM consist of Chairperson, a Vice-Chairperson and five Members. The five Members including the Chairperson shall be from amongst the minority communities.

The act (not Constitution) defines a minority as “a community notified as such by the Central government.”
Objectives of National Commission for Minorities

- evaluate the progress of the development of minorities under the Union and States;
- monitor the working of the safeguards provided in the Constitution and in laws enacted by Parliament and the State Legislatures;
- make recommendations for the effective implementation of safeguards for the protection of the interests of minorities by the Central Government or the State Governments;
- look into specific complaints regarding deprivation of rights and safeguards of the minorities and take up such matters with the appropriate authorities;
- cause studies to be undertaken into problems arising out of any discrimination against minorities and recommend measures for their removal;
- conduct studies, research and analysis on the issues relating to socio-economic and educational development of minorities;
- suggest appropriate measures in respect of any minority to be undertaken by the Central Government or the State Governments;
- make periodical or special reports to the Central Government on any matter pertaining to minorities and in particular difficulties confronted by them; and
- any other matter which may be referred to it by the Central Government.

How many Minorities are there in India?

- Muslims, Sikhs, Christians, Buddhists, Jain and Zoroastrians (Parsis) have been notified as minority communities under Section 2 (c) of the National Commission for Minorities Act, 1992.
- As per the Census 2011, the percentage of minorities in the country is about 19.3% of the total population of the country.
- The population of Muslims are 14.2%; Christians 2.3%; Sikhs 1.7%, Buddhists 0.7%, Jain 0.4% and Parsis 0.006%.

Government Schemes for the Empowerment of Minorities

Educational Empowerment

- **Scholarship Schemes**– Pre-Matric Scholarship, Post-Matric Scholarship and Merit-cum-Means based Scholarship. During the last 7 years, more than 4.52 crore beneficiaries have been provided different scholarships through the National Scholarship Portal (NSP) and Direct Benefit Transfer (DBT) out of which more than 53% beneficiaries are female.
- **Maulana Azad National Fellowship Scheme**, provides financial assistance
to students from notified minority communities and whose annual income is below Rs. 6.0 lakh per annum from all sources, to pursue higher education such as M.Phil and Ph.D.

- In addition, the Maulana Azad Education Foundation implements the scheme viz. Begum Hazrat Mahal National Scholarship for meritorious girls belonging to notified minority communities studying in Classes IX to XII.

- **Naya Savera** – Free Coaching and Allied Scheme which aims to enhance skills and knowledge of students and candidates from notified minority to get employment in Government Sector/ Public Sector Undertaking, jobs in private sector, and admission in reputed institutions in technical and professional courses at under-graduate and post-graduate levels. During last seven years about 69,500 candidates have benefitted from the coaching scheme of this Ministry.

- **Nai Udaan** - Support for notified minority community students, on clearing Prelims conducted by Union Public Service Commission (UPSC), State Public Service Commission (PSC) Staff Selection Commission (SSC) etc.

**Economic Empowerment**

- **Seekho aur Kamao (Learn & Earn)**: It is a skill development initiative for minorities and aims to upgrade the skills of minority youth in various modern/traditional skills depending upon their qualification, present economic trends and market potential, which can earn them employment or make them suitably skilled to go for self-employment. Since, 2014-15 approx. 3.92 lakh persons have been benefitted from this employment oriented program.

- A mission has been launched by the Ministry of Minority Affairs under “Upgrading the Skill and Training in Traditional Arts/Crafts for Development (USTTAD)” scheme to give an effective platform to minority artisans and culinary experts from across the country to showcase and market their finest handicraft and exquisitely crafted products through “Hunar Haats” organized by the Ministry.

- Ministry has engaged institutions of national repute namely, National Institute of Fashion Technology (NIFT), National Institute of Design (NID) and Indian Institute of Packaging (IIP) to work in various craft clusters for design intervention, product range development, packaging, exhibitions and brand building etc. So far, Ministry has organised 28 “Hunar Haats” in which more than 5.5 lakhs artisans and people associated with them have been provided employment and employment opportunities, out of which more than 50% beneficiaries are women.
Nai Manzil - A scheme to provide education and skill training to the youth from minority communities.

Gharib Nawaz Employment Training Programme provides for short-term job-oriented skill development courses to youths belonging to minority communities.

National Minorities Development Finance Corporation (NMDFC) Loan Schemes provide concessional loans for self-employment and income generating activities for the socio-economic development of the ‘backward sections’ amongst the notified minorities.

Pradhan Mantri Jan Vikas Karyakram (PMJVK)

In addition, another scheme namely Pradhan Mantri Jan Vikas Karyakram (PMJVK) is implemented by the Ministry of Minority Affairs, which aims to improve the socio-economic conditions and basic amenities in the identified Minority Concentration Areas.

The major projects approved under PMJVK are in sectors of education, health and skill, and include Residential Schools, School buildings, Hostels, Degree Colleges, ITIs, Polytechnics, Smart Class Rooms, Saddbhav Mandaps, Health Centres, Skill Centres, Sports facilities, Drinking Water facilities, sanitation facilities etc.

In the last 7 years, under the “Pradhan Mantri Jan Vikas Karykram” (PMJVK) more than 43 thousand basic infrastructure projects have been created such as residential schools, new schools, colleges, hostels, community centres, common service centres, ITIs, Polytechnics, Girls Hostels, Saddhava Mandaps, Hunar Hubs, Smart Class Rooms etc in identified Minority concentrated areas across the country.

Source: TH
Why in news?

- India organized the IBSA Tourism Ministers’ Meeting to promote tourism cooperation among the member states and reviewed the intra IBSA Tourism cooperation.
- During virtual meeting, the Minister for Tourism, Shri G Kishan Reddy highlighted the aggressive vaccination programme of the Government of India which has completed over 500 million doses of vaccine, making it the 2nd largest country in the world.
- The Ministers emphasised the importance of domestic tourism in reigniting the tourism economy as it can prepare the domestic tourism industry for the arrival of international visitors.
- The IBSA Tourism Ministers’ Meeting recognized the importance of strengthening cooperation in tourism to overcome the impact of Covid 19 pandemic on the tourism sector. The Ministers resolved to work together to realise the full potential of IBSA countries through cooperation in the tourism sector.
- **Domestic tourism essential to reignite tourism economy.**

About IBSA
IBSA Forum

India

Brazil

South Africa

8287714422  8010068998  www.aspireias.com
**IBSA is a trilateral, developmental initiative** between the Government of India, The Government of Federative Republic of Brazil and The Government of the Republic of South Africa to **promote South-South cooperation and exchange**.

- The aim of the IBSA Tripartite Agreement is for strengthening relations between the member countries **for economic development and for promoting cooperation in the field of tourism** and expansion of tourism relations with a view to understand and appreciate each other’s **history, culture and way of life**.
- IBSA is a unique Forum which brings together India, Brazil and South Africa, three large democracies and major economies from three different continents, facing similar challenges.
- All three countries are **developing, pluralistic, multi-cultural, multi-ethnic, multi-lingual and multi-religious** nations.
- The grouping was formalized and named the IBSA Dialogue Forum when the Foreign Ministers of the three countries met in Brasilia on 6 June **2003** and issued the **Brasilia Declaration**.
- **India is current IBSA Chair**.

**IBSA Summits**

- Five IBSA Leadership Summits have been held so far. The 5th IBSA Summit was held in Pretoria on 18 October 2011.
- India as the current IBSA Chair has planned to convene the 6th IBSA summit virtually on 5th September 2021, under the theme “Democracy for Demography and Development”.

Source: PIB

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**Plastic Waste Management Rules, 2021**

GS-III | 14 August, 2021

Plastic Waste Management is an important problem in India. It is a part of UPSC GS Paper III Biodiversity, Environment and Pollution in India. Before learning about Plastic Waste Management Rules, 2021 it is highly recommended that you watch Ankit Sir’s lecture about [Plastic Pollution in India](#) and then come back to this
legislation since this legislation is a solution to Plastic pollution crisis in India.

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Background

- Background: Ankit Sir's explanation and Handout
- PWM Rules, 2016: Aim and Critical Analysis
- PWM (Amendment) Rules, 2018
- PWM (Amendment) Rules, 2021
- Conclusion

Plastic Waste Management Rules, 2021
Plastic has multiple uses and the physical and chemical properties lead to commercial success. However, the indiscriminate disposal of plastic has become a major threat to the environment. Pollution due to single use plastic items has become an important environmental challenge confronting all countries. India is committed to take action for mitigation of pollution caused by littered Single Use Plastics. In particular, the plastic carry bags are the biggest contributors of littered waste and every year, millions of plastic bags end up in the environment vis-a-vis soil, water bodies, water courses, etc and it takes an average of one thousand years to decompose completely. Therefore, to address the issue of scientific plastic waste management, the Plastic Waste (Management and Handling) Rules, 2011 were notified in 2011, which included plastic waste management. In the 4th United Nations Environment Assembly held in 2019, India had piloted a resolution on addressing single-use plastic products pollution, recognizing the urgent need for the global community to focus on this very important issue. The adoption of this resolution at UNEA 4 was a significant step.


Aims of PWM Rules, 2016

- **Increase minimum thickness** of plastic carry bags from 40 to 50 microns and stipulate minimum thickness of 50 micron for plastic sheets also to facilitate collection and recycle of plastic waste.
- Expand the **jurisdiction** of applicability from the municipal area to rural areas, because plastic has reached rural areas also. **Responsibility for implementation of the rules is given to Gram Panchayat.**
- To bring in the responsibilities of producers and generators, both in plastic waste management system and to introduce **collect back system** of plastic waste by the producers/brand owners, as per extended producers responsibility.
- To introduce collection of plastic waste management fee through pre-registration of the producers, importers of plastic carry bags/multilayered packaging and vendors selling the same for establishing the waste management system.
- **Producers** are the persons engaged in manufacture, or import of carry bags, multi-layered packaging and sheets or like and the persons using these for packaging or wrapping their products.
To promote use of plastic waste for road construction as per Indian Road Congress guidelines or energy recovery, or waste to oil etc. for gainful utilization of waste and also address the waste disposal issue;
To entrust more responsibility on waste generators, namely payment of user charge as prescribed by local authority, collection and handing over of waste by the institutional generator, event organizers.
Central Pollution Control Board (CPCB) has been mandated to formulate the guidelines for thermoset plastic (plastic difficult to recycle). In the earlier Rules, there was no specific provision for such type of plastic.
State Pollution Control Board (SPCBs) will not grant/renew registration of plastic bags, or multi-layered packaging unless the producer proposes the action plan endorsed by the concerned State Development Department.
Producers to keep a record of their vendors to whom they have supplied raw materials for manufacturing carry bags, plastic sheets, and multi-layered packaging. This is to curb manufacturing of these products in unorganised sector.
The entry points of plastic bags/plastic sheets/multi-layered packaging in to commodity supply chain are primarily the retailers and street vendors. They have been assigned the responsibility of not to provide the commodities in plastic bags/plastic sheets/multi-layered packaging which do not conform to these rules. Otherwise, they will have to pay the fine.
Plastic carry bag will be available only with shopkeepers/street vendors pre-registered with local bodies on payment of certain registration fee. The amount collected as registration fee by local bodies is to be used for waste management.
Manufacturing and use of non-recyclable multi-layered plastic to be phased in two years.

Analysis of PWM Rules, 2016

Rural areas have been brought in ambit of these Rules for the first time.
First time, responsibility of waste generators is being introduced. Individual and bulk generators like offices, commercial establishments, industries are to segregate the plastic waste at source, handover segregated waste, pay user fee as per bye-laws of the local bodies.
First time, persons organising public events like marriages, religious gatherings have been made responsible for management of waste.
Use of plastic sheet for packaging, wrapping the commodity are brought under the ambit of these rules.
Extended Producer Responsibility: Earlier, EPR was left to the discretion...
of the local bodies. First time, the producers and brand owners have been made responsible for collecting waste generated from their products. They have to approach local bodies for formulation of plan/system for the plastic waste management within the prescribed timeframe.

- The waste management infrastructure in the States/UTs is being strengthened through the Swachh Bharat Mission.

The following steps have also been taken to strengthen implementation of Plastic Waste Management Rules, 2016 and also to reduce the use of identified single use plastic items:

- The States/UTs have been requested to constitute a Special Task Force for elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016.
- A National Level Taskforce has also been constituted by the Ministry for taking coordinated efforts to eliminate identified single use plastic items and effective implementation of Plastic Waste Management Rules, 2016.
- The State/UT Governments and concerned Central Ministries/Departments have also been requested to develop a comprehensive action plan for elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016, and its implementation in a time bound manner.
- Directions under Section 5 of Environment (Protection) Act, 1986, have been issued to all States/Union Territories inter alia for setting up for institutional mechanism for strengthening enforcement of Plastic Waste Management (PWM) Rules, 2016.
- The Government has also been taking measures for awareness generation towards elimination of single use plastics and effective implementation of Plastic Waste Management Rules, 2016.
- To encourage innovation in development of alternatives to identified single use plastic items and digital solutions to plastic waste management, the India Plastic Challenge – Hackathon 2021, has been organized for students of Higher Educational Institutions and startups recognized under Startup India Initiative.

Plastic Waste Management (Amendment) Rules, 2018

- The amended Rules lay down that the phasing out of Multilayered Plastic (MLP) is now applicable to MLP, which are "non-recyclable, or non-energy recoverable, or with no alternate use."
Centralized Registration System

1. The amended Rules also prescribe a central registration system for the registration of the producer/importer/brand owner.
2. The Rules also lay down that any mechanism for the registration should be automated and should take into account ease of doing business for producers, recyclers and manufacturers.
3. The centralised registration system will be evolved by Central Pollution Control Board (CPCB) for the registration of the producer/importer/brand owner.

- While a national registry has been prescribed for producers with presence in more than two states, a state-level registration has been prescribed for smaller producers/brand owners operating within one or two states.
- In addition, Rule 15 of the Plastic Waste Management (Amendment) Rules 2018 on "explicit pricing of carry bags" has been omitted.

Plastic Waste Management Amendment Rules, 2021

Keeping in view the adverse impacts of littered plastic on both terrestrial and aquatic ecosystems, the MOEFCC, has notified the Plastic Waste Management Amendment Rules, 2021 on August 12, 2021.

- The rules prohibits identified single use plastic items which have "low utility and high littering potential" by 2022.
- The manufacture, import, stocking, distribution, sale and use of following single-use plastic, including polystyrene and expanded polystyrene, commodities shall be prohibited with effect from the 1st July, 2022:-
  1. ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [Thermocol] for decoration;
  2. plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers.

- In order to stop littering due to light weight plastic carry bags, with effect from 30th September, 2021, the thickness of plastic carry bags increased from 50 to 75 microns from 30th September, 2021 and to 120 microns with effect from the 31st December, 2022. This will also allow reuse of plastic carry due to increase in thickness.
- The plastic packaging waste, which is not covered under the phase out of identified single use plastic items, shall be collected and managed in an
environmentally sustainable way through the Extended Producer Responsibility of the Producer, importer and Brand owner (PIBO), as per Plastic Waste Management Rules, 2016.

- For effective implementation of EPR, the Guidelines for EPR being brought out have been given legal force through Plastic Waste Management Amendment Rules, 2021.

Conclusion

- An eco-friendly product, which is a complete substitute of the plastic in all uses, has not been found till date. In the absence of a suitable alternative, it is impractical and undesirable to impose a blanket ban on the use of plastic all over the country. The real challenge is to improve plastic waste management systems.

You can get the Handout on this link: Click here

Source: PIB

Plastic Pollution in India

Plastic Pollution is an important problem in India. It is a part of UPSC GS Paper III Biodiversity, Environment and Pollution in India. Before learning about Plastic Pollution in India it is highly recommended that you watch Ankit Sir’s lecture about Plastic Pollution crisis and then come back to this write up.
What are Single-use plastics?

- Single-use plastics (SUPs) are those that are discarded after one-time use.
- Besides the ubiquitous plastic bags, SUPs include water and flavoured/aerated drinks bottles, takeaway food containers, disposable cutlery, straws, and stirrers, processed food packets and wrappers, cotton bud sticks, etc.
- Of these, foamed products such as cutlery, plates, and cups are considered
the most lethal to the environment.

- Single-use plastics, or disposable plastics, are used only once before they are thrown away or recycled. These items are things like plastic bags, straws, coffee stirrers, soda and water bottles and most food packaging.
- Some states like Telangana, Maharashtra, Tamil Nadu, Himachal Pradesh banned plastic bottles and Tetra packs, single-use straws, plastic/styrofoam tea cups/containers, etc. But many like Bihar banned only polythene bags.

**Pollutants in Plastic**

- Plastic includes Diethylhexyl Pthalet, Cadmium, Lead, Mercury.
- **Burning of Plastic** leads to release of Polychlorinated Biphenyls, Pathogens, Heavy metals in water bodies, Phosgene (COCl2) and Methyl Isocyanate, Dioxins and Furans.
- **Microplastics in India** are those plastics whose size is less than 5 mm. They are mainly made of polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), Poly(methyl Methacrylate) (PMMA) and Nylon. Used in cosmetics (exfoliation), toothpaste, biomedical.
- Microplastic includes microbeads (solid plastic particles of less than one millimeter in their largest dimension) that are used in cosmetics and personal care products, industrial scrubbers which are used for aggressive blast cleaning, microfibers used in textiles and virgin resin pellets used in plastic manufacturing processes.

**Marine Plastic**

Researchers have found litter from Malaysia, Indonesia and Thailand on the island, which hosts a biosphere reserve

**Marine Plastic**

- About 10 countries including India contributed to the plastic litter in the Great
Nicobar island. They were Malaysia, Indonesia, Thailand, Singapore, Philippines, Vietnam, India, Myanmar, China and Japan.

- Major portion of the litter (40.5%) was of Malaysian origin. It was followed by Indonesia (23.9%) and Thailand (16.3%). The litter of Indian origin only amounted to 2.2%
- The overwhelming contribution from Indonesia and Thailand was likely due to its proximity to the island; the plastic is likely to have made its way to the island because of water currents via the Malacca Strait, which is a major shipping route.
- The huge quantities of marine debris observed on this island might be due to improper handling of the solid waste from fishing/mariculture activity and ship traffic.
- Plastic pollution has emerged as one of the severest threats to ocean ecosystems and its concentration has reached 5,80,000 pieces per square kilometre.
- Plastic represents 83% of the marine litter found. The remaining 17% is mainly textiles, paper, metal and wood.

Problem of plastic in India

- Plastic bags are not safe for the ecosystem, since they are not easy to recycle. They cause severe health hazard for human, animals and the environment.
- According to the Central Pollution Control Board (CPCB), India generates close to 26,000 tonnes of plastic a day and over 10,000 tonnes a day of plastic waste remains uncollected.
- According to a Federation of Indian Chambers of Commerce and Industry (FICCI) study the plastic processing industry is estimated to grow to 22 million tonnes (MT) a year by 2020 from 13.4 MT in 2015 and nearly half of this is single-use plastic.
- India’s per capita plastic consumption of less than 11 kg, is nearly a tenth of the United States of America (109 kg).
- Waste plastic from packaging of everything from food, cosmetics and groceries to goods delivered by online platforms remains unaddressed.
- Collect-back system The Plastic Waste Management Rules, 2016 are clear that producers, importers and brand owners must adopt a collect-back system for the plastic they introduce into the environment. However, not much has been done to take the process forward.
- Extended Producer Responsibility clause: Small producers of plastics are facing the ban, while more organised entities covered by the Extended
Recently there was also an issue of Plastic Pollution in Sundarbans and Microplastic pollution in Ganga.

Alternatives to Plastic

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<thead>
<tr>
<th>Use THIS</th>
<th>Not THAT</th>
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<tbody>
<tr>
<td>Reusable Cloth Totes</td>
<td>Plastic Shopping Bags</td>
</tr>
<tr>
<td>Reusable Drinking Container</td>
<td>Plastic Water Bottles</td>
</tr>
<tr>
<td>Metal Drinking Straws</td>
<td>Plastic Drinking Straws</td>
</tr>
<tr>
<td>Metal Utensils</td>
<td>Plastic Utensils</td>
</tr>
<tr>
<td>Natural Fabrics</td>
<td>Synthetic Fabrics</td>
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<thead>
<tr>
<th>Use THIS</th>
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<tbody>
<tr>
<td>Bee'swax Wrap</td>
<td>Cellophane Wrap</td>
</tr>
<tr>
<td>Glass Refillable Containers</td>
<td>Plastic Drink Jugs/ Containers</td>
</tr>
<tr>
<td>Cardboard Case</td>
<td>Plastic 6 pack Rings</td>
</tr>
<tr>
<td>Microfiber/Microplastic Lint Filter</td>
<td>Nylons As Lint Trap</td>
</tr>
<tr>
<td>Metal Razor With Replaceable Blades</td>
<td>Plastic Razors</td>
</tr>
</tbody>
</table>

Although compostable, biodegradable or even edible plastics made from various materials such as sugarcane bagasse, corn starch, and grain flour are promoted as alternatives, these currently have limitations of scale and cost.

Some biodegradable packaging materials require specific microorganisms to be broken down, while compostable cups and plates made of polylactic acid,
a popular resource derived from biomass such as corn starch, require industrial composters.

- On the other hand, articles made through a different process involving potato and corn starch have done better in normal conditions, going by the experience in Britain.
- Seaweed is also emerging as a choice to make edible containers.
- In India, though, in the absence of robust testing and certification to verify claims made by producers, spurious biodegradable and compostable plastics are entering the marketplace.

**Solutions to Plastic Pollution in India**

1. Government of India has recently notified [Plastic Waste Management Rules, 2021](#) to eliminate single use plastic by 2022. We need to ensure its strict implementation.
2. For Marine plastic pollution, World countries have started an initiative called [MARPOL, BOBLME Project, Automated Moorings, UN led Clean Seas Campaign, 2017 etc.](#)
3. Convert plastic waste into Energy and useful products.
UPSC "PT" DNA (Daily News Analysis)

HOW PLASTIC IS BEING CONVERTED INTO USEFUL PRODUCTS IN 7 STEPS

1. Waste sorted into different categories, including multi-layered and single-use items
2. Plastic is washed and then chopped through a machine into finer pieces
3. Polythene cuttings treated with chemicals and mixed with coloured rags
4. Bleaching done by using ozone on the pulp
5. Pulp converted into sheets; tested for strength and quality
6. 3.40 Cost reduction on one carry bag
7. Remaining debris used along with soil for other gardening purposes

Amount of waste used in making one carry bag = 20gm polythene waste and 20 grams of garbage waste

100 per kg Cost of production earlier
66 per kg Cost of production now

Sheets can be converted into paper bags and other items now

100gm Pulp used to make one carry bag
10MT Raw material required for making 1 lakh carry bags
Way Forward

- Governments must start charging the producers for their waste, and collect it diligently, which will lead to recovery and recycling.
- State and local governments should upgrade their waste management systems, which is necessary to even measure the true scale of packaging waste.
- Role of local bodies: Local bodies should consult manufacturers or importers to assess the problem. Cities and towns need competent municipal systems to achieve this.
- A central legislation with a clear definition of what constitutes single-use plastic is also necessary.

Source: TH
IndiGau: India’s first Cattle Genomic Chip

- The data on Cattle and Livestock Sector of India can be accessed through the 20th Livestock Census released in 2019.
- Recently, Government of India released “IndiGau’, India’s first Cattle Genomic Chip for the conservation of pure varieties of indigenous cattle breeds like, Gir, Kankrej, Sahiwal, Ongole etc.

- This indigenous chip was developed by the concerted efforts of scientists of National Institute of Animal Biotechnology (NAIB), Hyderabad, an autonomous institution under the aegis of the Department of Biotechnology.
- IndiGau is purely indigenous and the largest cattle chip of the world
- It has 11,496 markers (SNPs) more than that placed on 777K Illumina chip of US & UK breeds. This CHIP of our own indigenous cows is a great example of self-reliant India / “Aatma Nirbhar Bharat”.
- This chip will have practical utility in the Governments schemes to achieve the goal of conservation of our own breeds with better characters and help towards doubling of farmers’ income by 2022.
To further the use of this chip in generating phenotypic and genotypic correlations, NIAB has entered into a collaborative agreement with National Dairy Development Board (NDDB).

- Since NDDB has well organized presence in the field for collection of phenotypic record, NIAB and NDDB complement each other to undertake this research for generating information for low density SNP chip for any important trait detection, like high milk yield or heat tolerance etc. This will eventually help in elite bull selection and improvement of productivity characters of Indian cattle.
- NIAB has also entered into a MoU with private industry to generate capability within India for designing and making our own SNP chips.
- These may be very low density SNP chips in the beginning and slowly this technology can be further strengthened for bigger chips, making India self-reliant in this field.

Source: PIB
Union Ministry of Petroleum and Natural gas (MoPNG) has released the Hydrocarbon Vision 2030 for north-east India in 2016. The Hydrocarbon Vision 2030 outlines steps to leverage the hydrocarbon sector for social and economic development of the north-east region. The states covered under it are Assam, Arunachal Pradesh, Meghalaya, Manipur, Nagaland, Sikkim, Mizoram and Tripura.

**Key features of the Hydrocarbon Vision 2030**

- **Objective**: To leverage the north-east region’s hydrocarbon potential, improve availability of petroleum products, enhance access to clean fuels, facilitate economic development and link common people to the economic activities in this sector.
- It lays out a detailed roadmap for the entire hydrocarbons value chain, covering all aspects of upstream, midstream and downstream segments of this sector.
- The Vision rests on five pillars of 5Ps *People, Policy, Partnership, Projects and Production*.
- **People**: Foresees accessibility of clean fuel to households in this region and also foster skill development and local community involvement.
- **Policy**: Focus on development of areas including moderation of specific terrain and weather conditions of the region along with fund planning for new projects.
- **Partnership**: Give stress on greater involvement of state governments from this region in planning and implementation and also boosting trade with neighbouring nations.
- **Projects**: Focus on pipeline connectivity for carrying natural gas, liquefied petroleum gas (LPG), petroleum products, oil and lubricants (POL).
- It will also include building refineries and import links and development of compressed natural gas (CNG) highways and city gas distribution network.
- **Production**: Give emphases for technology deployment, production enhancement contracts and fast-track clearance and also development of service provider hubs.
- The vision also focuses on other areas including exploring hydrocarbon linkages and trade opportunities with neighbouring countries like Bangladesh, Myanmar, Nepal and Bhutan.
- It also *aims at doubling Oil and Gas production by 2030*, fast tracking
projects, generating employment opportunities and promoting cooperation with neighbouring countries.

Source: Aspire IAS Notes
The National Mission on Edible Oils-Oil Palm (NMEO-OP), a ₹11,040 crore project by the Union government to maximise cultivation and production, is expected to bring in remarkable growth prospects for the palm oil industry in Kerala.

While both farmers and refiners find the scheme extremely encouraging, it can also revitalise the estates run by the Oil Palm India Limited and the Plantation Corporation of Kerala.

Since India is heavily dependent on imports when it comes to crude and refined palm oils, the industry stakeholders believe that the current development will be highly beneficial for the sector.

The NMEO-OP proposes to extend cultivation of oil palm, considered a top oil crop, to an additional 6.5 lakh hectares so that the crude palm oil (CPO) production touches 11.20 lakh tonnes by the 2025-26 financial year.

In the total financial outlay of ₹11,040 crore, the share of the Centre will be ₹8,844 crore while the State share of ₹2,196 crore includes the viability gap funding as well. Reportedly, the State government was considering some projects to expand cultivation even before the scheme was announced.

Oil Palm India Limited maintains a 3,500 ha plantation in the State while Plantation Corporation of Kerala has a 705-ha estate. While NMEO-OP offers a special assistance for the rejuvenation of old gardens, it is also expected to generate more employment in the sector.

In Kerala, we have plantations, factories, seed farms and research facilities, but so far the Centre had opted to neglect the State. With adequate support from the Centre we can produce oil required for at least four States.

Source: TH

Geo Tourism in India

What is Geo Tourism?

- Geotourism is tourism associated with geological attractions and
destinations. Geotourism deals with the abiotic natural and built environments. Geotourism was first defined in England by Thomas Alfred Hose in 1995.

National Geological Monuments

- India is a country with diverse physical attributes, rich cultural heritage and eventful ancient history. Tourism plays a major role in showcasing this great country to the rest of the world. Of late, there has been significant initiative in promoting tourism even in remotest corners of the country.
- Indian subcontinent exhibits imprints of varied geological processes through ages and is a storehouse of interesting geological features. Geological Survey of India has already enlisted some of those locales as National...
Geological Monuments. It is imperative that the Tourist Map of India would be greatly enriched by the inclusion of these geological monuments and alike, so that the visitors from the country and abroad can have an insight in the real past - the formation of the subcontinent, the orogeny, the palaeoenvironment and the exotic collection of paleo - flora and fauna.

- Geological Survey of India has undertaken the responsibility of protection and promotion of such features and has declared 26 such sites, located in different parts of the country, as National geological Monuments.

Why in news?

- The Geological Survey of India (GSI) has identified certain geological sites across the Northeast for promotion of geo-tourism as some States in the region prepare to ‘unlock’ from September.
- Sikkim has already opened for tourists while Assam and Nagaland are planning to withdraw COVID-19 restrictions from September in view of the dip in the positivity rate and an increase in the number of vaccinated people.
- “Twelve locations in the Northeast are included in the 32 approved geo-tourism or geo-heritage sites in the country. These are scenic places that can be top attractions,” a GSI official said, declining to be quoted.
- Of the 12 sites, three are in Meghalaya, two each in Assam and Tripura, and one each in Arunachal Pradesh, Manipur, Mizoram, Nagaland and Sikkim.

Source: GSI

RBI, IRDAI nod must for FDI in bank-led insurance

Applications for Foreign Direct Investment in an insurance company promoted by a private bank would be cleared by the RBI and IRDAI to ensure that the 74% limit of overseas investment is not breached.

The changes took effect following amendments to the Foreign Exchange Management (Non-debt Instruments) Rules, 2019, as per the gazette notification issued by the Finance Ministry on August 19.

“These rules may be called the Foreign Exchange Management (Non-debt
In March, Parliament passed a bill to raise the foreign direct investment (FDI) limit in the insurance sector from 49% to 74%. The Insurance Act, 1938 was last amended in 2015, raising the limit to 49%, resulting in foreign capital inflow of ₹26,000 crore over 5 years.

“Applications for foreign direct investment in private banks having joint venture or subsidiary in insurance may be addressed to the Reserve Bank for consideration in consultation with the Insurance Regulatory and Development Authority of India (IRDAI),” to ensure that the foreign investment limit is not breached, the notification said.

India has attracted highest ever total FDI inflow of US$ 81.72 billion during the financial year 2020-21 and it is 10% higher as compared to the last financial year 2019-20 (US$ 74.39 billion).

Source: TH

Afghanistan Civil War 2021
GS:II | 21 August, 2021

Historical Background

- Afghanistan was never ruled by a Single ruler. It has had a history of conquests by Alexander (330 BC), Mongol Empire (13th Century), Mughal conquests, Three Anglo Afghan Wars (1839-1842; 1878 – 1880 and 1919 respectively), Panjdeh incident (which was an armed engagement between the Afghanistan and Russian Empire in 1885 and the first major incursion into Afghanistan by Russia), etc.
During the Modern era, 1973 Afghan coup d'état occurred. In a relatively bloodless coup, King Mohammed Zahir Shah was deposed on 17 July 1973 and the Republic of Afghanistan established and Monarchy abolished.

The coup was executed by the then-Army commander and prince, Mohammed Daoud Khan who led forces in Kabul along with then-chief of staff General Abdul Karim Mustaghni to overthrow the monarchy while the King was convalescing abroad in Ischia, Italy.

Daoud Khan was assisted by leftist Army officers and civil servants from the Parcham faction of the PDPA, including Air Force colonel Abdul Qadir.

King Zahir Shah decided not to retaliate and he formally abdicated on August 24, remaining in Italy in exile. More than two centuries of royal rule (since the founding of the Durrani Empire in 1747) ended.

Saur Revolution, 1979
Saur Revolution aka April Revolution or April coup was a coup d'état (or self-proclaimed revolution) led by the People's Democratic Party of Afghanistan (PDPA) against the rule of Afghan President Mohammed Daoud Khan on 27–28 April 1978. Daoud Khan and most of his family were killed at the presidential palace by military officers in support of the PDPA. The revolution resulted in the creation of a Soviet-aligned government with Nur Muhammad Taraki as President (General Secretary of the Revolutionary Council). The revolution was ordered by PDPA member Hafizullah Amin, who would become a significant figure in the revolutionary government; at a press conference in New York in June 1978, Amin claimed that the event was not a coup but a revolution by the "will of the people". The coup involved heavy fighting and resulted in many deaths. The Saur Revolution was a significant event in Afghanistan's history, marking the onset of 43 years of conflict in the country.

Aftermath of Saur Revolution, 1978
Power was thereafter shared by two Marxist-Leninist political groups, the People’s (Khalq) Party and the Banner (Parcham) Party, which had earlier emerged from a single organization, the People’s Democratic Party of Afghanistan, and had reunited in an uneasy coalition shortly before the coup. Taraki’s government introduced many modernisation reforms that were considered too radical and left them unpopular, especially in the rural areas and with the traditional power structures.

The new government, which had little popular support, forged close ties with the Soviet Union, launched ruthless purges of all domestic opposition, and began extensive land and social reforms that were bitterly resented by the devoutly Muslim and largely anticommunist population.

Insurgencies arose against the government among both tribal and urban groups, and all of these—known collectively as the mujahideen (Arabic: muj?hid?n, “those who engage in jihad”)—were Islamic in orientation.

The communist party itself experienced deep internal rivalries between the Khalqists and Parchamites; in September 1979, People’s Democratic Party General Secretary Nur Mohammad Taraki was assassinated under orders of the second-in-command, Hafizullah Amin, which soured relations with the Soviet Union.

With fears rising that Amin was planning to switch sides to the United States, the Soviet government, under leader Leonid Brezhnev, decided to deploy the 40th Army across the border on 24 December 1979.

Soviet – Afghan War: Deployment of Soviet Army (1979 – 89)
The Soviet–Afghan War was a conflict wherein insurgent groups (known collectively as the Afghan mujahideen), as well as smaller Maoist groups, fought a nine-year guerrilla war against the Soviet Army and the Democratic Republic of Afghanistan government throughout the 1980s, mostly in the Afghan countryside.

Arriving in the capital Kabul, Soviet army staged a coup (Operation Storm-333), killing General Secretary Amin and installing Soviet loyalist Babrak Karmal from the rival faction Parcham. The Soviet invasion was based on the Brezhnev Doctrine. Later Babrak Karmal was installed as the new President who was a Soviet Ally.

But the Mujahideen rebellion grew in response. The Soviets initially left the suppression of the rebellion to the Afghan army, but the latter was beset by mass desertions and remained largely ineffective throughout the war.

This intervention was seen as an invasion by the USA and other western nations.

While the Soviet army had control of the cities and towns, the insurgency groups called the Mujahideen had the rural parts of Afghanistan under their control.

A bitter war was fought between both groups. The Soviet Union, which had planned to stay for 6 months to a year in Afghanistan found themselves stuck in a war that was proving to be too costly.

The Mujahideen did not relent in their pursuit to ‘drive out’ the Soviets. They had the support of many countries like the USA, Pakistan, China, Iran, Egypt and Saudi Arabia.

They were given assistance like arms and training needed to fight the soviets.

The soviets followed a policy of wiping out the rural regions in order to defeat the Mujahideen. Millions of land mines were planted and important irrigation systems were destroyed.

As a result, millions of Afghan refugees took refuge in Pakistan and Iran. Some came to India as well. It is estimated that in the Soviet-Afghan war, about 20 lakh Afghan civilians were killed.

In 1987, after the reformist Mikhail Gorbachev came to power in the Soviet Union, he announced that his government would start withdrawing troops.

Geneva Accords (1988)

The Geneva Accords, known formally as the agreements on the settlement of the situation relating to Afghanistan, were signed on 14 April 1988 at the...
Geneva headquarters of the United Nations, between Afghanistan and Pakistan, with the United States and the Soviet Union serving as guarantors.

- The accords consisted of several instruments: a bilateral agreement between the Islamic Republic of Pakistan and the Republic of Afghanistan on the principles of mutual relations, in particular on non-interference and non-intervention; a declaration on international guarantees, signed by the Soviet Union and the United States; a bilateral agreement between Pakistan and Afghanistan on the voluntary return of Afghan refugees; and an agreement on the interrelationships for the settlement of the situation relating to Afghanistan, signed by Pakistan and Afghanistan and witnessed by the Soviet Union and the United States.

- The agreements also contained provisions for the timetable of the withdrawal of Soviet troops from Afghanistan.
- It officially began on 15 May 1988 and ended by 15 February 1989, thus putting an end to a nine-year-long Soviet occupation and Soviet–Afghan War.
- The United States reneged on an agreement it had made, with White House clearance, albeit aloofness, in December 1985 to stop the supply of arms to the mujahideen through Pakistan once the Soviet withdrawal was complete.
- Mikhail Gorbachev felt betrayed, but the Soviet Union was determined to withdraw and so the accords were supplanted with a contradictory "understanding" that the arms supply would continue.
The final soviet troops were withdrawn on 15 February 1989.
The Afghan resistance, or mujahideen, were neither party to the negotiations nor to the Geneva accords and so refused to accept the terms of the agreement. Now, the government of Afghanistan was left alone to fight the Mujahideen.
As a result, the civil war continued after the completion of the Soviet withdrawal. The Soviet-backed regime of Mohammad Najibullah failed to win popular support, territory, or international recognition but was able to remain in power until 1992, when it collapsed and was overrun by the mujahideen.
In April 1992 various rebel groups, together with newly rebellious government troops, stormed the besieged capital of Kabul and overthrew the communist president, Najibullah, who had succeeded Karmal in 1986.
Again, the Mujahideen had different factions within and they could not agree
This article covers the Afghan history from the Soviet withdrawal from Afghanistan on 15 February 1989 until 27 April 1992, the day after the proclamation of the Peshawar Accords proclaiming a new interim Afghan government which was supposed to start serving on 28 April 1992.

- **Mujahideen groups**: some of them more or less united in the Islamic Unity of Afghanistan Mujahideen, in the years 1989–1992 proclaimed as their conviction that they were battling the hostile "puppet regime" of the Republic of Afghanistan in Kabul.
In March 1989, the mujahideen groups Hezb-e Islami Gulbuddin and Ittehad-e Islami in cooperation with the Pakistani ISI Inter-Services Intelligence (ISI) attacked Jalalabad but they were defeated by June.

In March 1992, a mujahideen coalition quickly conquered the city of Khost. In March 1992, having lost the last remnants of Soviet support, President Mohammad Najibullah agreed to step aside and make way for a mujahideen coalition government.

One mujahideen group, Hezb-e Islami Gulbuddin, refused to confer and discuss a coalition government under the Pakistani sponsored Peshawar Peace Accords and invaded Kabul.

This kicked off a civil war, starting 25 April 1992, between initially three, but within weeks five or six mujahideen groups or armies.

On 25 April 1992, a civil war had ignited between three, later five or six, mujahideen armies, when Hezb-e Islami Gulbuddin led by Gulbuddin Hekmatyar and supported by Pakistan’s Inter-Services Intelligence (ISI) refused to form a coalition government with other mujahideen groups and tried to conquer Kabul for themselves. After four months, already half a million residents of Kabul had fled the heavily bombarded city.

The following years, several times some of those militant groups formed coalitions, and often broke them again.

By mid 1994, Kabul’s original population of two million had dropped to 500,000.

Rise of Taliban

Partly as a response, the Taliban (Pashto for “Students”), a puritanical Islamic group led by a former mujahideen commander, Mohammad Omar, emerged in the fall of 1994.

In 1995–96, the new militia the Taliban, supported by Pakistan and ISI, had grown to be the strongest force. Many of them were trained in Pakistan when they were in refugee camps.

By late 1994, the Taliban had captured Kandahar, in 1995 they took Herat, in early September 1996 they took Jalalabad, and eventually in late September 1996 they captured Kabul. By 1998, almost entire Afghanistan was under the control of the Taliban.

Fighting would continue the following years, often between the now dominant Taliban and other groups.

The Islamic State of Afghanistan government remained the recognized government of Afghanistan of most of the international community, the Taliban’s Islamic Emirate of Afghanistan however received recognition from
Saudi Arabia, Pakistan and the United Arab Emirates. The defense minister of the Islamic State of Afghanistan, Ahmad Shah Massoud, created the United Front (Northern Alliance) in opposition to the Taliban.

- The United Front included all Afghan ethnicities: Tajiks, Uzbeks, Hazaras, Turkmens, some Pashtuns and others.

- Many of the Mujahideen warlords fled to the north of the country and joined the Northern Alliance who were fighting the Taliban.
- This time, Russia lent support to the Northern Alliance though they were fighting against them earlier.
- During the conflict, the Taliban received military support from Pakistan and financial support from Saudi Arabia.
- Pakistan militarily intervened in Afghanistan, deploying battalions and regiments of its Frontier Corps and Army against the United Front.
- Al Qaeda supported the Taliban with thousands of imported fighters from Pakistan, Arab countries, and Central Asia.
- The Taliban ruled the country under strict interpretation of the Sharia law and many of the progress with regard to women and education which the country had seen earlier, were reversed.
- Girls were forbidden from attending schools and women banned from working.
- The Taliban-ruled country also became a safe haven for international terrorists.
- Only Pakistan, the UAE and Saudi Arabia recognised the Taliban government.

9/11 Attacks and invasion by USA
Al-Qaeda, led by Osama Bin Laden in Afghanistan, carried out the largest terror attack ever conducted on US soil. Four commercial airliners were hijacked. Two are flown into the World Trade Centre in New York, which collapses. One hits the Pentagon building in Washington, and one crashes into a field in Pennsylvania. Nearly 3,000 people were killed.

After the initial objectives were completed, a coalition of over 40 countries (including all NATO members) formed a security mission in the country called International Security Assistance Force (ISAF, succeeded by the Resolute Support Mission (RS) in 2014) of which certain members were involved in military combat allied with Afghanistan's government.

The war mostly consisted of Taliban insurgencies fighting against the Afghan Armed Forces and allied forces; the majority of ISAF/RS soldiers and personnel are American.


Following the September 11 attacks in 2001, George W. Bush demanded that the Taliban, then-de facto ruling Afghanistan, hand over Osama bin Laden.

The Taliban’s refusal to extradite him led to Operation Enduring Freedom; the Taliban and their Al-Qaeda allies were mostly defeated in the country by US-led forces, and the Northern Alliance which had been fighting the Taliban since 1996.

At the Bonn Conference, new Afghan interim authorities (mostly from the Northern Alliance) elected Hamid Karzai to head the Afghan Interim Administration.

The United Nations Security Council established the ISAF to assist the new authority with securing Kabul.

A nationwide rebuilding effort was also made following the end of the Taliban regime.

Reorganization of Taliban

Following defeat in the initial invasion, the Taliban was reorganized by Mullah Omar and launched an insurgency against the Afghan government in 2003.

Insurgents from the Taliban and other groups waged asymmetric warfare with guerrilla raids and ambushes in the countryside, suicide attacks against urban targets, and turncoat killings against coalition forces.

The Taliban exploited weaknesses in the Afghan government to reassert influence across rural areas of southern and eastern Afghanistan.

From 2006 the Taliban made further gains and showed an increased willingness to commit atrocities against civilians; ISAF responded by increasing troops for counter-insurgency operations to "clear and hold" villages. Violence escalated from 2007 to 2009.

Troop numbers began to surge in 2009 and continued to increase through 2011 when roughly 140,000 foreign troops operated under ISAF and US
command in Afghanistan.

- **NATO leaders in 2012 commenced an exit strategy for withdrawing their forces** and later the United States announced that its major combat operations would end in December 2014, leaving a residual force in the country.

- **On 28 December 2014, NATO formally ended ISAF combat operations** in Afghanistan and officially transferred full security responsibility to the Afghan government. The **NATO-led Operation Resolute Support** was formed the same day as a successor to ISAF.

**Doha Peace Deal**

- On 29 February 2020, the United States and the Taliban signed a conditional peace deal in Doha which required that US troops withdraw from Afghanistan within 14 months so long as the Taliban cooperated with the terms of the agreement not to "allow any of its members, other individuals or groups, including Al Qaeda, to use the soil of Afghanistan to threaten the security of the United States and its allies".
- Additionally, insurgents belonging to al-Qaeda in the Indian Subcontinent and ISIL-K would continue to operate in parts of the country.
- **The Afghan government was not a party to the deal and rejected its terms regarding release of prisoners**.
After Joe Biden became president, he moved back the target withdrawal date from April 2021 to 11 September 2021 and then to 31 August 2021.

During the 2021 offensive, the Taliban took over Afghanistan. On 15 August 2021, the president of Afghanistan Ashraf Ghani fled to Tajikistan and the Taliban declared victory and the war over.

According to the Costs of War project at Brown University, as of April 2021, the war has killed 171,000 to 174,000 people in Afghanistan; 47,245 Afghan civilians, 66,000 to 69,000 Afghan military and police and at least 51,000 opposition fighters.

Between 2001 and 2021, Afghanistan experienced improvements in health, education and women's rights.

According to the U.N, after the 2001 invasion, more than 5.7 million former refugees returned to Afghanistan, however, since the renewed Taliban offensive of 2021, 2.6 million Afghans remain refugees or have fled, mostly in Pakistan and Iran, and another 4 million Afghans remain internally displaced persons within the country.
Source: Aspire IAS Newspaper Notes
Why in News? Earthquake Observatories in India

- India is going to have 35 more earthquake Observatories by end of this year and 100 more such Observatories in next five years.
- In last six and a half decades since Independence, the country had only 115 Earthquake Observatories but now, there is going to be a quantum leap in the number of Earthquake Observatories in the country.
- Indian subcontinent is considered as one of the world’s most disaster-prone areas in terms of earthquakes, landslides, cyclones, floods, and tsunamis.

What is an Earthquake?

- Earthquake is a fault is the sharp break in the crustal rocks. When lithospheric plates move, the surface of the Earth vibrates (release of Energy and the Energy waves travel in all directions). Earthquake is the sudden release of the Energy in Earth’s crust that creates seismic waves.
Energy accumulation site is identified with deformed rocks caused by tension or compression.

The subterranean spot at which rocks begin to shift/rupture is Focus or Hypocenter of Earthquake, whereas the point vertically over the Focus is Epicenter, which experiences the 1st waves and the greatest damage which decreases as we go outwards.

The waves generated by an Earthquake are called seismic waves recorded by an instrument Seismograph. The magnitude (Energy that is released) of the Earthquake is measured by Richter Scale whereas the intensity (Damage caused) is measured by Mercalli Scale.

During Earthquake, the rocks in the path of P waves get compressed/expanded in the direction of propagation so it affects their volume rather than shape. In case of S waves, it changes the shape and not volume.

Earthquakes are by far the most unpredictable and highly destructive of all the natural disasters due to its suddenness. Earthquakes that are of tectonic origin have proved to be the most devastating and their area of influence is also quite large than other causes.

### Body Waves

Body waves are generated due to focus of the Earth and move through the body / interior of Earth in all directions.
Primary (P) waves:

1. They are longitudinal waves so can pass through both solids and liquids.
2. They travel parallel to the direction of wave thus it creates density difference in the material leading to stretching and squeezing of the material.
3. Also as the density of medium increases their velocity also increases. But they travel slowly through liquids, so at the depth of 2900 km, they reach liquid molten core so their velocity reduces.
4. As they reach inner core (which is a solid) their velocity increases again. They are similar to sound waves.

Secondary (S) waves:

1. They are transverse waves so can't pass through liquids.
2. They travel perpendicular to the direction of wave thus it creates crests and troughs.
3. They travel to a depth of 2900 km after which they get deflected since they reach outer core which is liquid.
Surface Waves

- The body waves interact with the surface rocks and generate a new set of waves which move along the surface, thus called Surface waves.

Love (L) waves

- They are surface waves and don't go deeper into the earth. The travel perpendicular to the direction of propagation.
- L waves are most destructive. In L waves movement of particles takes place in the horizontal plane only but @ 90° to the direction of propagation of the wave.
- L waves move like a Snake. The surface waves get significantly amplified when they pass through a soft ground like alluvial deposits.
- There is compression and rolling over of soft alluvial deposits which is called liquefaction.

Raleigh (R) waves:
R waves are analogous to sea waves i.e. movement of particles takes place in the vertical plane. L waves are faster than R waves so the sequence of arrival is PSLR.

Causes of Earthquakes

- Plate Movements: Ex. Himalayan region having C-C convergence.
- Volcanic Eruptions.
- Gaseous Expansion and Contraction inside the Earth
- Hydrostatic pressure (Ex. Reservoir induced) Ex. Koyna Dam Earthquakes in MH.
- Anthropogenic Causes: Mining & drilling.

Types of Earthquakes
Tectonic EQs: Most common. Generated due to sliding of rocks along fault lines.

Volcanic EQs: A special class of Tectonic EQ confined to the areas of volcanoes.

Induced EQs: Occurs in the areas of large reservoirs.

Distribution of Earthquakes in the World

- Tectonic EQs: Most common. Generated due to sliding of rocks along fault lines.
- Volcanic EQs: A special class of Tectonic EQ confined to the areas of volcanoes.
- Induced EQs: Occurs in the areas of large reservoirs.
The World’s distribution of Earthquakes coincides very closely with that of volcanoes.

~70% of Earthquakes occur in Circum pacific belt. ~20% occur in Mediterranean- Himalayan belt including Asia Minor, Himalayas and parts of North west China. Elsewhere Earth’s crust is relatively stable and is less prone but not immune to earth tremors.

Earthquake prone areas in India
The entire region covering fourteen states (located in western and central Himalayas, northeast, and parts of Indo-Gangetic basin) is highly prone to earthquakes. Some of the most vulnerable states are J&K, HP, UK, SK and Darjeeling, all NE states.
The hilly regions are also prone to earthquake-induced landslides. The other seismically active regions of the country include the Gulf of Khambhat and Rann of Kutch in Western Gujarat (1819, 1956, 2001), parts of peninsular India like MH (1967, 1993), the islands of LD and A&N.

**Impacts of Earthquake**

1) Impact on ground:
   - Slope instability and Landslides or Avalanches (often cause obstructions in
2) Impact on

- **manmade infrastructure**: Damage to settlements, infra, industries.
- **On water**: Flash floods, Tsunamis (waves generated by tremors and not an EQ), Hydro-Dynamic Pressure.
- **On Biodiversity**: Loss of human and animal lives, Robs the population of their material and socio-cultural gains that they have preserved over generations. It renders them homeless, unemployed, increases poverty.

Earthquake Disaster Management:

- In our present state of knowledge, earthquakes can neither be prevented nor predicted in terms of their magnitude, or place and time of occurrence. Also, unlike other disasters, the damages caused by it are more devastating.
- So, the most effective measures of risk reduction are pre-disaster mitigation, preparedness & preventive measures. Since it also destroys transport and communication links, providing timely relief to the victims becomes difficult. Hence the above methods should be combined w expeditious & effective rescue and relief actions immediately after the occurrence of the earthquake.
- Establishing earthquake monitoring centers for regular monitoring and fast dissemination of information among the people in the vulnerable areas. Use of GPS can be of great help in monitoring the movement of tectonic plates.
- Preparing a vulnerability map of the country and dissemination of vulnerability risk information among the people.
- Educating the people about the ways and means minimizing the adverse impacts of disasters.
- Modifying the house types and building designs in the vulnerable areas and discouraging construction of high-rise buildings, large industrial establishments and big urban centers in such areas.
- Finally, making it mandatory to adopt earthquake-resistant designs and use light materials in major construction activities in the vulnerable areas.
Nano-Technology in India
GS-III | 22 August, 2021

What is Nano Technology?
Nanotechnology is the development and use of techniques to study physical phenomena and develop new devices and material structures in the physical
Nano technology is manipulation of matter on an atomic, molecular, and supramolecular scale with at least one dimension sized from 1 to 100 nanometers. On the other hand, the smallest cellular life-forms, the bacteria of the genus Mycoplasma, are around 200 nm in length. The concepts of Nanotechnology was first discussed in 1959 by renowned physicist Richard Feynman. The term "nano-technology" was first used by Norio Taniguchi in 1974.

Applications of Nano-technology

Nanotechnology impacts all areas of our lives. These include materials and manufacturing, electronics, computers, telecommunication and information technologies, medicine and health, the environment and energy storage, chemical and biological technologies and agriculture.

- Electronics: Cell phones and computers
- Energy: Nanoscale materials such as nanopillars are sometimes used in solar cells.
- Medicine:
  1. Nano robots to deliver drugs to specific areas.
  2. The development of nano nose to detect cancer by analysing breathing.
  3. Artificial skin made through nanotechnology that leads to regeneration of natural skin.
  4. In fact, a bandage made of silver nano particles that cures burns is already in the market in India.
- Karnataka has plans to develop a nano park, in collaboration with the Centre.
- Action would also be taken for up-skilling and re-skilling the manpower required for this sunrise industry.
- Agriculture and Food security: Nanoscale nutrients for agricultural applications, food packaging and preservatives, disease mechanisms and regenerative medicine, and nano toxicity.
- It can also be used in water purification, waste management and to combat environmental hazards.
- The impact of nanotechnology on the field of electronics is far reaching.
- Although advances in silicon technology continue to revolutionize micro/nanoelectronics, there are cases where non-Si device and component technologies provide superior performance.
- With modern material growth techniques, it is possible to grow and fabricate multilayered nano-structures and devices comprising of different materials
with nanoscale thickness.
- Further, nanotechnology-enabled sensors are providing new solutions in physical, chemical and biological sensing that enable increased detection sensitivity, Microsystems integration capability and portability for wide variety of health safety and environmental assessments.
- Electronic structuring of nano-materials is a very crucial area which has immense applications in quantum devices, quantum materials, energy conversion and storage and lots of young people with dynamic ideas are showing keen interest in it.

**Nano Science & Technology Mission (NSTM), 2007**

- The “Nano Science and Technology Initiative” started with a funding of Rs. 60 crores. In 2007, the government launched a 5 year program called Nano Mission with wider objectives and larger funding of USD 250 million.
- The funding spanned multiple areas like basic research in nanotechnology, human resources development, infrastructure development and international collaboration.
- Multiple institutions like Department on Information Technology, Defence Research and Development Organisation, Council of Scientific and Industrial Research and Department of Biotechnology provided the funding to researchers, scholars and projects.
- National Centers for Nanofabrication and Nanoelectronics were started in Indian Institute of Science, Bangalore and Indian Institute of Technology, Mumbai.
- It is under **Dept of Science and Technology**. MoS&T allocated upto 1000 crores to NSTM to fulfill the following **objectives**
  1. Basic Promotion of Nanotechnology.
  2. Infrastructure Development.
  3. Establishment of R&D in Nanoscience Applications.
  4. Establishment of Development Centre for Nanosciences.
  5. Human Development in Nanotechnology.

- **Achievements**
  1. India published over 23000 papers in nanoscience in the past 5 years.
  2. In 2013, India ranked third in the number of papers published, behind only China and USA.
  3. There have been 300 patent applications in the Indian Patent Office in 2013, ten times that of 2006. Clearly, this points to the success of Nano Mission initiative.
  4. It has also led to R&D in the standards for nanotechnology and for laying down a National Regulatory Framework Road-Map for Nanotechnology.
Nano Science and Technology Initiative (NSTI): Started in 2001 to 2006 to create the background and infrastructure for R&D in nano-science & technology.

2nd Phase of NSTM was approved in 1th FYP at Rs. 650 crores. Nano Mission will be steered by a ‘Nano Mission Council’ chaired by an eminent scientist.

ICONSAT 2020 (5-7 March, Kolkata)
1. The International Conference on NanoScience and NanoTechnology (ICONSAT) is a series of biennial international conferences held in India under Nano Mission, DST.
2. To bring out cutting edge nano technology for the development of Physics, Chemistry and material domains.
3. Integration of 5Ms – Mechanical, Material, Machines, Manufacturing and Manpower with the help of NanoScience and NT.
4. Integration of NT with Sustainable Development.
5. Emphasizing the need to create a network of experts in nano-science.

Critical Analysis

- But there is lot of room for improvement.
- The amount India spends on nanotechnology research is still just a fraction of the research spending of countries like Japan, USA, France and China.
- The quality of research has shown only a little improvement from the NSTI phase (till 2006) to the nano mission phase (post 2007).
- Only 16 papers from India appeared in the top 1% of the publications in 2011. Also, the number of patents applied from India to the US patent office contributes to only 0.2% of the total applications.
- Though people look at nanoscience and technology very positively, the number of students following undergraduate and graduate degrees in the area is low and career prospects still extremely limited.
- The number of PhDs awarded in nanoscience and technology is about 150 per year; a very small number compared to the target of producing 10,000 PhD students annually over the next decade articulated by the Ministry of Human Resource Development.
- The contribution of the private sector to nanotechnology research has been minimal. Research from academic institutions has indicated how much impact nanotechnology can have on needs of Indian market.
- For example, a team from IIT Madras has used nanotechnology for arsenic...
decontamination of water. Another team from IIT Delhi has come up with a water based self cleaning technology for use in textile industry.

- It is a matter of concern that, in spite of such enormous potential, the private sector is not investing enough in nanoscience research.

Way Forward and Conclusion

- Nano technology holds great potential for India and a multi pronged approach will ensure that this is fully leveraged.
- Funding should be increased and long term funding which can accommodate coherent research programs with high-impact outcome is needed.
- Various research centers throughout India must work together so that the collective efforts can lead to better results. A highly equipped central facility should plan and initiate research activities.
- The administrative aspects of new projects should be streamlined.
- Most importantly, remuneration for people trained in the field should increase, to attract high calibre work force to join these research facilities.
- The good news is that the Nano Mission has been extended till 2017 as Phase II. Since nanotechnology is an emerging technology and India has abundant skilled workforce, India can aim to become a global leader in nanotechnology.

Source: PIB

Rain at the highest point on Greenland for the first time

GS-I | 22 August,2021

About Greenland
Greenland is the world's largest island, located between the Arctic region and Atlantic oceans, east of the Canadian Arctic Archipelago. Greenland's highest mountain Mt. Gunnbjörn is also the highest peak located north of the Arctic Circle. Therefore, it does not just hold the title of being the highest peak in Greenland but is also the highest peak of the Arctic (3694 m/12120 ft).

Greenland is an autonomous territory within the Kingdom of Denmark. Though physiographically a part of the continent of North America, Greenland has been politically and culturally associated with Europe (specifically Norway and Denmark, the colonial powers) for more than a millennium, beginning in 986.

The majority of its residents are Inuit, whose ancestors migrated from Alaska through Northern Canada, gradually settling across the island by the 13th century.

Today, the population is concentrated mainly on the southwest coast, while
the rest of the island is sparsely populated. Greenland is divided into five municipalities – Sermersooq, Kujalleq, Qeqertalik, Qeqqata, and Avannaata.

- It has two unincorporated areas – the Northeast Greenland National Park and the Thule Air Base. The latter, while under Danish control, is administered by the United States Air Force.
- Three-quarters of Greenland is covered by the only permanent ice sheet outside of Antarctica.
- With a population of 56,081 (2020), it is the least densely populated region in the world.
- About a third of the population lives in Nuuk, the capital and largest city; the second-largest city in terms of population is Sisimiut, 320 kilometres (200 mi) north of Nuuk.
- The Arctic Umiaq Line ferry acts as a lifeline for western Greenland, connecting the various cities and settlements.
- Greenland contains the world’s largest and northernmost national park, Northeast Greenland National Park (Kalaallit Nunaanni nuna eqqissisimmatitaq).
- In 1979, Denmark granted home rule to Greenland; in 2008, Greenlanders voted in favour of the Self-Government Act, which transferred more power from the Danish government to the local Greenlandic government.
- Under the new structure, Greenland has gradually assumed responsibility for policing, the judicial system, company law, accounting, auditing, mineral resource activities, aviation, law of legal capacity, family law and succession law, aliens and border controls, the working environment, and financial regulation and supervision.
- The Danish government still retains control of monetary policy and foreign affairs including defence.
- At 70%, Greenland has one of the highest shares of renewable energy in the world, mostly coming from hydropower.

Why in news?

- Rain fell at the highest point on the Greenland ice sheet last week for the first time on record, another worrying sign of warming for the ice sheet already melting at an increasing rate.
- “That’s not a healthy sign for an ice sheet,” said Indrani Das, a glaciologist with Columbia University’s Lamont-Doherty Earth Observatory. “Water on ice is bad... It makes the ice sheet more prone to surface melt.”
- Not only is water warmer than the usual snow, it is also darker – so it absorbs
more sunlight.
• **This meltwater is streaming into the ocean, causing sea levels to rise.** Already, melting from Greenland's ice sheet – the world's second-largest after Antarctica's – has caused around 25% of global sea level rise seen over the last few decades, scientists estimate. That share is expected to grow, as global temperatures increase.

Source: TH

Nuclear Fusion Energy
GS-III | 22 August, 2021

**What is Nuclear Fusion?**
Fusion is the energy source of the Sun and stars. In the tremendous heat and gravity at the core of these stellar bodies, hydrogen nuclei collide, fuse into heavier helium atoms and release tremendous amounts of energy in the process.

Nuclear fusion is defined as the combining of several small nuclei into one large nucleus with the subsequent release of huge amounts of energy. Nuclear fusion powers our sun and harnessing this fusion energy could provide an unlimited amount of renewable energy.

Twentieth-century fusion science identified the most efficient fusion reaction in the laboratory setting to be the reaction between two hydrogen isotopes, deuterium (D) and tritium (T).

The DT fusion reaction produces the highest energy gain at the "lowest" temperatures.

Three conditions must be fulfilled to achieve fusion in a laboratory:

1. Very high temperature (on the order of 150,000,000° Celsius);
2. Sufficient plasma particle density (to increase the likelihood that collisions do occur); and
3. Sufficient confinement time (to hold the plasma, which has a propensity to expand, within a defined volume).

At extreme temperatures, electrons are separated from nuclei and a gas becomes a plasma—often referred to as the fourth state of matter. Fusion plasmas provide the environment in which light elements can fuse and yield energy.

In a tokamak device, powerful magnetic fields are used to confine and control the plasma.

So how exactly does nuclear fusion work?

Simply put, nuclear fusion is the process by which two light atomic nuclei combine to form a single heavier one while releasing massive amounts of energy.

Fusion reactions take place in a state of matter called plasma — a hot, charged gas made of positive ions and free-moving electrons that has unique properties distinct from solids, liquids and gases.

To fuse on our sun, nuclei need to collide with each other at very high temperatures, exceeding ten million degrees Celsius, to enable them to overcome their mutual electrical repulsion.

Once the nuclei overcome this repulsion and come within a very close range of each other, the attractive nuclear force between them will outweigh the electrical repulsion and allow them to fuse.

For this to happen, the nuclei must be confined within a small space to
increase the chances of collision.

- **In the sun, the extreme pressure produced by its immense gravity create the conditions for fusion to happen.**
- The amount of energy produced from fusion is very large — four times as much as nuclear fission reactions — and fusion reactions can be the basis of future fusion power reactors.
- Plans call for first-generation fusion reactors to use a mixture of deuterium and tritium — heavy types of hydrogen.
- In theory, with just a few grams of these reactants, it is possible to produce a terajoule of energy, which is approximately the energy one person in a developed country needs over sixty years.
- While the sun’s massive gravitational force naturally induces fusion, without that force a higher temperature is needed for the reaction to take place.
- On earth, we need temperatures exceeding 100 million degrees Celsius and intense pressure to make deuterium and tritium fuse, and sufficient confinement to hold the plasma and maintain the fusion reaction long enough for a net power gain, i.e. the ratio of the fusion power produced to the power used to heat the plasma.
- **Nuclear fusion and plasma physics research are carried out in more than 50 countries** and fusion reactions have been successfully achieved in many experiments, albeit without demonstrating a net fusion power gain.

**Historical Background for collaborations**

- Ever since nuclear fusion was understood in the 1930s, scientists have been on a quest to recreate and harness it. Initially, these attempts were kept secret. However, it soon became clear that this complex and costly research could only be achieved through collaboration.
- **At the second United Nations International Conference on the Peaceful Uses of Atomic Energy**, held in 1958 in Geneva, Switzerland, scientists unveiled nuclear fusion research to the world.

**Role of International Atomic Energy Agency (IAEA)**

- The IAEA has been at the core of international fusion research. The IAEA launched the Nuclear Fusion journal in 1960 to exchange information about advances in nuclear fusion, and it is now considered the leading periodical in the field.
- The first international IAEA Fusion Energy Conference was held in 1961.
and, since 1974, the IAEA convenes a conference every two years to foster discussion on developments and achievements in the field.

International Thermonuclear Experimental Reactor (ITER)
After two decades of negotiations on the design and location of the world’s largest international fusion facility, ITER was established in 2007 in France.
France, with the aim of demonstrating the scientific and technological feasibility of fusion energy production.

- In southern France, 35 nations* are collaborating to build the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars.
- ITER will be the first fusion device to produce net energy. ITER will be the first fusion device to maintain fusion for long periods of time.
- And ITER will be the first fusion device to test the integrated technologies, materials, and physics regimes necessary for the commercial production of fusion-based electricity.
- Thousands of engineers and scientists have contributed to the design of ITER since the idea for an international joint experiment in fusion was first launched in 1985.
- The ITER Members—China, the European Union, India, Japan, Korea, Russia and the United States—are now engaged in a 35-year collaboration to build and operate the ITER experimental device, and together bring fusion to the point where a demonstration fusion reactor can be designed.
What will ITER do?
1. Produce 500 MW of fusion power
2. Demonstrate the integrated operation of technologies for a fusion power plant
3. Achieve a deuterium-tritium plasma in which the reaction is sustained through internal heating
4. Test tritium breeding
5. Demonstrate the safety characteristics of a fusion device.

ITER's First Plasma is scheduled for December 2025. That will be the first time the machine is powered on, and the first act of ITER’s multi-decade operational program.

What is a Tokamak?
THE TOKAMAK
A machine to harness the heat energy produced in fusion reactions

CRYOSTAT
Surrounds the vacuum vessel and magnets, and ensures an ultra-cool, vacuum environment

SUPPORTING SYSTEMS
These include powerful heating and current drive, diagnostics, cryogenics, cooling, fuelling, vacuum and power supply systems. They enable conditions to create a 150 million °C plasma

BLANKET MODULES
Protect the vacuum vessel and magnets from heat and high-energy neutrons

VACUUM VESSEL
Provides a high vacuum environment for the plasma, houses fusion reactions and acts as a first safety containment barrier

830m²
will be the plasma volume of the ITER tokamak. The maximum plasma volume in tokamaks operating today is 100m³

MAGNETS
Produces magnetic field to initiate, confine, shape and control the plasma

HEATING UNIT
Uses three sources to heat the plasma—a neutral beam injection and two radio-frequency electromagnetic waves

DIAGNOSTICS UNIT
Evaluates and optimizes the performance of plasma

DIVERTOR
Controls the exhaust of waste gas (helium) and impurities from the reactor

SUPER FIGURES

1,000,000km
Niobium-tin (Nb3Sn) superconducting strands are necessary for ITER’s toroidal field magnets

150 million °C
will be the temperature in the reactor core (ten times the temperature at the sun’s core)

23,000 tonnes
will be the weight of the ITER machine (as heavy as three Eiffel Towers)

60 meganewtons
will be the force of the 1,000-tonne electromagnet at the centre of the machine (twice the thrust of a space shuttle lift-off)
Power plants today rely either on fossil fuels, nuclear fission, or renewable sources like wind or water. Whatever the energy source, the plants generate electricity by converting mechanical power, such as the rotation of a turbine, into electrical power. In a coal-fired steam station, the combustion of coal turns water into steam and the steam in turn drives turbine generators to produce electricity. The tokamak is an experimental machine designed to harness the energy of fusion. Inside a tokamak, the energy produced through the fusion of atoms is absorbed as heat in the walls of the vessel. Just like a conventional power plant, a fusion power plant will use this heat to produce steam and then electricity by way of turbines and generators. The heart of a tokamak is its doughnut-shaped vacuum chamber. Inside, under the influence of extreme heat and pressure, gaseous hydrogen fuel becomes a plasma—the very environment in which hydrogen atoms can be brought to fuse and yield energy. The charged particles of the plasma can be shaped and controlled by the massive magnetic coils placed around the vessel; physicists use this important property to confine the hot plasma away from the vessel walls. The term “tokamak” comes to us from a Russian acronym that stands for “toroidal chamber with magnetic coils.” First developed by Soviet research in the late 1960s, the tokamak has been adopted around the world as the most promising configuration of magnetic fusion device. ITER will be the world’s largest tokamak—twice the size of the largest machine currently in operation, with ten times the plasma chamber volume.

What are the effects of fusion on the environment?

- Fusion is among the most environmentally friendly sources of energy.
- There are no CO2 or other harmful atmospheric emissions from the fusion process, which means that fusion does not contribute to greenhouse gas emissions or global warming.
Its two sources of fuel, hydrogen and lithium, are widely available in many parts of the Earth.

Nuclear fusion is a clean and green route to producing energy, as it does not involve any remnant radioactive waste products. Fusion reactions power hydrogen bombs. However, so far, fusion devices that show a net energy gain have not been demonstrated in labs.

What’s the difference between nuclear fission and nuclear fusion?
# Nuclear Fission versus Nuclear Fusion

<table>
<thead>
<tr>
<th>Nuclear Fission</th>
<th>Nuclear Fusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear fission is the splitting of a nucleus into smaller particles, releasing a high amount of energy</td>
<td>Nuclear fusion is the combination of two smaller atoms to create a large atom releasing energy</td>
</tr>
<tr>
<td>Not common in nature</td>
<td>Common in stars such as sun</td>
</tr>
<tr>
<td>May require high-speed neutrons</td>
<td>Require high temperature and high pressure conditions</td>
</tr>
<tr>
<td>Produce a high energy</td>
<td>Reactions of light nuclei produce a very high energy; reactions of heavy nuclei may not release energy</td>
</tr>
<tr>
<td>Examples: neutron bombardment of Uranium-235 and radioactive decay in unstable isotopes</td>
<td>Examples: fusion between Deuterium and Tritium</td>
</tr>
</tbody>
</table>

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Both are nuclear processes, in that they involve nuclear forces to change the nucleus of atoms.
Chemical processes on the other hand involve mainly electromagnetic force to change only the electronic structure of atoms.
Fission splits a heavy element (with a high atomic mass number) into fragments; while fusion joins two light elements (with a low atomic mass number), forming a heavier element.
In both cases, energy is freed because the mass of the remaining nucleus is smaller than the mass of the reacting nuclei.
The reason why opposite processes release energy can be understood by examining the binding energy per nucleon curve. Both fusion and fission reactions shift the size of the reactant nuclei towards higher bounded nuclei.

Does Fusion produce radioactive nuclear waste the same way fission does?

- Nuclear fission power plants have the disadvantage of generating unstable nuclei; some of these are radioactive for millions of years.
- Fusion on the other hand does not create any long-lived radioactive nuclear waste.
- A fusion reactor produces helium, which is an inert gas.
- It also produces and consumes tritium within the plant in a closed circuit. Tritium is radioactive (a beta emitter) but its half life is short. It is only used in low amounts so, unlike long-lived radioactive nuclei, it cannot produce any serious danger.
- The activation of the reactor’s structural material by intense neutron fluxes is another issue.
- This strongly depends on what solution for blanket and other structures has been adopted, and its reduction is an important challenge for future fusion experiments.

Can fusion cause a nuclear accident?

- No, because fusion energy production is not based on a chain reaction, as is fission.
- Plasma must be kept at very high temperatures with the support of external heating systems and confined by an external magnetic field.
- Every shift or change of the working configuration in the reactor causes the cooling of plasma or the loss of its containment; in such a case, the reactor
would automatically come to a halt within a few seconds, since the process of energy production is arrested, with no effects taking place on the outside. For this reason fusion reactors are considered to be inherently safe.

Can fusion reactors be used to produce weapons?

- No. Although hydrogen bombs do use fusion reactions, they require an additional fission bomb to detonate.
- Working conditions of a magnetically-confined fusion reactor require a limited amount of fuel in the reactor.
- This fuel is continuously injected and consumed; therefore there is never a sufficient amount of fuel to produce the instantaneous power required for a weapon.

Why in news? U.S. lab makes headway in nuclear fusion energy

- An experiment at the U.S. National Ignition Facility (NIF), within the Lawrence Livermore National Laboratory, Livermore, California, comes close to demonstrating this. In this lab, using laser beams, tiny pellets of deuterium and tritium (heavier isotopes of hydrogen) have been fused to form helium and release energy that very nearly matches the amount of energy using the lasers.
- The NIF has been trying to achieve this for nearly a decade. Now, the experiment has produced a yield that almost equals the laser energy. To be functional, a reactor has to produce an output that is at least tens of times the input energy.
- A tiny pellet of the fuel (deuterium and tritium) is placed in a cylindrical thumbnail-sized vessel, known as a hohlraum that has holes on both faces. A total of 192 laser beams are directed through the holes to strike the walls of the hohlraum. This causes the hohlraum to emit x-rays which, in turn, impinge on the pellet and compress it. The heated core of the pellet reaches 100 million degrees temperature which starts the fusion reactions. Further, the pellet has to “ignite” and only then can it reach the stage of becoming a microbomb – a deuterium-tritium fusion reactor – and release energy that can be tapped.

Laser facility

- The laser facility itself occupies a large area, equal to nearly three cricket fields, and the lasers can deliver up to 500 terawatts of power using its 192
individual laser beams. This is focused into the openings in the hohlraum which contains the pellet measuring some 2-3 mm.

- “The amount of laser energy used in these experiments is quite modest, 1.9 megajoule (MJ). This is approximately equal to the energy it takes to heat a large pot (8 litres) of water by 100 degrees Celsius. The amount of fusion energy produced in these experiments was approximately 1.3 MJ which is now for the first time comparable to amount of laser energy img.

- **This is the first time, in a controlled laboratory setting, that an inertial fusion system** (another name for a laser driven fusion system) **has produced nearly as much energy was supplied to initiate the reaction.**

- If we do the energy accounting we estimate that the fusion energy production is approximately 5 times the amount of energy coupled from the laser to target.

**Tremendous progress**

- To make a fusion reactor, hundreds of pellet implosions have to happen per second and means have to be found to extract the neutron energy as heat and produce electricity. This [experiment] is far from that stage, but the researchers have made tremendous progress in the last decade.
- Several steps remain before a viable nuclear fusion reactor can be realised. Ignition, or energy break-even must be achieved.
- Many laser pulses must be made to act per second to increase the net yield to a sufficiently high value. Then the technology to convert the neutron energy into electricity has to be developed.
- The fusion energy produced is released in an incredibly short amount of time, approximately, 90 picoseconds producing close to 15 petawatts of power. This is approximately equivalent to some recent estimates of the total world power consumption, however the experiment only produces this power for an incredibly short period of time, whereas power is consumed continuously across the world.”

**How was the new breakthrough achieved?**

- The team used new diagnostics, improved laser precision, and even made changes to the design. They applied laser energy on fuel pellets to heat and pressurise them at conditions similar to that at the centre of our Sun. This triggered the fusion reactions.
- These reactions released positively charged particles called alpha particles, which in turn heated the surrounding plasma. (At high temperatures,
electrons are ripped from atom’s nuclei and become a plasma or an ionised state of matter. Plasma is also known as the fourth state of matter.

- The heated plasma also released alpha particles and a self-sustaining reaction called ignition took place. Ignition helps amplify the energy output from the nuclear fusion reaction and this could help provide clean energy for the future.
- On August 8, the team noted an energy output of more than 1.3 megajoules. The findings are yet to be published in a peer-reviewed journal.

**UK hatches plan to build world's first fusion power plant**

- In June, JET will begin fusing even quantities of tritium and deuterium, another isotope of hydrogen. It is this fuel mix that ITER will use in its attempt to create more power from a fusion reaction than is put in — something that has never before been demonstrated. The reactor should heat and confine a plasma of deuterium and tritium such that the fusion of the isotopes into helium produces enough heat to sustain further fusion reactions.

**Institute of Plasma Research, India**

- The Institute for Plasma Research (IPR) was established in 1986 as an autonomous R&D institute under the Department of Science and Technology (DST) with a mandate to pursue research in plasma science and technology. The institute grew rapidly and came under the administrative umbrella of the Department of Atomic Energy (DAE) in 1995.
- This institute is largely involved in theoretical and experimental studies in plasma science including basic plasma physics, magnetically confined hot plasmas and plasma technologies for industrial application.
- The institute owns two operational tokamaks (a machine for controlling thermonuclear fusion) - ADITYA and Steady State Tokamak (SST)-1.
- FCIPT, ITER-India and CPP-IPR, located in Gandhinagar and Guwahati are three divisions under IPR.

**Aditya Tokamak in India**

- ADITYA is the first indigenously designed and built tokamak of the country. It was commissioned in 1989.
- ADITYA, a medium size Tokamak, is being operated for over a decade. It has a major radius of 0.75m and minor radius of the plasma is 0.25 m.
- A maximum of 1.2 T toroidal magnetic field is generated with the help of 20
toroidal field coils spaced symmetrically in the toroidal direction. The major subsystems and parameters of the machine have been described elsewhere.

- ADITYA is regularly being operated with the transformer-converter power system. ~100 msec 80 - 100 kA plasma discharges at toroidal field of 8.0 kG are being regularly studied.
- During this period experiments on edge plasma fluctuations, turbulence and other related works have been conducted. Standard diagnostics have been employed during these measurements.

**Steady State Superconducting Tokamak**

- A steady state superconducting tokamak SST-1 is under design and fabrication at the Institute for Plasma Research.
- The **objectives** of SST-1 include studying the physics of the plasma processes in tokamak under steady state conditions and learning technologies related to the steady state operation of the tokamak.
- These studies are expected to contribute to the tokamak physics database for very long pulse operations.
- The SST-1 tokamak is a large aspect ratio tokamak, configured to run double null diverted plasmas with significant elongation \( k \) and triangularity \( d \).
- The specific objective of the SST-1 project is to produce 1000 s elongated double null divertor plasma.
- There are several conventional questions in tokamak physics, which will be addressed again in steady state scenario.
- Some of these are related to the energy, particle and impurity confinement, the effect of impurities and edge localized modes (ELM) in steady on energy confinement, the stability limits and their dependence on current drive methods, the resistive tearing activities in presence of RF fields, disruptions and vertical displacement events (VDE), and thermal instability.

**Way Forward**

- It is expected that fusion could meet humanity's energy needs for millions of years. Fusion fuel is plentiful and easily accessible: deuterium can be extracted inexpensively from seawater, and tritium can be produced from naturally abundant lithium.
- Future fusion reactors will not produce high activity, long lived nuclear waste, and a meltdown at a fusion reactor is practically impossible.
- Importantly, nuclear fusion does not emit carbon dioxide or other greenhouse gases into the atmosphere, and so along with nuclear fission could play a future climate change mitigating role as a low carbon energy source.
About Natural Gas

- **Natural gas** is a fossil energy source that formed deep beneath the earth’s surface. Natural gas contains many different compounds.
- **The largest component of natural gas is methane**, a compound with one carbon atom and four hydrogen atoms (CH4).
- Natural gas also contains smaller amounts of natural gas liquids (NGL, which are also hydrocarbon gas liquids), and nonhydrocarbon gases, such as carbon dioxide and water vapor. We use natural gas as a fuel and to make materials and chemicals.
- It is found along with other fossil fuels and escapes while drilling underground for petroleum sources. **The gas is thus a non-renewable source of energy.**
How did Natural Gas form?

- Millions to hundreds of millions of years ago and over long periods of time, the remains of plants and animals (such as diatoms) built up in thick layers on the earth’s surface and ocean floors, sometimes mixed with sand, silt, and calcium carbonate.
- Over time, these layers were buried under sand, silt, and rock. Pressure and heat changed some of this carbon and hydrogen-rich material into coal, some into oil (petroleum), and some into natural gas.
Where is the Natural Gas found?

- In some places, natural gas moved into large cracks and spaces between layers of overlying rock. The natural gas found in these types of formations is sometimes called **conventional natural gas**.
- In other places, natural gas occurs in the tiny pores (spaces) within some formations of shale, sandstone, and other types of sedimentary rock. This natural gas is referred to as **shale gas or tight gas**, and it is sometimes called **unconventional natural gas**.
- Natural gas also occurs with deposits of crude oil, and this natural gas is called **associated natural gas**. Natural gas deposits are found on land, and some are offshore and deep under the ocean floor.
- A type of natural gas found in coal deposits is called **coalbed methane**.
Forms of Natural Gas: It comes in 4 basic forms

1. Liquefied Natural Gas (LNG) - Natural Gas which has been liquefied at – (Minus) 160 degree Centigrade. Natural Gas is liquefied to facilitate transportation in large volumes in cryogenic tankers across seas / land.
2. Regasified Liquefied Natural Gas (RLNG) – LNG Re-gasified at import terminals before transporting it to consumers through Pipelines.
3. Compressed Natural gas (CNG) - Natural Gas compressed to a pressure of 200-250 kg/cm² used as fuel for transportation. CNG decreases vehicular pollution on the virtue of being cleaner fuel than liquid fuels.
4. Piped Natural gas (PNG) - Natural Gas distributed through a pipeline network that has safety valves to maintain the pressure, assuring safe,
Production and Delivery of Natural Gas

• Natural gas withdrawn from natural gas or crude oil wells is called **wet natural gas** because, along with methane, it usually contains **NGL—ethane, propane, butanes, and pentanes—and water vapor**.
• Wellhead natural gas may also contain **nonhydrocarbons such as sulfur, helium, nitrogen, hydrogen sulfide, and carbon dioxide**, most of which must be removed from natural gas before it is sold to consumers.
• From the wellhead, natural gas is sent to processing plants where water vapor and nonhydrocarbon compounds are removed and NGL are separated from the wet gas and sold separately.
• Some ethane is often left in the processed natural gas.
• The separated NGL are called natural gas plant liquids (NGPL), and the processed natural gas is called dry, consumer-grade, or pipeline quality natural gas.
Some wellhead natural gas is sufficiently dry and satisfies pipeline transportation standards without processing. Chemicals called odorants are added to natural gas so that leaks in natural gas pipelines can be detected. Dry natural gas is sent through pipelines to underground storage fields or to distribution companies and then to consumers. In places where natural gas pipelines are not available to take away associated natural gas produced from oil wells, the natural gas may be reinjected into the oil-bearing formation, or it may be vented or burned (flared). Reinjecting unmarketable natural gas can help to maintain pressure in oil wells to improve oil production.

**Coalbed methane** can be extracted from coal deposits before or during coal mining, and it can be added to natural gas pipelines without any special treatment.

Most of the natural gas consumed in the United States is produced in the United States. Some natural gas is imported from Canada and Mexico in pipelines. A small amount of natural gas is also imported as liquefied natural gas.

**Uses of Natural Gas**

- **Power sector**: As fuel for base load power plants In combined cycle/co-generation power plants
- **Fertilizer industry**: As feed stock in the production of ammonia and urea
- **Industrial uses**: As an under boiler fuel for raising steam As fuel in furnaces and heating applications
- **Domestic and commercial**: It is used as PNG and CPNG for cooking and fuel respectively.
- **Automotive**: It is used as an eco-friendly fuel.
- **Petrochemicals**: As the raw material from which a variety of chemical products e.g. methanol, are derived.

**Natural Gas Transmission**
Natural Gas Pipeline Infrastructure connects various gas sources to different gas markets to meet the existing/future natural gas demand of various Powers, Fertilizer, CGD and other industries in the Country.

The gas pipeline infrastructure has facilitated widespread industrialization and has brought significant socio-economic changes to different parts of the country.

The Government recognizes the need to augment the natural gas transmission infrastructure in the country and has been driving the development of natural gas pipeline connecting all regions of the country which is shaping-up into Natural Gas Grid (NGG).

Over the years, GAIL as a major gas pipeline operator has contributed to the growth and development of natural gas pipeline infrastructure and natural gas...
It has an existing 13,718 Km. of gas pipeline network with a capacity of 204 MMSCMD. GAIL’s existing natural gas pipeline network covers 20 States (Andhra Pradesh, Assam, Bihar, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal) and 2 UTs (Puducherry & Dadra Nagar Haveli).

Operational Natural Gas Pipelines of India

- Hazira-Vijaipur-Jagdishpur & Gas Rehabilitation and Expansion Project & Dahej-Vijaipur Pipeline Network (HVJ-GREP-DVPL-I)
- Dahej-Vijaipur Pipeline (II) & Vijaipur-Dadri Pipeline Network.
- Tripura Network
- Cauvery Basin
- Chhainsa-Jhajjar-Hissar Pipeline Network (CJPL)
- Dahej-Uran-Panvel-Dabhol Pipeline Network
- Dadri-Bawana-Nangal Pipeline Network
- Dabhol-Bengaluru Pipeline Network (DBPL)
- Gujarat Regional Pipeline Network
- Jagdishpur Haldia & Barauni Guwahati Pipeline Network (JHBDPL)
- KG Basin Pipeline Network
- Kochi-Koottanad-Bengaluru-Mangaluru Pipeline Network (KKBGPL)
- Mumbai Regional Pipeline Network

Why is there a need to move towards Natural Gas?

- Despite coming under the bracket of the much-defamed non-recyclable energy source, India needs to invest to reap its benefits.
- This is because the only by-product of natural gas is water and carbon dioxide, and we do not have to deal with pollutants such as Sulphur dioxide, Nitrogen Dioxide, etc.
- Also, India today has the dubious distinction of being the third-largest emitter of greenhouse gas after the USA and China.
- Switching to natural gas will help the Indian energy roadmap to move to greener pastures.
- It will also be in line with India’s energy commitments at COP 21, that is, the Paris Convention of 2015. We have pledged to reduce carbon emission by 33-35% as compared to 2005 levels in India.
- Today India sources substantial amounts of its natural gas imports from Qatar, with whom it has a long-term agreement. With the goal of Atmanirbhar Bharat at the forefront, investing in pipeline infrastructure will be
a step forward in self-reliance, and decreased dependency on imports.

- Also, pipelines are an economical, safe, and hassle-free mode of gas transportation.
- Transparency and speedy progress in the natural gas sector will promote ease of doing business.
- This in turn will generate employment in gas-consuming sectors and will aid investment in industries downstream, such as City Gas Distribution.
- We see applications of natural gas in the day-to-day activities of industries and households. Manufacturing, fertilizer industry, urea manufacturing, and other commercially important chemicals are manufactured by using natural gas as an energy source. Other applications include electricity generation, cooking gas at home, and fuel for vehicle transportation.

Natural Gas data in India

- To increase the share of natural gas, the government has announced the expansion of the natural gas grid from the previous 17,500 kilometers to 34,500 kilometers. To which, 450 kms have already been added making it approx 18000. The next 16000 kms is expected to be achieved in the next 4-6 years.
- Total consumption of natural gas in India stands at 148.02 Million Metric Standard Cubic Meter Per Day.
- The government is looking forward to achieving the goal of clean energy, by increasing the share of natural gas in the primary energy basket of India from 6.2% to 15% by 2030.
- Gas comprises about 6.2% of India’s primary energy mix, far behind the global average of 24%. The government plans to increase this share to 15% by 2030. India’s gas demand is expected to be driven by fertilizer, power, city gas distribution, and steel sectors.
- Globally, the share of energy production from natural gas stands at 23.4%. India thus has a lot of catching up to do when compared to its global counterparts. The $60 billion gas pipeline project is in line with this goal.

Challenges of Gas Pipeline project

The execution of the gas pipeline project envisioned by the Prime Minister will be an uphill task because the scope of natural gas is severely limited in India at present.

- Firstly, the gas fields are concentrated in only a few pockets across the country, namely in Bombay high, offshore Mumbai coast, Tripura and
Secondly, the pipeline system is insufficient, given that it connects only the northern states. The existing pipelines are also grossly underutilized. For example, GAIL has noted, it can use only 47% of its existing 11,500km gas pipeline capacity. This leads to a low return on investment for companies, thus disincentivizing more companies to carry forth natural gas exploration. Due to these infrastructural hiccups, we have to import Liquified Natural Gas (LNG) from the USA and Qatar, through the Open General License (OGL). Also, we have only six natural gas refueling terminals presently, including those at Mundra, Ennore, etc.

Petroleum, including natural gas, falls under the Union List in the Constitution of India. This implies that only the central government can make laws and take decisions in the gas energy department. This leads to clashes in land acquisition at the local level, further delaying gas projects. Obtaining permission to lay the pipelines is only one of the hurdles, following which safety issues of the workers become a major concern given the explosive nature of natural gas, including accidents due to human error and technical fault. Apart from the impact on human beings, drilling to explore gas can have major repercussions on the marine habitat. Marine life is already suffering due to excessive oil drilling and oil spills, added to which exploring natural gas can further deteriorate their habitat. We have often heard that Whales lose their way due to disturbance in the communication frequency and land up getting stranded. The fish and coral present on the immediate offshore are also declining. One of the primary causes of these disasters is excessive human interference due to drilling and exploration.

Government efforts for Natural Gas Grid

- Cabinet Committee on Economic Affairs has approved the ‘Natural Gas Marketing’ reform in November 2020.
- Recently, an investment of 70,000 crores is being made along the east coast. Further, the Ministry of petroleum and natural gas has released a draft city gas distribution pipeline. It may be adopted by City Gas Distribution (CGD) Network.
- Reduced road tax and VAT will also be offered to vehicles running on natural gas.
- All these are proactive measures, taking us a step ahead in the right direction
One Nation One Gas Grid

- The Indian Power system for planning and operational purposes is divided into five regional grids.
- One Nation, One Gas Grid refers to the integration of these regional grids thus establishing a National Grid for providing energy produced by natural gas to various stakeholders like the central government, the state governments, the public and the private sectors.
- The initiative of the Indian government will help meet its target of reaching 15% natural gas in its energy basket mix by 2030 which is currently at 6.2-6.5% whereas the global average is 23-24%.
- With one nation and one gas grid, the energy produced from natural gas will be supplied to the whole country via a single source.
- It will help in improving the regional imbalance of gas availability as currently the natural gas is only in limited pockets of the country.
- One nation, one gas grid which will help emerge India as a gas based economy.
- The import dependency of natural gas in India has reached to 53%. In order to reduce this high percentage, the government is taking measures to diversify the energy mix of India.

Other Schemes

- North East Gas Grid Project
- Pradhan Mantri Uja Ganga Project
- Hydrocarbon Vision 2030 for Northeast India
- Ujjwala Scheme, which has already benefitted 8 crore households, will be extended to cover 1 crore more beneficiaries.
- 100 more districts will be being added to the City Gas Distribution Network in the next three years.
- A Gas pipeline project will be taken up in the Union Territory of Jammu and Kashmir.
- An Independent Gas Transport System Operator will be set up for facilitation and coordination of booking of common carrier capacity in all-natural gas pipelines on a non-discriminatory open access basis.

Way Forward and Conclusion

- Despite these ventures, a lot is left to be achieved. The central government can start by connecting gas sources to gas consumption domains.
- The gas lines are presently distributed unevenly across the country, leading...
to uncertainty of a smooth supply of gas.

- India will also have to invest in technology that facilitates deeper drilling, and engage in large-scale import tie-ups till domestic pipelines are fully functional.
- It's a common idiom, that the proof of the pudding is in the eating. We are yet to see tangible outcomes from this energy source, which is still in its nascent stage.
- To reap the benefits, Natural Gas has to be a viable source of energy, and India needs to balance affordability, access, energy security, and environmental sustainability. This must be accompanied by developing requisite infrastructure in the form of terminals, stations, and pipelines.

Source: PIB

Drug Abuse in India

Although the use of various psychoactive substances such as alcohol, cannabis and opioids has been observed in India for centuries, the current dimension of the extent and pattern of psychoactive substance use and the problems associated with their use are not well documented.

The National Drug Dependence Treatment Centre (NDDTC), All India Institute of Medical Sciences (AIIMS), New Delhi was entrusted with the responsibility to lead the technical and scientific aspects of the National Survey on Extent and Pattern for Substance Use in India which was conducted in all the 36 states and UTs of the country, in collaboration with ten other medical institutes and a network of 15 NGOs.

Drug Abuse in India
## Scale of Substance Abuse in India

Alcohol is the most commonly used legal psychoactive substance, with about about 14.6% of population using it.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Estimated Prevalence (in millions)</th>
<th>Estimated Numbers of Harmful Use and Dependence (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>160</td>
<td>86</td>
</tr>
<tr>
<td>CANNABIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bhaang</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Ganja/charas</td>
<td>13.3</td>
<td></td>
</tr>
<tr>
<td>OPIOID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>10.5</td>
<td></td>
</tr>
<tr>
<td>Opium</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Sedatives</td>
<td>11.9</td>
<td></td>
</tr>
<tr>
<td>Amphetamine-type stimulants</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td>0.7</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Magnitude of Substance Abuse in India Report, 2019)
Substance abuse exists in all population groups but adult men bear the brunt of substance use disorders.

**Alcohol** is the most common psychoactive substance used by Indians. About 14.6% of population (between 10 to 75 years) consume alcohol. States with the highest prevalence of alcohol use are Chhattisgarh, Tripura, Punjab, Arunachal Pradesh and Goa.

After Alcohol, **Cannabis and Opioids** are the next commonly used substances in India. About 2.8% of the population (3.1 crore individuals) reports having used any cannabis product within the previous year.

It has been estimated that there are about 8.5 lakh people who inject drugs.

Of the total cases estimated by the report, more than half of them are contributed by states like Punjab, Assam, Delhi, Haryana, Manipur, Mizoram, Sikkim and Uttar Pradesh.

About 60 lakh people are estimated to need help for their opioid use problems.

More and more children are taking to alcohol consumption and the highest percentage of children who are addicted to alcohol are in Punjab followed by West Bengal and Uttar Pradesh.

According to NCRB data, in 2019, 7719 out of the total 7860 suicide victims due to drug abuse/alcohol addiction were male.

Even in the data relating to deaths due to road accidents, drugs & alcohol are one of the most causative factors.

### Reasons for use of drugs in India

- India is at the location between **Golden Crescent (Iran, Afghanistan and Pakistan)** and **Golden Triange (Burma, Thailand, Laos and Vietnam)**
which are the two largest opium producing regions of the World.

- Students and Youth consume drugs as a **stress buster** from their studies or work pressure. It is generally seen that an unemployed youth, out of frustration, ends up in taking drugs.
- **Peer pressure and other psychological factors** like the glamour attached to it and out of fun can cause teens to engage in risky behaviours, leading to substance abuse.
- **People in the lower income group** who cannot have an adequate amount of food, take drugs to sleep or relax.
- The cause behind drug menace is the **drug cartels, crime syndicates** and ultimately the ISI which is the biggest supplier of drugs.
- The **African as well as the Southasian route** being misused to bring drugs into the country.

**Impact of Drug Abuse**

- Drug abuse leads to physical, psychological, moral and intellectual decay. This means wastage of economic potential of young generation.
- Drug addiction causes immense human distress. Incidence of eve-teasing, group clashes, assault and impulsive murders increase with drug abuse.
- Drug use can lead to social and emotional problems and can affect relationships with family and friends.
- Problems with memory, attention and decision-making, which make daily living more difficult.
- Illegal production and distribution of drugs have spawned crime and violence worldwide.
- Increase in incidences of HIV, hepatitis B and C and tuberculosis due to addiction adds the reservoir of infection in the community burdening the health care system further.
- Women in India face greater problems from drug abuse. The consequences include domestic violence and infection with HIV, as well as the financial burden.

**International Efforts to fight Drug abuse**

- The first **International Day against Drug Abuse and Illicit Trafficking** was observed by the UN General Assembly on **June 26, 1987**. Since then, every year, this day marks the coherent and seamless global cooperation to achieve a drug-free society. So far, the UN has organized three international conventions in 1961, 1971 and 1988. The first one sought to eliminate the illicit production and non-medical use of **opioids, cannabis and cocaine**.
The meeting held in 1971 extended the scope to the psychotropic medications or synthetic drugs (e.g., amphetamines, barbiturates and LSD). The third convention against illicit trafficking was targeted at the suppression of the illegal global market, and the restriction was also extended to the precursor chemicals.

- India is also signatory to the following International treaties and conventions:
  3. UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988)
  4. UN Convention against Transnational Organized Crime (UNTOC) 2000

Efforts by India to reduce Drug abuse

As enshrined in its constitution (Article 47) and being one of the signatories of the United Nation's International Conventions, India had the onus act to eliminate the use of illicit drugs, to develop measures to prevent drug use and to ensure availability of treatment for people with drug use disorders.

India has adopted the three-pronged strategies - supply, demand and harm reduction.

Drug De-addiction Programme (DDAP)

- Following the 1971’s UN Convention on Psychotropic Substances, the Ministry of Health and Family Welfare, Government of India, established an Expert Committee to look into the issue of drug and alcohol use in India.
- The Committee’s report was submitted in 1977, and after approval from the Planning Commission, Drug De-addiction Programme (DDAP) was rolled out in 1985-1986.
- The primary aim of the DDAP was drug demand reduction.

The Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985

- India is a signatory to the UN Single Convention on Narcotics Drugs 1961, the Convention on Psychotropic Substances, 1971 and the Convention on Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988 which prescribe various forms of control aimed to achieve the dual objective of limiting the use of narcotic drugs and psychotropic substances for medical and scientific purposes as well as preventing the abuse of the same.
- The primary aim of the NDPS was to prevent and combat drug abuse and...
illicit trafficking', an apparent emphasis on the supply reduction.

- The administrative and legislative setup in the field of Narcotics has been put in place in the country in accordance with the spirit of the UN Conventions.
- The basic legislative instrument of the Government of India in this regard is the Narcotics Drugs and Psychotropic Substances (NDPS) Act, 1985.
- The Act provides stringent provisions for the control and regulation of operations relating to narcotic drugs and psychotropic substances.
- It also provides for forfeiture of property derived from, or used in, illicit traffic in narcotic drugs and psychotropic substances.
- It also provides for death penalty in some cases where a person is a repeat offender.

National Fund for Control of Drug Abuse

- The consultative committee (an advisory committee formed by the NDPS Act), which was constituted in 1988, formulated a national-level policy to control drug abuse.
- The committee created a fund, National Fund for Control of Drug Abuse and involved a couple of other major stakeholders - the Ministry of Health (and Family Welfare) and the Ministry of Welfare (currently Social Justice and Empowerment).
- The Ministry of Health was entrusted with the job of prevention and treatment of drug dependence, whereas the Ministry of Welfare was assigned with the responsibility of the rehabilitation and social integration of people with drug dependence.
- The Ministry of Health established seven treatment centres during the first phase (in 1988).
- The aims of these centres were treatment, drafting of educational material and training of medical and paramedical staff to generate the future workforce to deal with the problem of drug abuse.

Other Policy and Schemes

- Over the last three decades, there has been a substantial expansion of services in all dimensions.
- The Ministry of Social Justice and Empowerment published the draft policy of the drug demand reduction, the National Drug Demand Reduction Draft Policy in 2013.
- To scale up the existing services, the Ministry has rolled out the 'Central Sector Scheme of Assistance for Prevention of Alcoholism and Substance Abuse and Social Defence Services.'
The Ministry of Social Justice has also published its five-year plan, 'National Action Plan for Drug Demand Reduction' in 2018. The Mental Health Care Act (2017) has included alcohol and drug use disorders under its ambit. This measure is likely to increase the adherence to the human rights, to ensure non-discrimination, the respect to the right to autonomy and confidentiality, to increase the availability and access to the minimum standard of care and rehabilitation for people with substance use disorders.

Nasha Mukt Bharat campaign

- This campaign launched this year in 2020, is run for 272 Most Affected Districts’ by the Ministry of Social Justice and Empowerment with focus on institutional support, community outreach and awareness generation.
- It focuses on a three-pronged strategy combining-
  1. Efforts of Narcotics Bureau,
  2. Outreach/Awareness by Social Justice and
  3. Treatment through the Health Dept.
- These districts are identified based on img's from Narcotics Control Bureau (NCB) and findings of Comprehensive National Survey done by Ministry.
- Nasha Mukt Bharat Abhiyaan in 272 districts is from 15th August 2020 to 31st March 2021.
- Abhiyaan Action Plan has the following components:-
  1. Awareness generation programmes in the community and Youth in particular
  2. Focus on Higher Educational institutions, University Campuses and Schools
  3. Community outreach and identification of dependent population
  4. Focus on Treatment facilities in Hospital settings
  5. Capacity Building Programmes for Service Providers.

National Action Plan for Drug Demand Reduction (NAPDDR) for 2018-2025

- The Ministry of Social Justice and Empowerment has formulated and is implementing a National Action Plan for Drug Demand Reduction (NAPDDR) for 2018-2025.
- The Plan aims at reduction of adverse consequences of drug abuse through a multi-pronged strategy.
- The activities under the NAPDDR, inter-alia, include awareness generation programmes in schools/colleges/Universities, workshops/seminars/
parents, community based peer led interactions intervention programmes for vulnerable adolescent and youth in the community, provisioning of treatment facilities and capacity building of service providers.

- The Ministry has also initiated focused intervention programmes in vulnerable districts across the country with an aim to increase community participation and public cooperation in the reduction of demand for dependence-producing substances and promote collective initiatives and self-help endeavour among individuals and groups vulnerable to addiction or found at risk.

Way Forward

- Considering the enormous challenge of substance use disorders in the country, there is an urgent need of policies and programmes which can bring relief to the large number of affected Indian citizens.
- Scientific evidence-based treatment needs to be made available for people with Substance use disorders.
- A coordinated, multi-stakeholder response will be necessary to scale-up treatment programmes in the country.
- Evidence-based substance use prevention programmes are needed to protect the young people.
- A conducive legal and policy environment is needed to help control drug problems.
- Harm reduction needs to be embraced widely as a philosophy to deal with substance use.
- Prevention of drug abuse and its health and psychosocial impact should be made part of the curriculum from the upper primary level.
- Revival of school clubs for early identification of drug users and expert intervention and setting up of suggestion box in schools.
- Awareness building and educating people about ill effects of drug abuse.
- Community based intervention for motivational counselling, identification, treatment and rehabilitation of drug addicts.
- Training of volunteer/service providers and other stakeholders with a view to build up a committed and skilled cadre.
- Undertake drug demand reduction efforts to address all forms of drug abuse including dependence related to the consumption of two or more substances at the same time.

Conclusion

- Drug menace is the manifestation of deep-rooted distortions in the socio-cultural, economic and political system. Being systemic and multi-
dimensional, its solution shall have to be systemic and multi-pronged.

- It is emphasized the need of preventive, punitive and curative measures to tackle the menace.
- There is an urgent need to understand the complexity of the problem having far-reaching social, economic and political implications.
- There is a need to address all these factors responsible for drug menace in the region as punitive measures alone cannot uproot this menace.

Source: TH

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Total Ramsar Sites in India is now 46!

GS-III | 23 August, 2021

- Four more wetlands from India get recognition from the Ramsar Secretariat as Ramsar sites. These sites are Thol and Wadhwana from Gujarat and Sultanpur and Bhindawas from Haryana.

- With this, **the number of Ramsar sites in India are 46** and the surface area covered by these sites is now 1,083,322 hectares.
- **While Haryana gets its first Ramsar sites, Gujarat gets three more after Nalsarovar** which was declared in 2012.
- The aim of the Ramsar list is “to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits”.
- **Wetlands provide a wide range of important resources and ecosystem services** such as food, water, fibre, groundwater recharge, water purification, flood moderation, erosion control and climate regulation. They are, in fact, a major source of water and our main supply of freshwater comes from an array of wetlands which help soak rainfall and recharge groundwater.
- **Bhindawas Wildlife Sanctuary, the largest wetland in Haryana** is a human-made freshwater wetland. Over 250 bird species use the sanctuary throughout the year as a resting and roosting site. The site supports more than ten globally threatened species including the endangered Egyptian Vulture, Steppe Eagle, Pallas’s Fish Eagle, and Black-bellied Tern.
Sultanpur National Park from Haryana supports more than 220 species of resident, winter migratory and local migratory waterbirds at critical stages of their life cycles. More than ten of these are globally threatened, including the critically endangered sociable lapwing, and the endangered Egyptian Vulture, Saker Falcon, Pallas’s Fish Eagle and Black-bellied Tern.

Thol Lake Wildlife Sanctuary from Gujarat lies on the Central Asian Flyway and more than 320 bird species can be found here. The wetland supports more 30 threatened waterbird species, such as the critically endangered White-rumped Vulture and Sociable Lapwing, and the vulnerable Sarus Crane, Common Pochard and Lesser White-fronted Goose.

Wadhvana Wetland from Gujarat is internationally important for its birdlife as it provides wintering ground to migratory waterbirds, including over 80 species that migrate on the Central Asian Flyway. They include some threatened or near-threatened species such as the endangered Pallas’s fish-Eagle, the vulnerable Common Pochard, and the near-threatened Dalmatian Pelican, Grey-headed Fish-eagle and Ferruginous Duck.

The Ministry of Environment, Forest & Climate Change would be working closely with the State Wetland Authorities to ensure the wise use of these sites.

Source: PIB

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National Monetization Pipeline
GS-III | 23 August, 2021

- In the Union Budget 2021-22, the Finance Minister had announced the National Monetization Pipeline.
- The National Monetisation Pipeline comprises a four-year pipeline of the Central Government’s brownfield infrastructure assets.
- The Union Finance Minister announced launch of a “National Monetization Pipeline” of potential brownfield infrastructure assets stating that Monetizing operating public infrastructure assets is a very important financing option for new infrastructure construction.
- As part of National Monetization pipeline, assets created by PSUs such as NHAI, PGCIL, Railways etc. would be sold and money raised would then be used for the creation of new infrastructure assets.
Presently, we have around 2 publicly listed InVITs (IRB InVIT and India Grid) both of which have been sponsored by the private companies. Now, the PGCIL has become the first PSU in India to sponsor its own InVIT to monetize its assets.

The Minister informed that an Asset Monetization dashboard will also be created for tracking the progress and to provide visibility to investors.

The National Monetisation Pipeline will serve as a medium-term roadmap for the Asset Monetisation initiative of Centre, besides providing visibility to the investors.

Some important measures in the direction of monetisation are as follows:

- **National Highways Authority of India and PGCIL** each have sponsored one InvIT that will attract international and domestic institutional investors. Five operational roads with an estimated enterprise value of Rs.5,000 crore are being transferred to the NHAIInvIT. Similarly, transmission assets of a value of Rs. 7,000 crore will be transferred to the PGCILInvIT.
- **Railways will monetize Dedicated Freight Corridor assets** for operations and maintenance, after commissioning.
- **The next lot of Airports** will be monetised for operations and management concession.
- Other core infrastructure assets that will be rolled out under the Asset Monetization Programme are:
  1. NHAI Operational Toll Roads
  2. Transmission Assets of PGCIL
  3. Oil and Gas Pipelines of GAIL, IOCL and HPCL
  4. AAI Airports in Tier II and III cities,
  5. Other Railway Infrastructure Assets
  6. Warehousing Assets of CPSEs such as Central Warehousing Corporation and NAFED among others and

**Infrastructure Investment Trust (InvITs)**

- Infrastructure and real estate are the two most critical sectors in any developing economy. A well-developed infrastructural set-up propels the overall development of a country. It also facilitates a steady inflow of private and foreign investments, and thereby augments the capital base available for the growth of key sectors in an economy, as well as its own growth, in a sustained manner.
Given the importance of these two sectors in the country, and the paucity of public funds available to stimulate their growth, it is imperative that additional channels of financing are put in place.

An Infrastructure Investment Trust (InvITs) is a Collective Investment Scheme similar to a mutual fund, which enables direct investment of money from individual and institutional investors in infrastructure projects to earn a small portion of the income as return.

The InvIT is designed as a tiered structure with Sponsor setting up the InvIT which in turn invests into the eligible infrastructure projects either directly or via special purpose vehicles (SPVs).

The InvITs are regulated by the SEBI (Infrastructure Investment Trusts) Regulations, 2014.

Source: PIB
Yuktadhara is a geospatial planning portal for facilitating Gram Panchayat level planning of MGNREGA activities across India using Remote Sensing and GIS based information.

- It integrates a wide variety of spatial information contents to enable a holistic approach towards planning using open source GIS tools.
- Current level of integration under Yuktdhara, as a part of Bhuvan, incorporates multi-temporal IRS satellite data of better than 3 m detail in natural color, digital terrain, thematic layers as well as locations of MGNREGA works and watershed management assets.
- This platform will serve as a repository of assets (Geotags) created under various national rural development programmes i.e. MGNREGA, Integrated Watershed Management Programme, Per Drop More Crop and Rashtriya Krishi Vikas Yojana etc., along with field photographs.
- The name given is very apt as word ‘Yukt’ is derived from Yojanam, the planning and ‘Dhara’ indicates the flow. It is a culmination of untiring joint efforts of ISRO and Ministry of Rural Development made towards realising a G2G service for rural planning in support of decentralized decision making.
- Dr. Singh acknowledged the potential and services of ISRO’s Geoportal Bhuvan and said highlighted that due to its rich information base, satellite images and analytical capabilities, Bhuvan, in fact, has become a de-facto geospatial platform for number of developmental planning activities in the country.
- This portal integrates wide variety of thematic layers, multi-temporal high resolution earth observation data with analysis tools.
- Planners will analyse previous assets under various schemes and facilitates identification of new works using online tools.
- Plans prepared will be evaluated by appropriate authorities under State Departments.
- Thus, Yuktdhara based plans will be prepared by grassroot functionary and verified by appropriate authorities for relevance and resource allocation. This would ensure quality of plan and enable a long term monitoring of the assets created over the years.
- The Before-During-After Geotagging of assets has successfully implemented the progress based disbursement of the funds during the process of creation of rural assets.
- Also, a Citizen-centric Mobile Application JANMANREGA has helped rural population for providing feedback using Bhuvan services.
Dr. Singh said that the Customisation on Bhuvan as per process requirement of Ministry of Rural Development, continuous handholding of State functionaries and also enthusiasm demonstrated by State Department personnel in adopting the technology for building GeoMGNREGA database is noteworthy and is a first of its kind massive exercise in the whole world.

Source: PIB

National Monetisation Pipeline: Critical Analysis
GS-III | 24 August, 2021

- Union Budget 2021-22 has identified monetisation of operating public infrastructure assets as a key means for sustainable infrastructure financing.
- Towards this, the Budget provided for preparation of a ‘National Monetisation Pipeline (NMP)’ of potential brownfield infrastructure assets. NITI Aayog in consultation with infra line ministries has prepared the report on NMP.
- NMP aims to provide a medium term roadmap of the programme for public asset owners; along with visibility on potential assets to private sector.

Report on NMP has been organised into two volumes.

- Volume I is structured as a guidance book, detailing the conceptual approaches and potential models for asset monetisation.
- Volume II is the actual roadmap for monetisation, including the pipeline of core infrastructure assets under Central Govt.

Framework

- The pipeline has been prepared based on img's and consultations from respective line ministries and departments, along with the assessment of total asset base available therein.
- Monetization through Disinvestment and monetization of non-core assets have not been included in the NMP.
- Further, currently, only assets of central government line ministries and CPSEs in infrastructure sectors have been included. Process of coordination and collation of asset pipeline from states is currently ongoing and the same is envisaged to be included in due course.
The framework for monetisation of core asset monetisation has three key imperatives:

1. Monetization of ‘Rights’ NOT ‘ownership’, Assets handed back at the end of transaction life
2. Brownfield de-risked assets, stable revenue streams
3. Structured partnerships under defined contractual frameworks with strict KPIs & performance standards

This includes selection of de-risked and brownfield assets with stable revenue generation profile with the overall transaction structured around revenue rights. The primary ownership of the assets under these structures, hence, continues to be with the Government with the framework envisaging hand back of assets to the public authority at the end of transaction life.

Estimated Potential
Considering that infrastructure creation is inextricably linked to monetisation, the period for NMP has been decided so as to be co-terminus with balance period under National Infrastructure Pipeline (NIP).

The aggregate asset pipeline under NMP over the four-year period, FY 2022-2025, is indicatively valued at Rs 6.0 lakh crore.

The estimated value corresponds to ~14% of the proposed outlay for Centre under NIP (Rs 43 lakh crore). This includes more than 12 line ministries and more than 20 asset classes.

The sectors included are roads, ports, airports, railways, warehousing, gas & product pipeline, power generation and transmission, mining, telecom, stadium, hospitality and housing.

The top 5 sectors (by estimated value) capture ~83% of the aggregate pipeline value. **These top 5 sectors include: Roads (27%) followed by Railways (25%), Power (15%), oil & gas pipelines (8%) and Telecom (6%).**

In terms of annual phasing by value, 15% of assets with an indicative value of Rs 0.88 lakh crore are envisaged to be rolled out in the current financial year.
(FY 2021-22). However, the aggregate as well as year on year value under NMP is only an indicative value with the actual realization for public assets depending on the timing, transaction structuring, investor interest etc.

- The assets and transactions identified under the NMP are expected to be rolled out through a range of instruments. These include direct contractual instruments such as public private partnership concessions and capital market instruments such as Infrastructure Investment Trusts (InvIT) among others. The choice of instrument will be determined by the sector, nature of asset, timing of transactions (including market considerations), target investor profile and the level of operational/investment control envisaged to be retained by the asset owner etc.
- The monetisation value that is expected to be realised by the public asset owner through the asset monetisation process, may either be in form of upfront accruals or by way of private sector investment.
- The potential value assessed under NMP is only an indicative high level estimate based on thumb rules. This is based on various approaches such as market or cost or book or enterprise value etc. as applicable and available for respective sectors.

Implementation & Monitoring Mechanism

- As an overall strategy, significant share of the asset base will remain with the government.
- The programme is envisaged to be supported through necessary policy and regulatory interventions by the Government in order to ensure an efficient and effective process of asset monetisation. These will include streamlining operational modalities, encouraging investor participation and facilitating commercial efficiency, among others. Real time monitoring will be undertaken through the asset monetisation dashboard, as envisaged under Union Budget 2021-22, to be rolled out shortly.
- The end objective of this initiative to enable ‘Infrastructure Creation through Monetisation’ wherein the public and private sector collaborate, each excelling in their core areas of competence, so as to deliver socio-economic growth and quality of life to the country’s citizens.

Source: PIB
Chief Minister Arvind Kejriwal on Monday inaugurated a ‘smog tower’ in Connaught Place and said similar towers would be built across the city, if results of the current pilot project are satisfactory.

What is a Smog Tower?
The smog tower is a 24 metre-high structure fitted with fans and air filters. This is to solve the problem of Air Pollution in Delhi. It will draw in polluted air from the top and release filtered air near the ground through fans fitted on the sides. The tower has 40 big fans and 5,000 filters to clean the air. These are electrostatic air filters that can filter out microparticles, including those that constitute smoke, household dust and pollen, according to the project description. A Supervisory Control and Data Acquisition (SCADA) system has been installed in the tower to collect data and monitor its functioning. This tower has been established as a pilot project and detailed studies will be conducted on its performance. IIT-Delhi and IIT-Bombay will analyse data and submit a report on the effectiveness of the tower. The tower will take in air from a radius of 1 km. It has a capacity of cleaning 1,000 cubic metres of air per second. It is estimated that the area will see a rapid change in air quality due to this smog tower. On January 13 last year, the Supreme Court had ordered the Delhi government to build a ‘smog tower’ at Connaught Place by April 13, 2020, to control air pollution. On the same day, the court also ordered a smog tower to be installed in Anand Vihar by the Central Pollution Control Board, by the same time.

Critical Analysis of Delhi Air Pollution

- Every winter, Delhi-NCR is covered in a thick blanket of smog and the Environmental Pollution (Prevention and Control) Authority’ has to declare a public health emergency.
- After AQI levels escalated following the annual episode of stubbleburning last year, the Supreme Court instructed the Delhi government and the Central Pollution Control Board (CPCB) to erect smog towers. However, experts are unsure of the effectiveness of solitary smog towers spread few and far in between Delhi-NCR.
- “This is pseudoscience the Supreme Court believes in. There is no scientific evidence that says smog towers actually help. If smog towers are the solution, we will need lakhs and lakhs of smog towers. The judiciary should base its decision on evidence and experts’ comments, instead of notions and intuitions,” says Activist and Swechha Founder Vimlendu Jha, adding, “In January, Gautam Gambhir put up a smog tower at Lajpat Nagar. Did anybody do a survey to figure out whether it had any impact? No.”
- India took the decision of installing smog towers following China’s
footsteps, but experts say China is implementing strong pollution control rules across sectors, which India hasn’t.

- Environmentalist Jai Dhar Gupta observes that “Smog towers have failed everywhere in the world. There is no reason it will work here. They (SC) are pretending to put forth a solution that is not even a solution.”
- Smog towers can solve problems very small areas around them, but not the whole city, says Sumit Sharma, Director, Earth Science and Climate Change Division, TERI. “It will only act upon the air in its vicinity of a few 100 metres.”

How do smog towers work?

- There are different technologies used to clean the air. One uses HEPA filters, (used in indoor air purifiers), which filters PM 2.5 particles. Another uses electrostatic precipitators that attract PM 2.5 particles and collect them at the base of the tower.
- Both would work in closed spaces, but are ineffective in open spaces. We don’t know what technology the IIT-Bombay or University of Minnesota is using because that hasn’t been shared in public.
- One smog tower costs around Rs 7-8 lakh, so you can do the math. Even worse, if we use filters to clean the air, who is going to dispose of them once they get clogged?”

What is the solution?

- The only way to reduce air pollution is to reduce emissions at the sources. Our problem is so severe and we have no option but to move away from fossil fuels. We know what percentage of emission comes from which source. Be it industrial, biomass burning, paddy burning or vehicular pollution.
- We can also incentivise good behaviour and penalise bad behaviour. For instance, people driving electric cars can be given benefits, and those driving diesel cars can be penalised.
- In a month, paddy burning will start in Afghanistan, Pakistan and Punjab, and the whole area from Pakistan to Bangladesh will turn into a hellhole. The SC has imposed a ban on stubble burning, but it is not being enforced properly.
- There is a technology called flu gas desulphurisation – it is like putting a sieve on the chimney outlets of coal fired power plants. All thermal power plants must have these Those who don’t should be penalized.
- If public money is being spent, and the Court is fixated on smog towers,
Experts suggest, they should be placed in enclosed spaces with high footfalls, like hospitals, underground metro stations and indoor stadiums.

Source: TH
The United Nations High Commissioner for Refugees (UNHCR) is a UN agency mandated to aid and protect refugees, forcibly displaced communities, and stateless people, and to assist in their voluntary repatriation, local integration or resettlement to a third country. UNHCR headquarter is in Geneva, Switzerland, with over 17,300 staff working in 135 countries. Head of UNHCR is Filippo Grandi.

Historical Background

- UNHCR was created in 1950 to address the refugee crisis that resulted from World War II.
- The 1951 Refugee Convention established the scope and legal framework of the agency’s work, which initially focused on Europeans uprooted by the war.
- Beginning in the late 1950s, displacement caused by other conflicts, from the Hungarian Uprising to the decolonization of Africa and Asia, broadened the scope of UNHCR’s operations.
- Commensurate with the 1967 Protocol to the Refugee Convention, which expanded the geographic and temporal scope of refugee assistance, UNHCR operated across the world, with the bulk of its activities in developing countries.
- By its 65th anniversary in 2015, the agency had assisted more 50 million refugees worldwide.
- As of June 2020, UNHCR has over 20 million refugees under its mandate.

United Nations Refugee Convention 1951

- It is a United Nations multilateral treaty that defines who is a refugee, and sets out the rights of individuals who are granted asylum and the responsibilities of nations that grant asylum.
- It is the main legal document that governs the working of the UNHCR. It is also called the Convention Relating to the Status of Refugees or the Geneva Convention of 28 July 1951.
- It also talks about the responsibilities and legal obligations of countries that grant asylum status to people.
- Apart from that, the Convention also defines those who are not eligible for asylum status, such as war criminals.
- It grants certain rights to people fleeing persecution because
of race, religion, nationality, affiliation to a particular social group, or political opinion.
- It builds on Article 14 of the Universal Declaration of Human Rights 1948, which recognizes the right of persons to seek asylum from persecution in other countries.
- The 1967 Protocol included refugees from all countries as opposed to the 1951 Convention that only included refugees from Europe.
- India is not a signatory to the 1951 Refugee Convention.
- This Convention is the central guiding document of international refugee protection today.

**Definition of Refugee:** The Convention defines a refugee as someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion.

The Convention is both a status and rights-based instrument and is underpinned by a number of fundamental principles, most notably non-discrimination, non-penalization and non-refoulement.

The Conventions stipulates that a refugee shall not be prosecuted by a country for illegal entry.

The Refugee Convention also prescribes some minimum standards for the treatment of refugees with respect to giving them rights of access to justice, education, travel, etc.

**What is Non-refoulement?**

- Non-refoulement is a fundamental principle of international law that forbids a country receiving asylum seekers from returning them to a country in which they would be in likely danger of persecution based on “race, religion, nationality, membership of a particular social group or political opinion”.

**1967 Protocol**

- The Protocol Relating to the Status of Refugees, alternatively known as the 1967 Protocol, is a major international document for refugee rights.
- The protocol expands the definition of a refugee given in the Convention.
- It also removes the Euro-centricity of the Convention.
Functions of UNHCR

- The agency is mandated to lead and co-ordinate international action to protect refugees (other than Palestinian refugees, who are assisted by United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)) and resolve refugee problems worldwide.
- Its primary purpose is to safeguard the rights and well-being of refugees. It strives to ensure that everyone can exercise the right to seek asylum and find safe refuge in another state, with the option to return home voluntarily, integrate locally or to resettle in a third country.
- UNHCR's mandate has gradually been expanded to include protecting and providing humanitarian assistance to whom it describes as other persons "of concern," including internally displaced persons (IDPs) who would fit the legal definition of a refugee under the 1951 United Nations Convention Relating to the Status of Refugees and 1967 Protocol, the 1969 Organization for African Unity Convention, or some other treaty if they left their country, but who presently remain in their country of origin.
- UNHCR presently has major missions in Lebanon, South Sudan, Chad/Darfur, Democratic Republic of Congo, Iraq, Afghanistan as well as Kenya to assist and provide services to IDPs and refugees in camps and in urban settings.
- UNHCR maintains a database of refugee information, ProGres, which was created during the Kosovo War in the 1990s. The database today contains data on over 11 million refugees or about 11% of all displaced persons globally. The database contains biometric data, including fingerprints and iris scans and is used to determine aid distribution for recipients.
- Note: Palestinian refugees living in the regions covered by the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) are not under the care of UNHCR.

Funding and Budget

- Consequently, its annual budget has grown from US$300,000 in 1951 to US$8.6 billion in 2019, making it one of the largest UN agencies by expenditure.
- The vast majority of UNCHR's budget comes from voluntary contributions, mostly from member states; the largest donors are the United States, the
European Union, and Germany.

The agency’s work includes providing protection, shelter, healthcare and emergency relief, assisting in resettlement and repatriation, and advocating for national and multilateral policies on behalf of refugees.

Achievements of UNHCR

- Since 1954, the UNHCR Nansen Refugee Award has been annually awarded to a person or an organization in recognition of outstanding service to the cause of refugees, displaced or stateless people.
- The UNHCR itself was awarded the Nobel Peace Prize in 1954 and 1981. The UNHCR was awarded the Indira Gandhi Prize in 2015.
- In 1991 was awarded the Prince of Asturias Award for International Cooperation.

New York Declaration for Refugees and Migrants

- The New York Declaration reaffirms the importance of the international refugee regime and contains a wide range of commitments by Member States to strengthen and enhance mechanisms to protect people on the move.
- It has paved the way for the adoption of two new global compacts in 2018: a global compact on refugees and a global compact for safe, orderly and regular migration.
- The New York Declaration sets out the key elements of a **Comprehensive Refugee Response Framework (CRRF)** to be applied to large-scale movements of refugees and protracted refugee situations.
- The CRRF focuses on the **importance of supporting those countries and communities that host large number of refugees**, promoting the inclusion of refugees in host communities, ensuring the involvement of development actors from an early stage, and **developing a ‘whole-of-society’ approach to refugee responses**.

The four key objectives of New York declaration are to:

1. Ease the pressures on host countries and communities;
2. Enhance refugee self-reliance;
3. Expand third-country solutions; and
4. Support conditions in countries of origin for return in safety and dignity.

The Global Compact on Refugees

- The Global Compact on Refugees is a framework for more predictable and equitable responsibility-sharing, recognizing that a sustainable solution to refugee situations cannot be achieved without international cooperation.
- It provides a blueprint for governments, international organizations, and other stakeholders to ensure that host communities get the support they need and that refugees can lead productive lives.
- It constitutes a unique opportunity to transform the way the world responds to refugee situations, benefiting both refugees and the communities that host them.

The Global Compact for safe, orderly and regular migration

- The New York Declaration also provides for the negotiation of a global, compact for safe, orderly and regular migration, which is to be adopted in 2018.
- Although they are to be run at the same time, the General Assembly has directed that the two processes leading to the two global compacts are to be “separate, distinct and independent”.
- The migration compact will enhance coordination on international migration and present a framework for comprehensive international cooperation on migrants and human mobility.
- UNHCR has been asked, in the New York Declaration, to also contribute to this process and to help in the elaboration of non-binding principles for migrants in vulnerable situations.

UNHCR Nansen Refugee Award

- The UNHCR Nansen Refugee Award is awarded annually by the United Nations High Commissioner for Refugees (UNHCR) to an individual, group, or organization in recognition of outstanding service to the cause of refugees, displaced or stateless people. It was established in 1954.
- The UNHCR Nansen Refugee Award is named after the intrepid Norwegian polar explorer, statesman and Nobel Peace Prize laureate Fridtjof Nansen.
- The award consists of the Nansen Medal and a $100,000 US
dollar monetary prize donated by the governments of Norway and Switzerland in support of a project of the recipient’s choice to assist displaced people, developed in consultation with UNHCR.
- The Swiss and Norwegian governments, the Norwegian Refugee Council (NRC) and the IKEA Foundation support the UNHCR Nansen Refugee Award programme.

World Refugee Day
- It is an international day designated by the United Nations to honour refugees around the globe.
- It falls each year on 20th June and celebrates the strength and courage of people who have been forced to flee their home country to escape conflict or persecution.
- It is an occasion to build empathy and understanding for the refugee’s plight and to recognize their resilience in rebuilding their lives.
- **This is not to be confused with Nansen Initiative.**

Source: TH

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Refugee crisis In India: Essay
GS-III | 25 August, 2021

Introduction
- There are numerous aspects pertaining to refugees which are of major importance both to India, as a country and to the refugees, particularly in the context of law enforcement.
- Given the security scenario prevailing in the country, particularly arising out of the role of some of the neighbours in this regard, an utterly humanitarian matter like the ‘refugees’ has come to be influenced by considerations of national security.
- While **law and order is a State subject** under the Indian Constitution, **international relations and international borders are under the exclusive purview of the Union government.**
- This has **resulted in a variety of agencies**, both of the Central as well as
the State governments, having to deal with refugee matters connected with law enforcement.

- Also, all policies governing refugees are laid down by the Union government though the impact of the refugee problem as such has to be borne by the State administration to a greater degree if not wholly.
- A proper understanding of the circumstances pertaining to specific refugee situations by the concerned law enforcement agency or even by an individual official, would pave the way for taking care of both the security as well as the humane aspects- from both the humanitarian as well as the human rights angle.
- At the same time, knowledge on the part of all those who handle refugees- whether they are part of the government machinery or outside it (including international agencies, NGOs etc) of the laws of the land and also how the security and enforcement personnel function, would considerably facilitate looking after the refugees.

**Definition of Refugee**

- The term ‘Refugee’ has a particular meaning in international law and its legal definition is laid down in the United Nations 1951 Convention relating to the Status of Refugees (to be referred to as “1951Convention”) and its 1967 Protocol.
- Article 1 para. 2 of the 1951 Convention defines the ‘refugee’ as “A person who owing to well founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, unwilling to avail himself of the protection of that country.”
- Therefore, the need to give due importance to humanitarian and human rights aspects in dealing with refugees cannot be over-stressed.
- Thus, it may be noted that there are well-defined and specific grounds, which have to be satisfied before a person can qualify to be a ‘ refugee’.

**What is the difference between Refugees and Other Foreigners?**

- While all persons who are not Indian citizens are ‘Foreigners’ including refugees, it is necessary to clearly distinguish the latter from other categories of ‘foreigners’.
- Unless the distinction between the ‘refugees’ on the one hand and all other categories of ‘foreigners’ on the other, is clearly brought home, our attempts
to sensitise people in the various strata of our society will remain inadequate.

- There are at least three well-defined groups of foreigners who are different from ‘refugees’.

A. Temporary Residents, Tourists and Travellers

- Persons under this category come to India for a specific purpose and duration with the prior permission of the Government of India.
- However, in certain circumstances any one in this category could become eligible for being a refugee if, during their sojourn in India, the situation in their country of origin becomes such as to endanger their lives and liberty if they were to return to their country.
- Many Iranians who had come to India for studies during the regime of the Shah of Iran, have stayed back in India as refugees after the fall of Shah of Iran and a revolutionary government took his place in 1978.
- Even many Afghans who are stranded in India due to Taliban offensive of 2021 are facing the same situation.
- It should be mentioned that no one can automatically claim the right for ‘refugee status’ under this category.
- It is the prerogative of the Indian government to satisfy themselves and decide each case according to merits and circumstances.

B. Illegal Economic Migrants

- Any foreigner who might have left his or her country of origin without due authorisation from the authorities concerned, both in the country of origin as well as the country of destination, solely to improve his or her economic prospects, is not a refugee.
- After all, there is no element of persecution or coercion compelling the individual to leave the country of origin.
- Illegal migrants from Bangladesh are examples of this category.
- Such persons have to be treated as illegal and unauthorised entrants into the country and dealt with under the appropriate laws applicable to foreigners like Foreigners Act, Indian Passport Act etc. besides the IPC, Cr.PC etc.

C. Criminals, Spies, Infiltrators, Militants etc

- None of these can ever become eligible to be refugees.
- They have to be dealt with under the provisions of the Indian criminal laws as well as any other special laws in force even though some of them may be in possession of valid travel documents.
D. Internally Displaced Persons (IDP)

- Those persons who are fleeing persecution and human rights violations from one region of the country and have sought refuge in another region of the same country, fall under this category.
- Such persons cannot be categorised as ‘refugees’ as they have not crossed any international border.
- Moreover, they have the protection of their national government.
- These persons are categorised as ‘internally displaced persons’ (IDP).
- Kashmiris who have been forced to flee from Jammu and Kashmir and who have settled in other parts of India fall under this category.
- Incidentally, in many African countries, the IDPs are also treated as ‘refugees’ within the ambit of the 1951 Convention.

Refugee Crisis in India

- India has been home to refugees for centuries.
- From the time when almost the entire Zorastrian community took refuge in India fleeing from the persecution they were then subjected to on religious grounds in Iran, India has, from time to time continued to receive a large number of refugees from different countries, not necessarily from the neighbouring countries alone.
- The most significant thing which deserves to be taken note of is that, there has not been a single occasion of any refugee originating from the Indian soil except the transboundary movement of the people during the partition of the country in 1947.
- On the other hand, it has invariably been a receiving country and in the process, enlarging its multi-cultural and multi-ethnic fabric.
- In keeping with its secular policies, India has been the home to refugees belonging to all religions and sects.
- It is relevant to point out that since its independence India has received refugees not only from some of its neighbouring countries but distant countries like Afghanistan, Iran, Iraq, Somalia, Sudan and Uganda.
- The South Asian sub-continent has often witnessed situations where refugees from one or the other neighbouring countries have crossed over to India.
- Considering the sensitivities of national and regional politics in the sub-continent, the problem of refugees crossing over to India cannot be totally disassociated from the overall security issues relevant locally.
- At the end of 1999, India had well over 2,51,400 refugees, who do not include those from countries like Afghanistan, Iran, Iraq, Somalia, Sudan and
How does India accord Refugee Status?

- Even though India has been the home for a large number and variety of refugees throughout the past, India has dealt with the issues of ‘refugees’ on a bilateral basis.
- Refugees are no doubt ‘foreigners’. Even though there may be a case to distinguish them from the rest of the ‘foreigners’, the current position in India is that they are dealt with under the existing Indian laws, both general and special, which are otherwise applicable to all foreigners.
- This is because there is no separate law to deal with ‘refugees’. For the same reason, cases for refugee ‘status’ are considered on a case-by-case basis.
- UNHCR often plays a complementary role to the efforts of the Government, particularly in regard to verification about the individual’s background and the general circumstances prevailing in the country of origin. That agency also plays an important role in the resettlement of refugees etc.
- It may be restated for purposes of clarity and understanding that a refugee is defined as one who is outside the country of nationality (or even country of habitual residence) due to one of the five grounds, namely, a well-founded fear of persecution on the basis of religion, race, nationality or membership of a political or social group.
- In some countries, a person who flees his home country because of armed conflicts or wars or other generalised violation of human rights and who may not be targeted on account of any of the five grounds specified above, is excluded from the purview of the above definition of ‘refugee’.
- In many countries a difference is sought to be made between persecution effected by State agents and the one effected by non-state agents as may be the case in places where ‘rebel’ ‘terrorist’ and such other groups are active. Under such circumstances it is only those who are affected by the action of the State agents who are held to fulfill the definition of ‘refugee’ and not the latter.
- One of the principal elements to satisfy a claim to refugee status is that the claimant must be ‘genuinely at risk’. Various legal “tests” have developed which concern the standard of proof that is required to satisfy what constitutes being genuinely at risk or having a genuine well founded fear of persecution. Some of these tests have been articulated by courts in a number...
In the case of India, the decision as whether to treat a person or a group of persons as refugees or not is taken on the merits and circumstances of the cases coming before it.

The Government of India (GOI) may be often seen as following a policy of bilateralism in dealing with persons seeking to be refugees.

### Afghanistan Refugees

- **For example, Afghan refugees of Indian origin and others**, who entered India through Pakistan without any travel documents, **were allowed entry through the Indo-Pakistan border till 1993.**
- Most of the refugees had entered India through the Attari border near Amritsar in Punjab.
- **Subsequent to 1993, the Government altered its policy** of permitting Afghan refugees freely into India.
- In the case of a large number of them (many of them were Afghan Sikhs and Afghan Hindus) who had to flee from Afghanistan under circumstances which fulfilled one or more of the grounds specified earlier for being treated as a ‘refugee’, **the GOI did not officially treat them as refugees.**
- However, the UNHCR with the consent of the GOI, recognised them as refugees under its mandate and is rendering assistance to them.
- In such cases, even though the local Government is kept in the picture, the UNHCR becomes responsible to look after them as well as ‘administer’ them and also to ensure that such refugees do not in any way violate the code of conduct governing them.

### Myanmar and Sri Lankan Refugees

- **In contrast, in 1989**, when the Myanmar authorities started suppressing the pro-democracy movement in that country and about 3,000 nationals of that country sought refuge in India, the **GOI declared that in accordance with well accepted international norms defining refugee status**, no genuine refugee from Myanmar would be turned back and in fact, **they were accepted as refugees by the GOI.**
- Similar is the case of **Sri Lankan Tamil refugees** crossing the sea to enter the southern Indian State of Tamil Nadu. The Government of India followed a specific refugee policy regarding Sri Lankan refugees and **permitted them entry despite the fact that the refugees did not have travel documents.**
- In cases where the Government of India recognises the claim of refugee status of a particular group of refugees, there is minimal interference if any,
caused to the refugees. This is the case even though there may be no official declaration of any policy of grant of refugee status to that group.

- However, there are instances where refugees recognised by the Government of India and issued with valid refugee identity documents by the government, are later prosecuted for illegal entry/over stay.
- The National Human Rights Commission had taken up successfully the cause of a number of Sri Lankan Tamil refugees who had been likewise prosecuted.

India’s Refugee Law

- **India does not have on its statute book a specific and separate law to govern refugees.**
- In the absence of such a specific law, all existing Indian laws like The Criminal Procedure Code, The Indian Penal Code, The Evidence Act etc. apply to the refugees as well.
- Even though India is not a signatory to the 1951 Convention on refugees and also the 1967 Protocol, **India is a signatory to a number of United Nations and World Conventions on Human Rights, refugee issues and related matters.**
- India’s obligations in regard to refugees arise out of the latter.
- **India became a member of the Executive Committee of the High Commissioner’s Programme (EXCOM) in 1995.** The EXCOM is the organisation of the UN, which approves and supervises the material assistance programme of UNHCR. Membership of the EXCOM indicates particular interest and greater commitment to refugee matters.
- **India voted affirmatively to adopt the Universal Declaration of Human Rights** which affirms rights for all persons, citizens and non-citizens alike. **Article 13** of the Universal Declaration of Human Rights guarantees ‘Right to Freedom of Movement’, **Article 14** ‘Right to Seek and Enjoy Asylum’ and **Article 15** the ‘Right to Nationality.’
- **India voted affirmatively to adopt the UN Declaration of Territorial Asylum in 1967.**
- **India ratified the International Covenant on Civil and Political Rights (ICCPR) as well as the International Convention on Economic, Social and Cultural Rights (ICESCR) in 1976.** **Article 12** of the ICCPR deals with ‘Freedom to leave any country including the person’s own’ and **Article 13** ‘Prohibition of expulsion of aliens except by due process of law’.
- **India ratified the UN Convention on the Rights of the Child in 1989.** Under
Article 2 A of the UN Convention on the Rights of the Child, the State must ensure the rights of “each child within its jurisdiction without discrimination of any kind”; Article 3 lays down that “In all actions concerning children the best interest of the child shall be a primary consideration”; Article 24 relates to ‘Right to Health’; Article 28 to ‘Right to Education’ and Article 37 to ‘Juvenile Justice’.

- India ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1974 under which Article 1 imposes legally binding obligation.

- India accepted the principle of non-refoulement as envisaged in the Bangkok Principles, 1966, which were formulated for the guidance of member states in respect of matters concerning the status and treatment of refugees. These Principles also contain provisions relating to repatriation, right to compensation, granting asylum and the minimum standard of treatment in the state of asylum.

- Refugees encounter the Indian legal system on two counts. There are laws which regulate their entry into and stay in India along with a host of related issues. Once they are within the Indian territory, they are then liable to be subjected to the provisions of the Indian penal laws for various commissions and omissions under a variety of circumstances, whether it be as a complainant or as an accused. These are various constitutional and legal provisions with which refugees may be concerned under varying circumstances.

**Constitutional Provisions for Refugees**

There are a few Articles of the Indian Constitution which are equally applicable to refugees on the Indian soil in the same way as they are applicable to the Indian Citizens.

- The Supreme Court of India has consistently held that the Fundamental Right enshrined under Article 21 of the Indian Constitution regarding the Right to life and personal liberty, applies to all irrespective of the fact whether they are citizens of India or aliens.
- The various High Courts in India have liberally adopted the rules of natural justice to refugee issues, along with recognition of the United Nations High Commissioner for Refugees (UNHCR) as playing an important role in the protection of refugees.
- The Hon’ble High Court of Guwahati has in various judgements, recognised
the refugee issue and permitted refugees to approach the UNHCR for determination of their refugee status, while staying the deportation orders issued by the district court or the administration.

- In the matter of **Gurunathan and others vs. Government of India** and others and in the matter of **A.C.Mohd.Siddique vs. Government of India and others**, the High Court of Madras expressed its unwillingness to let any Sri Lankan refugees to be forced to return to Sri Lanka against their will.

- In the case of **P.Nedumaran vs. Union Of India** before the Madras High Court, Sri Lankan refugees had prayed for a writ of mandamus directing the Union of India and the State of Tamil Nadu to permit UNHCR officials to check the voluntariness of the refugees in going back to Sri Lanka, and to permit those refugees who did not want to return to continue to stay in the camps in India.

- The Bombay High Court in the matter of **Syed Ata Mohammadi vs. Union of India**, was pleased to direct that “there is no question of deporting the Iranian refugee to Iran, since he has been recognised as a refugee by the UNHCR.” The Hon’ble Court further permitted the refugee to travel to whichever country he desired. Such an order is in line with the internationally accepted principles of ‘non-refoulement’ of refugees to their country of origin.

- The Supreme Court of India has in a number of cases stayed deportation of refugees such as Maiwand’s Trust of Afghan Human Freedom vs. State of Punjab; and, N.D.Pancholi vs. State of Punjab & Others.

- In the matter of Malavika Karlekar vs. Union of India, the Supreme Court directed stay of deportation of the Andaman Island Burmese refugees, since “their claim for refugee status was pending determination and a prima facie case is made out for grant of refugee status.”

- The Supreme Court judgement in the Chakma refugee case clearly declared that no one shall be deprived of his or her life or liberty without the due process of law. Earlier judgements of the Supreme Court in Luis De Raedt vs. Union of India and also State of Arunachal Pradesh vs. Khudiram Chakma, had also stressed the same point.

**Arrest, Detention and Release**

- There is yet another aspect of non-refoulment which merits mention here.

- **The concept of ‘International Zones’ which are transit areas at airports and other points of entry into Indian territory**.
The Indian Constitution does not contain any specific provision which obliges the state to enforce or implement treaties and conventions.

A joint reading of all the provisions as well as an analysis of the case law on the subject shows international treaties, covenants, conventions and agreements can become part of the domestic law in India only if they are specifically incorporated in the law of the land.

The Supreme Court has held, through a number of decisions on the subject that international conventional law must go through the process of transformation into municipal law before the international treaty becomes internal law.

Courts may apply international law only when there is no conflict between international law and domestic law, and also if the provisions of international law sought to be applied are not in contravention of the spirit of the Constitution and national legislation, thereby enabling a harmonious construction of laws.

It has also been firmly laid that if there is any such conflict, then domestic law shall prevail.

Role of Border Guarding Forces and Law Enforcement Officials

- It will be useful to acquaint oneself with the realities on ground when a refugee attempts to cross or actually crosses over to India.
- The Border Security Force (BSF) which guards the India-Pakistan and the India-Bangladesh borders, the Indo-Tibetan Border Police Force (ITBPF)
The Assam Rifles (AR), which is deployed along the India-Myanmar border, and the Indian Border Security Force (BSF), which is deployed along the India-Pakistan border, are usually the first representatives of the Indian system which refugees may encounter when they enter or exit India by land routes.

- Vastness and, sometimes even the treacherous nature of the border terrain make it difficult to physically man the entire international borders of India.
- The gaps in the border left unguarded, are often used by refugees to illegally enter/exit the Indian territory.
- If caught while entering illegally, the authorities may return the refugee across the border, sometimes even without ascertaining relevant refugee claims of persecution in the country of origin, though this is not in strict conformity with the internationally acknowledged principle of non-refoulement.
- When this happens, the refugee may face ‘forced return’ to the country where he/she came from.
- In the alternative, the border guarding force may interrogate and detain the person as permissible under the law of the land, at the border itself, pending decision by the administrative authorities regarding his plea for refuge/asylum.
- In all such cases, the person will have to be ultimately handed over to the local police who will exercise their powers under relevant provisions of the Criminal Procedure Code (Cr.PC).
- It goes without saying that there will be circumstances and occasions when the authorities may have to be satisfied about the bona fides of the person concerned.
- It is part of the duty and responsibility of the authorities to rule out any criminal or anti-national taking the plea of a ‘refugee’ and entering the country for mala fide purposes.
- If caught while illegally exiting India, the person (refugee) may be handed over to the local police for investigation and for further action according to law.
- In cases where the refugee is found in possession of invalid travel documents or in cases of violation of any other Indian law, the refugee may be detained by the border authorities at the border post itself and handed over to the local police for investigation.
- In all such instances, after the registration of a case on the basis of a First Information Report, the police would lodge the accused refugee in the area prison and produce him/her in the local court for trial in conformity with the provisions of CrPC.
- Immigration and Custom officials come into the scene at the point of entry into India through seaports and airports. In cases where a refugee is detected...
while entering/ exiting established seaports and airports on Indian territory, without valid travel documents, he/she is immediately detained by the Immigration/ authorised Custom officers and prima facie investigated.

- In cases of illegal entry, the immigration authorities usually take steps to deport the refugee immediately to the country where he or she last came from. This, it may be mentioned, is not in conformity with the principle of non-refoulement.

Source: T. Ananthachari

India â€“ ASEAN Trade

- Union Minister of State for Commerce and Industry Ms. Anupriya Patel today inaugurated the “India-ASEAN Engineering Partnership Summit” organised by Engineering Exports Promotion Council (EEPC) with the support from Ministry of External Affairs and Department of Commerce.
- The focus of today’s summit is on collaborations in engineering sector. The summit offers an important platform for engagement of Indian industry on India-ASEAN partnership in engineering trade and investments.
- This forum will also be instrumental in achieving the landmark export target set by the government both in terms of engineering as well as merchandise exports.
- She said engineering exports constitutes one-fourth of the merchandise exports and is the largest foreign exchange earners among all export sectors and the performance of engineering exports has been remarkable in the last few years.
- ASEAN, with over 15 percent share in India’s global engineering shipment, is likely to be a key region to focus with a target of around USD 16 billion of exports for 2021-22.
- She added, as one of the largest destinations for Indian exports, ASEAN will be an important region for India with an export target of US$ 46 billion in meeting the global export target of US$ 400 billion in financial year 2021-22.
- ASEAN as a region is the third largest export destination of Indian engineering products after EU and North America.
- Among the ASEAN member nations, Singapore and Malaysia are major
export destinations for Indian engineering products.

Further in her address, Ms. Patel said that both India and ASEAN have a large share of skilled population, robust service and manufacturing sectors and there are many complementary sectors and products available for greater cooperation.

With a combined economy of approx. US$ 5.8 trillion, there is significant potential for enhancing trade and investment partnership between India and ASEAN.

She said Government has taken numerous measures to make India an even more attractive destination for foreign direct investment. Ms. Patel further said that Prime Minister of India has set a target of USD 400 billion of merchandise exports for fiscal 2021-22 and also envisioned a roadmap to achieve this milestone. As a part of the ‘Atmanirbhar Bharat Abhiyaan’.

The Government has recently approved the Production-Linked Incentive (PLI) Scheme worth US$ 26 billion covering 13 sectors, including electronics, pharmaceuticals, solar modules, specialty steel, automobiles, and medical devices for attracting investment and enhancing India’s manufacturing capabilities.

This year is special for both partners as it marks the 25th anniversary of India-ASEAN dialogue partnership and 10 years of the Strategic Partnership.

Source: PIB
Union Minister of Finance and Corporate Affairs Smt. Nirmala Sitharaman today unveiled the fourth edition of the Public Sector Bank (PSB) Reforms Agenda ‘EASE 4.0’ for 2021-22 - **tech-enabled, simplified, and collaborative banking**.

She unveiled the annual report for the PSB Reforms Agenda EASE 3.0 for 2020-21 and participated in the awards ceremony to felicitate best performing banks on EASE 3.0 Banking Reforms Index.

State Bank of India, Bank of Baroda and Union Bank of India have won the awards for best performing banks for PSB Reforms EASE 3.0 based on the EASE index.

Indian Bank won the award for the best improvement from the baseline performance. SBI, BoB, Union Bank of India, Punjab National Bank and Canara Bank won the top awards in different themes of the PSB Reforms Agenda EASE 3.0.

Public Sector Banks have reported healthy profits and have accelerated on technology-driven reforms. These banks have reported a profit of Rs. 31,817 crore in FY21 as compared to a loss of Rs. 26,016 crore in FY20. **This is the first year when PSBs have reported profit after five years of losses.** Total gross non-performing assets stood at Rs. 6.16 lakh crore as of March 2021 - a reduction of Rs. 62,000 crore from March 2020 levels.

**Digital lending**

- **Credit@click** was a flagship initiative under EASE 3.0. Nearly 4.4 lakh customers have been benefitted through such instantaneous and simplified credit access.
- PSBs have setup mechanism for customers where they can register loan requests 24X7 through digital channels such as Mobile and Internet banking, SMS, missed call and call centre. In FY21, PSBs have collectively disbursed Rs. 40,819 crore of fresh personal, home and vehicle loans through leads sourced from such digital channels.
- The top 7 PSBs have built analytics capabilities through the setup of dedicated analytics teams and IT infrastructure to proactively offer loans to its existing customers. Such loan offers were generated using the existing customer transactions data within the banks. In FY21, Rs. 49,777 crore of fresh retail loan disbursements were made by the top 7 PSBs based on these credit offers.
PSBs have also extensively used external partnerships and dedicated marketing salesforce network for the sourcing of retail segment and MSME segment loans. Sourcing from such channels has been 9.1 lakh loans in FY21.

**Mobile/Internet banking and customer service**

- Nearly 72% of financial transactions happening at PSBs is now happening through digital channels. PSBs are now offering services across call centres, Internet banking, and Mobile banking in 14 regional languages such as Telugu, Marathi, Kannada, Tamil, Malayalam, Gujarati, Bengali, Odia, Kashmiri, Konkani, Hindi, Punjabi, Assamese for the ease of customers.
- For continual improvement in coverage under financial inclusion initiatives, there was a 13% growth in transactions provided by Bank Mitras in rural areas and 50% growth in enrolments in Micro personal accident insurance in Q4FY21 compared to Q4FY20.
- PSBs have recorded a phenomenal growth in their performance over four quarters since the launch of EASE 3.0 Reforms Agenda. The overall score of PSBs increased by 35% between March-2020 and March-2021, with the average EASE index score improving from 44.2 to 59.7 out of 100. Significant progress is seen across six themes of the Reforms Agenda, with the highest improvement seen in the themes of ‘Smart Lending’ and ‘Institutionalising Prudent Banking’.

The next edition of EASE reforms i.e. **EASE 4.0** aims to further the agenda of customer-centric digital transformation and deeply embed digital and data into PSBs’ ways of working.
A new technology may soon enhance the reuse of waste water in an
The technology which uses **UV-Photocatalysis** can treat municipal sewage and highly polluting industrial wastewater streams and increase its reuse as a technological option in industrial as well as municipal wastewater treatments. With ever-increasing **Water crisis** and **Water pollution**, it becomes imperative for industries & utilities to reuse ‘treated water’. However, the current treatment practices are inefficient because of high dependence on biological treatment systems, which are unable to bear shock loads. This is followed by tertiary treatment systems involving RO and Multi Effect Evaporators (MEE). These systems have **large carbon footprint and maintenance costs** making the wastewater treatment highly unsustainable and unaffordable. These researchers have felt the need to integrate novel approaches and advanced technologies in current systems. The Energy and Resources Institute, New Delhi, has developed a technology called **The Advanced Oxidation Technology or TADOX®** which can reduce less dependence and load on biological and tertiary treatment systems and help achieve **Zero Liquid Discharge (ZLD)**. It can bring down capital expenditure on ZLD by 25-30% and operating expense by 30-40% for industrial wastewater treatment. The Advanced Oxidation Technology, TADOX® developed by TERI New Delhi for wastewater treatment is an effort in this direction. Department of Science and Technology (DST), GoI- Water Technology Initiative (WTI) has supported TERI to develop this technology at bench scale collaboration in tie-up with ONGC Energy Centre (OEC), Delhi. The technology supported by the Water Technology Initiative (WTI) of the Department of Science and Technology, Govt. of India involves UV-Photocatalysis as an Advanced Oxidation Process (AOP) at the secondary treatment stage leading to oxidative degradation and mineralization of targeted pollutants. It improves biodegradability, thereby preventing bio-fouling of membranes and enhancing life span and efficiency of RO systems as also overall load on evaporators like Multiple Effect Evaporators and Mechanical vapor recompression (MVR), and so on. It can **reduce Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD), dissolved organics, pathogens, Persistent Organic Pollutants (POPs), and Micropollutants**. TADOX® could be integrated and retrofittable in existing treatment systems making it a viable option as a novel Decentralized Wastewater Treatment
Technology (DWTT) applicable in upcoming and existing infrastructural projects, townships, commercial complexes, green buildings, and smart cities.

- The technology has been adopted by an MSME Company to scale up to 10 Kilo Litre per Day continuous running plant in TERI Gurugram campus. TADOX® technology has been chosen for pilot trials and augmentation plan for identified industrial sectors under ‘Namami Gange’ Programme of the Ministry of Jal Shakti, Govt. of India. The Technology is at TRL 7 and ready for commercialization through field implementations and Technology & Trademark License Agreement from 1st April 2021.

Source: PIB

Sugarcane: Major crops and cropping patterns of India

- Sugarcane (Saccharum officinarum) family Gramineae (Poaceae) is widely grown crop in India.
- It provides employment to over a million people directly or indirectly besides contributing significantly to the national exchequer.
- Sugarcane growing countries of the world lay between the latitude 36.7° north and 31.0° south of the equator extending from tropical to subtropical zones.
- Sugar cane originated in New Guinea where it has been known for thousands of years. Sugar cane plants spread along human migration routes to Asia and the Indian subcontinent.
- Here it cross-bred with some wild sugar cane relatives to produce the commercial sugar cane we know today.
- Cultivation of sugarcane in India dates back to the Vedic period (1400 to 1000 BC). It is now widely accepted that India is the original home of Saccharum species.
- The cultivated canes belong to two main groups: (a) thin, hardy north Indian types S.barberi and S.Sinense and (b) thick, juicy noble canes Saccharum officinarum.

Important regions/ zones for sugarcane cultivation in India
Broadly there are two distinct agro-climatic regions of sugarcane cultivation in India, viz., tropical and subtropical. However, five agro-climatic zones have been identified mainly for the purpose of varietal development. They are (i) North Western Zone (ii) North Central Zone (iii) North Eastern Zone (iv) Peninsular Zone (v) Coastal Zone.

Tropical region: Shared about 45% and 55% of the total sugarcane area and production in the country, respectively along with the average productivity of 77 t/ha (2011-12).

Sub-tropical region: accounted for about 55% and 45% of total area and production of sugarcane with an average productivity about 63 t/ha (2011-12).

Tropical Sugarcane region: The tropical sugarcane region consists of sugarcane agro climatic zone 4 (peninsular zone) and 5 (Coastal zone) which includes the states of Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka, Gujarat, Madhya Pradesh, Goa, Pondicherry and Kerala.

Sub-tropical sugarcane region: Around 55 per cent of total cane area in the country is in the sub-tropics. U.P, Bihar, Haryana and Punjab comes under this region.

Crop distribution: Sugarcane growing countries of the world are lying between the latitude 36.70 north and 31.00 south of the equator extending from tropical to sub-tropical zones.

In India sugarcane is cultivated all over the country from latitude 80 N to 330 N, except cold hilly areas like Kashmir valley, Himachal Pradesh and Arunachal Pradesh.

Climatic requirement: Temperature for different critical stages of sugarcane: The different critical stages are germination, tillering, early growth, active growth and elongation. Optimum temperature for sprouting (germination) of stem cuttings is 32° to 38°C. It slows down below 25°, reaches plateau between 30°-34°. Temperatures above 38° reduce the rate of photosynthesis and increase respiration. For ripening, however, relatively low temperatures in the range of 12° to 14° are desirable.

Reduction in yield of sugarcane due to rise in temperature

The sugarcane productivity and juice quality are profoundly influenced by weather conditions prevailing during the various crop-growth sub-periods.

Sugar recovery is highest when the weather is dry with low humidity; bright sunshine hours, cooler nights with wide diurnal variations and very little rainfall during ripening period.
These conditions favour high sugar accumulation. The climatic conditions like very high temperature or very low temperature deteriorate the juice quality and thus affecting the sugar quality. Favourable climate like warm and humid climate favour the insect pests and diseases, which cause much damage to the quality and yield of its juice and finally sucrose contents.

Area, production and yield of sugarcane in major growing states

- In Tropical zone Maharashtra is the major sugarcane growing state covering about 9.4 lakh ha area with production of 61.32 Million ton, whereas the productivity of Tamil Nadu is highest in tropical zones.
- Uttar Pradesh is the highest sugarcane producing State in sub tropical zone having area about 22.77 Lakh ha with the production of 135.64 Million Ton cane whereas Haryana has highest productivity of sugarcane in Sub tropical zone.
FRP and Sugar Pricing Policy in India

GS-III | 26 August, 2021

With the amendment of the Sugarcane (Control) Order, 1966 on 22.10.2009 and the concept of Statutory Minimum Price (SMP) of sugarcane was replaced with the ‘Fair and Remunerative Price (FRP)’ of sugarcane for 2009-10 and subsequent sugar seasons.

The cane price announced by the Central Government is decided on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) after consulting the State Governments and associations of sugar industry.

The amended provisions of the Sugarcane (Control) Order, 1966 provides for fixation of FRP of sugarcane having regard to the following factors:-

1. cost of production of sugarcane;
2. return to the growers from alternative crops and the general trend of prices of agricultural commodities;
3. availability of sugar to consumers at a fair price;
4. price at which sugar produced from sugarcane is sold by sugar producers;
5. recovery of sugar from sugarcane;
6. the realization made from sale of by-products viz. molasses, bagasse and press mud or their imputed value;
7. reasonable margins for the growers of sugarcane on account of risk and profits

- Under the FRP system, the farmers are not required to wait till the end of the season for any announcement of the profits by sugar mills or the Government.
- The new system also assures margins on account of profit and risk to farmers, irrespective of the fact whether sugar mills generate profit or not and is not dependent on the performance of any individual sugar mill.
- In order to ensure that higher sugar recoveries are adequately rewarded and considering variations amongst sugar mills, the FRP is linked to a basic recovery rate of sugar, with a premium payable to farmers for higher recoveries of sugar from sugarcane.
- Accordingly, FRP for 2017-18 sugar season has been fixed at Rs. 255 per qtl. linked to a basic recovery of 9.5% subject to a premium of Rs.2.68 per qtl for every 0.1 percentage point increase above that level.
Government has approved Fair and Remunerative Price (FRP) of sugarcane for sugar season 2021-22 (October - September) at Rs. 290/- per quintal.

The cost of production of sugarcane for the sugar season 2021-22 is Rs. 155 per quintal. This FRP of Rs. 290 per quintal at a recovery rate of 10% is higher by 87.1% over production cost, thereby giving the farmers a return of much more than 50% over their cost.

In the current sugar season 2020-21, about 2,976 lakh tons of sugarcane of worth Rs. 91,000 cr was purchased by sugar mills, which is at all time high level & is the second highest next to the procurement of paddy crop at Minimum Support Price.

Keeping the expected increase in the production of sugarcane in the ensuing sugar season 2021-22, about 3,088 lakh tons of sugarcane is likely to be purchased by sugar mills. The total remittance to the sugarcane farmers will be about Rs. 1,00,000 crore. The Government through its pro-farmer measures will ensure that sugarcane farmers get their dues in time.

The FRP approved shall be applicable for purchase of sugarcane from the farmers in the sugar season 2021-22 (starting w.e.f. 1st October, 2021) by sugar mills.

In last 3 sugar seasons 2017-18, 2018-19 & 2019-20, about 6.2 Lakh Metric Tonne (LMT), 38 LMT & 59.60 LMT of sugar has been exported. In the current sugar season 2020-21 (Oct – Sept.), against the export target of 60 LMT, contracts of about 70 LMT have been signed & more than 55 LMT has been physically exported from the country, as on 23.8.2021. Export of sugar has improved liquidity of sugar mills enabling them to clear cane price dues of farmers.

Government is also encouraging sugar mills to divert excess sugarcane to ethanol which is blended with petrol, which not only serves as a green fuel but also saves foreign exchange on account of crude oil import. In last 2 sugar seasons 2018-19 & 2019-20, about 3.37 LMT & 9.26 LMT of sugar has been diverted to ethanol. In current sugar season 2020-21, more than 20 LMT is likely to be diverted.

In past 3 sugar seasons about Rs. 22,000 crore revenue was generated by sugar mills/ distilleries from sale of ethanol to Oil Marketing Companies (OMCs).

In the current sugar season 2020-21, about Rs. 15,000 cr revenue is being generated by sugar mills from sale of ethanol to OMCs at 8.5%.
This is expected to significantly increase in the next 3 years as we go up to 20% blending by 2025. In the previous sugar season 2019-20, about Rs. 75,845 crores cane dues were payable, out of which Rs. 75,703 crore has been paid & only Rs. 142 crore arrears are pending. Even, in the current sugar season 2020-21, out of cane dues payable of Rs. 90,959 crores, Rs. 86,238 crores cane dues have already been paid to farmers. Increase in export & diversion of sugarcane to ethanol is ensuring timely cane price payments to farmers.

De-regulation of Sugar sector on the recommendations of C. Rangarahan Committee report

- **The year 2013-14 was a water-shed for the sugar industry:**
  - The Central Government considered the recommendations of the committee headed by Dr. C. Rangarajan on de-regulation of sugar sector and decided to **discontinue the system of levy obligations on mills for sugar produced after September, 2012 and abolished the regulated release mechanism on open market sale of sugar.**
  - The de-regulation of the sugar sector was undertaken to improve the financial health of sugar mills, enhance cash flows, reduce inventory costs and also result in timely payments of cane price to sugarcane farmers.

C Rangarajan Committee report

- **Cane Area Reservation:** Over a period of time, states should encourage development of such **market-based long-term contractual arrangements, and phase out cane reservation area and bonding.** In the interim, the current system may continue.
- **Minimum Distance Criteria:** It is not in the interest of development of sugarcane farmers or the sugar sector, and **may be dispensed with** as and when a state does away with cane reservation area and bonding.
- **Sugarcane Price : Revenue Sharing:** Based on an analysis of the data available for the by-products (molasses and bagasse / cogeneration), the revenue-sharing ratio has been estimated to amount to roughly 75 per cent of the ex-mill sugar price alone.
- **Levy sugar may be dispensed with:** The **states which want to provide sugar under PDS may henceforth procure it from the market directly according to their requirement and may also fix the issue price. However, since currently there is an implicit cross-subsidy on account of the levy, some**
level of Central support to help states meet the cost to be incurred on this account may be provided for a transitory period.

- **Regulated Release Mechanism**: This mechanism is not serving any useful purpose, and may be dispensed with.
- **As per the committee, trade policies on sugar should be stable.** Appropriate tariff instruments like a moderate export duty not exceeding 5% ordinarily, as opposed to quantitative restrictions, should be used to meet domestic requirements of sugar in an economically efficient manner.
- **By products**: There should be no quantitative or movement restrictions on by products like molasses and ethanol. The prices of the by-products should be market-determined with no earmarked end-use allocations. There should be no regulatory hurdles preventing sugar mills from selling their surplus power to any consumer.
- **Compulsory Jute Packing**: May be dispensed with.
- **The recommendations of the Committee relating to Cane Area Reservation, Minimum Distance Criteria and adoption of the Cane Price Formula have been left to State Governments for adoption and implementation, as considered appropriate by them.**

Source: PIB
About Maldives
Maldives is a small archipelagic state in the Indian subcontinent of Asia, situated in the Indian Ocean. It lies southwest of Sri Lanka and India, about 700 kilometres (430 mi) from the Asian continent's mainland.

The maritime boundary between the Maldives and India runs through the Eight Degree Channel. It separates the islands of Minicoy and Maldives.

The chain of 26 atolls stretches from Ihavandhippolhu Atoll in the north to Addu Atoll in the south (across the Equator).

Comprising a territory spanning roughly 90,000 square kilometres (35,000 sq mi) including the sea, land area of all the islands comprises 298 square kilometres (115 sq mi), Maldives is one of the world's most geographically dispersed sovereign states as well as the smallest Asian country by land area and, with around 557,426 inhabitants, the 2nd least populous country in Asia.

Malé is the capital and the most populated city, traditionally called the "King's Island" where the ancient royal dynasties ruled for its central location.

The Maldivian Archipelago is located on the Chagos-Laccadive Ridge, a vast submarine mountain range in the Indian Ocean; this also forms a terrestrial ecoregion, together with the Chagos Archipelago and Lakshadweep.

Historical Background of Maldives

In the 12th century Islam reached the Maldivian Archipelago, which was consolidated as a sultanate, developing strong commercial and cultural ties with Asia and Africa.

From the mid-16th-century the region came under the increasing influence of European colonial powers, with Maldives becoming a British protectorate in 1887.

Independence from the United Kingdom came in 1965, and a presidential republic was established in 1968 with an elected People's Majlis. The ensuing decades have seen political instability, efforts at democratic reform, and environmental challenges posed by climate change.

Maldives was a member of the Commonwealth from July 1982 until withdrawing from the Commonwealth in October 2016 in protest at allegations by the other nations of its human rights abuses and failing democracy. The Maldives rejoined the Commonwealth on 1 February 2020 after showing evidence of functioning democratic processes and popular support.
Maldives became a founding member of the South Asian Association for Regional Cooperation (SAARC). It is also a member of the United Nations, the Commonwealth of Nations, the Organisation of Islamic Cooperation, and the Non-Aligned Movement. The World Bank classifies the Maldives as having an upper-middle income economy. Fishing has historically been the dominant economic activity, and remains the largest sector by far, followed by the rapidly growing tourism industry. Maldives rate "high" on the Human Development Index, with per-capita income significantly higher than other SAARC nations.

Maldives relations with India

- India and Maldives share ethnic, linguistic, cultural, religious and commercial links steeped in antiquity and enjoy close, cordial and multi-dimensional relations.
- India was among the first to recognise Maldives after its independence in 1965 and to establish diplomatic relations with the country.
- India established its mission at the level of CDA in 1972 and resident High Commissioner in 1980.
- Maldives opened a full fledged High Commission in New Delhi in November 2004, at that time one of its only four diplomatic missions worldwide.

1967 Maritime Treaty

- In December 1976, India and the Maldives signed a maritime boundary treaty to agree on maritime boundaries.
- Treaty explicitly places Minicoy on the Indian side of the boundary.
- India and Maldives officially and amicably decided their maritime boundary in 1976.

1981 Comprehensive Trade Agreement

- In 1981, India and Maldives signed a comprehensive trade agreement.
- Both nations are founding members of the South Asian Association for Regional Cooperation (SAARC), the South Asian Economic Union and signatories to the South Asia Free Trade Agreement.
- Indian and Maldivian leaders have maintained high-level contacts and consultations on regional issues.

Previous India’s Assistance to Maldives (PT SHOTS)
1988: Under Operation Cactus the Indian Armed Forces have helped the government of Maldives in the neutralization of the coup attempt.

2004: India has helped Maldives after the tsunami.

2014: Under 'Operation Neer' India supplied drinking water to Maldives to deal with the drinking water crisis.

The two Advanced Light Helicopters (ALH) given by India to the Maldivian armed forces have been used in saving Maldivian lives. The Advanced Light Helicopter is a multi-role, new generation helicopter in the 5.5-ton weight class, indigenously designed and developed by Hindustan Aeronautics Limited (HAL).

**Defence:**

1. India provides the largest number of training opportunities for Maldivian National Defence Force (MNDF), meeting around 70% of their defence training requirements.
2. In April 2006 Indian Navy gifted a Trinkat Class Fast Attack Craft of 46 m length to Maldives National Defence Force's Coast Guard.

'Ekuverin' is a joint military exercise between India and Maldives.

**Disaster Management:** The Government of India has provided large-scale assistance to Maldives in the aftermath of the 2004 Indian Ocean tsunami and during the 2014 Male water crisis.

**Trade and Tourism:** India is Maldives’ 4th largest trade partner after UAE, China and Singapore. In 2018, India was the 5th largest source of tourist arrivals in Maldives.

The Maldivian economy is heavily dependent on its tourism sector, which is the major source of foreign exchange earnings and government revenue.

**Operation Sanjeevani**

- India supplied 6.2 tonnes of essential medicines to Maldives under Operation Sanjeevani as assistance in the fight against COVID-19.
- The medicines were delivered by an Hercules C-130J-30 aircraft of Indian Air Force.
- The medicines include influenza vaccines, antiviral drugs such as lopinavir and ritonavir among others as well as consumables such as catheters, nebulisers, urine bags and infant feeding tubes.
- Lopinavir and ritonavir have been used to treat patients with COVID-19 in some countries.
- In March India also dispatched a 14-member Army medical team to Maldives to set up a viral testing lab there and gifted 5.5 tonne of essential medicines.
Maldives signs largest-ever infrastructure project with AFCONS

- The contract for the largest-ever infrastructure project in the Maldives was signed in Male.
- The Greater Male Connectivity Project (GMCP) will consist of a 6.74-km-long bridge and causeway link between Male and the nearby islands of Villingili, Gulhifalhu and Thilafushi. Indian construction giant AFCONS has been tasked with completing the project.
- AFCONS is known for its “extreme engineering” projects that also include the Chenab Railway Bridge.
- The project is funded by a grant of $100 million and a line of credit of $400 million from India.
- The GMCP project would be bigger than the Sinamale Bridge built with Chinese assistance that connects Male with Hulhumale and Hulhule and was completed in 2018.
- The Greater Malé Connectivity Project supports the vision of Prime Minister Modi and President Solih for strong bilateral relations.
- The seeds of the project were planted during the External Affairs Minister’s visit to Malé in September 2019.

Significance of GMCP

- The GMCP is concrete proof that India is a robust development partner of the Maldives in addition to being the First Responder in times of any emergency in the Maldives.
- The GMCP is not only the biggest project India is doing in the Maldives but also the biggest infrastructure project in the Maldives overall. This iconic project will give a major boost to the Maldivian economy.
- This project is significant because it facilitates inter-island connectivity in the country. Transport is a major challenge for residents who have to take boats or seaplanes to distant islands. Locals take ferries or boats. It becomes even more difficult during the monsoons when the seas are rough. This bridge that would connect Malé with the three neighbouring islands would ease the process.
Sugar has been produced in India since ancient times and then it spread to other parts of the world. Click here for the information on Sugarcane crop in India. In India, sugarcane is planted thrice a year in October, March and July depending on part of the country. India has a long tradition of manufacturing sugar. References of sugar making by the Indians are found even in the Atharva Veda. India is rightly called the homeland of sugar. But in ancient times, only gur and khandsari were made and modern sugar industry came on the Indian scene only in the
middle of the 19th century, when it was introduced by the Dutch in North Bihar in about 1840.

- Unfortunately, this attempt could not succeed. The first successful attempt was made by the indigo planters at the initiative of Britishers in 1903 when Vacuum pan mills were started at Pursa, Pratabpur, Barachakia and Marhowrah and Rose in north-eastern U.P. and the adjoining Bihar.
- This happened when demand for indigo ceased to exist due to the introduction of synthetic blue in the market. In the early years of the 20th century, the industry grew rather sluggishly and there were only 18 mills in 1920-21 and 29 mills in 1930-31. The industry got a great fillip after the fiscal protection in 1931 and the number of mills rose to 137 in 1936-37. The production also shot up from 1.58 lakh tonnes to 9.19 lakh tonnes during the same period.
- The industry passed through an uncertain phase during and after the World War II and some stability was experienced only after 1950-51. There were 139 mills producing 11.34 lakh tonnes of sugar in 1950-51. After that, the plan period started and the industry made rapid strides. In the year 1994-95, there were 420 mills producing 148 lakh tonnes of sugar.
- Most of the sugar production in India takes at local Cooperative Sugar mills.

Factors responsible for the Location of Sugar Industry

- Sugar industry in India is based on sugarcane which is a heavy, low value, weight losing and perishable raw material.
- Sugarcane cannot be stored for long as the loss of sucrose content is inevitable. Besides, it cannot be transported over long distances because any increase in transportation cost would raise the cost of production and the sugarcane may dry up on the way.
- It is estimated that 50 per cent cost of production is accounted for by sugarcane alone. Normally, it requires about 100 tonnes of sugarcane to produce 10-12 tonnes of sugar. Even today most of sugarcane is transported with the help of bullock carts and cannot be carried beyond 20-25 km.
- The introduction of tractor- trolleys, trucks and even railway wagon have increased the distance covered by sugarcane to 70-75 kms. beyond which the transportation cost would increase exorbitantly. Therefore, the sugar industry is established in areas of sugarcane cultivation.
- Sugar industry has two major areas of concentration. One comprises Uttar Pradesh, Bihar, Haryana and Punjab in the north and the other that of Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.
FIG. 27.17. India: Distribution of Sugar Industry
Maharashtra

- Maharashtra has progressed a lot and captured first position from U.P. to emerge as the largest producer of sugar in India. Large production of sugarcane, higher rate of recovery and longer crushing period are some of the factors which have helped the state to occupy this enviable position.
- The state has one-fourth of the total sugar mills and produces a little more than one-third of the total sugar of India. Sugar mills of Maharashtra are much larger as compared to the mills in other parts of the country. The major concentration of sugar mills is found in the river valleys in the western part of the Maharashtra Plateau. Ahmednagar is the largest centre. The other major centres are in the districts of Kolhapur, Solapur, Satara, Pune and Nashik.

Uttar Pradesh:

- Uttar Pradesh is the traditional producer of sugar and has been occupying the first rank among the major sugar producing states of India. However, its relative importance has been reduced during the last few years and the state has conceded the top position to Maharashtra and now occupies the second position. Uttar Pradesh has more mills than Maharashtra but they are of comparatively smaller size and yield less production.
- Presently, the state accounts for about 24 per cent of the total production of sugar in India. There are two distinct regions of sugar production in this state. One region consists of Gorakhpur, Deoria, Basti and Gonda in eastern Uttar Pradesh and the other lies in the upper Ganga Plain consisting of Meerut, Saharanpur, Muzaffamagar, Bijnore and Moradabad.

Tamil Nadu:

- Tamil Nadu has shown phenomenal progress with regard to sugar production during the last few years. High yield per hectare of sugarcane, higher sucrose content, high recovery rate and long crushing season have enabled Tamil Nadu to obtain highest yield of 9.53 tonnes of sugar per hectare in the whole of India.
- As a result of these advantages, the state has emerged as the third largest producer of sugar, contributing over nine per cent of the total sugar production of India. Most of the 32 mills of the state are located in Coimbatore, North Arcot Ambedkar, South Arcot Vallalur and Tiruchchirapalli.

Karnataka:
Karnataka has 30 mills producing 1,151 thousand tonnes or over 6 per cent of the total sugar of India. Belgaum and Mandya districts have the highest concentration of sugar mills. Bijapur, Bellary, Shimoga and Chitradurga are the other districts where sugar mills are scattered.

Andhra Pradesh:

- Andhra Pradesh has more mills (35) than the neighbouring Karnataka but produces only 6.01 per cent of India’s sugar. This means that the mills are comparatively smaller. Majority of the sugar mills are concentrated in East and West Godavari, Krishna, Vishakhapatnam, Nizamabad, Medak and Chittoor districts.

Gujarat:

- Gujarat’s 16 mills are scattered in Surat, Bhavnagar, Amreli, Banaskantha, Junagarh, Rajkot and Jamnagar districts. The state produces about 5.56 per cent of the total sugar produced in India.

Haryana:

- Haryana has only 8 mills but their large size enables the state to contribute 1.91 per cent of the total sugar production. Sugar mills are located in Rohtak, Ambala, Panipat, Sonipat, Kamal, Faridabad and Hissar districts.

Punjab:

- Punjab has a total of 13 mills which are located in Amritsar, Jalandhar, Gurdaspur, Sangrur, Patiala and Rupnagar districts.

Bihar:

- Bihar was the second largest sugar producing state next only to Uttar Pradesh till mid-1960s. Since then the state has been experiencing sluggish growth and consequently lost its prestigious position to the peninsular states like Maharashtra, Tamil Nadu, Karnataka and Andhra Pradesh.
- Its 28 mills make an insignificant contribution to the production of sugar. The belt of eastern Uttar Pradesh extends further east in Bihar and the districts of Darbhanga, Saran, Champaran and Muzaffarpur are included in this belt.

Others:

- Among the other producers are Madhya Pradesh (8 mills in Morena, Gwalior
Difference between the Sugar Industry of Northern and Peninsular India:

There are marked differences between the sugar industry of the northern and the peninsular India. As a result of better conditions prevailing in the peninsular India, the sugar industry is gradually shifting from north India to the peninsular India. This is evident from the fact that previously north India used to produce about 90 per cent of India’s sugar which is reduced to 35-40 per cent now. A brief description of differences between the sugar industry of the northern and peninsular India is given below:

1. Peninsular India has tropical climate which gives higher yield per unit area as compared to north India.
2. The sucrose content is also higher in tropical variety of sugarcane in the south.
3. The crushing season is also much longer in the south than in the north. For example, crushing season is of nearly four months only in the north from November to February, whereas it is of nearly 7-8 months in the south where it starts in October and continues till May and June.
4. The co-operative sugar mills are better managed in the south than in the north.
5. Most of the mills in the south are new which are equipped with modern machinery.

Sugarcane Market in India

- Around 525 mills produced more than 30 million tonnes of sugar in the last crushing season, which lasted from October to April.
- This makes India the world's largest producer, unseating Brazil.
- Some 50 million farmers and millions of more workers, are involved in sugarcane farming.
- India is the world's largest consumer of sugar.
- According to data from the Indian Sugar Mills Association, the country’s sugar mill produce 268.21 lakh (26,821,000) tonnes of sugar between October 1, 2019 and May 31, 2020.
Production of Sugarcane in India

- Sugar cane is very important for making sugar. **When production of sugar cane increases, sugar production also increases.**
- Sugar cane’s production increased from 110 million tonnes in year 1961 to 405 million tonnes in year 2019.
- Sugar cane are grown in 2413 thousand hectare in 1961 year to 5061 thousand hectare in year 2019.
- Production quality for sugar cane is also increased. Production quantity improved from 45 tonnes/hectare to 80 tonnes/hectare.

Types of Sugar Industry in India

- The sugar industry is divided into two sectors, including organized and unorganized sectors.
- Sugar factories belong to the organized sector, and those who produce traditional sweeteners fall into the unorganized sector.
- **Gur and khandsari** are the traditional forms of sweeteners.

Manufacturing Process of Sugar in India

Several steps are usually followed to produce sugar. These steps are mentioned as below:

- Extracting juice by pressing sugarcane
- Boiling the juice to obtain crystals
- Creating raw sugar by spinning crystals in extractors
- Taking raw sugar to a refinery for the process of filtering and washing to discard remaining non-sugar elements and hue
- Crystallizing and drying sugar
- Packaging the ready sugar

Click here for the [Sugarcane Policy of India](#)

Products and by products of Sugar industry

- The processing of sugarcane generates **bagasse, molasses and press mud**.
- Indian sugar industry has been using these by-products to generate **bioethanol**, electricity and many other products over the years.

Sugar Production in India

- Sugar industry is an important **agro-based industry** that impacts rural
livelihood of about 50 million sugarcane farmers and around 5 lakh workers directly employed in sugar mills.

- Employment is also generated in various ancillary activities relating to transport, trade servicing of machinery and supply of agriculture inputs.

- **India is the second largest producer of sugar in the world after Brazil and is also the largest consumer.** India is largest producer of Sugarcane in the World beating Brazil.

Today Indian sugar industry's annual output is worth approximately Rs. 80,000 crores. There are 732 installed sugar factories in the country as on 31.07.2017, with sufficient crushing capacity to produce around 339 lakh MT of sugar. The capacity is roughly distributed equally between private sector units and cooperative sector units.

- In the 2014-15 crushing season, the sugar production of India has seen an increase of 11.5%.

- According to the Indian Sugar Mills Association (ISMA), the opening stock at the start of the 2021-22 sugar season from October is anticipated to be nearly 8.7 million tonnes, the lowest in the last four years.

- **Maharashtra is traditionally the leader when it comes to sugar production in India.** Before Maharashtra, Uttar Pradesh, was the leader. Maharashtra has a longer crushing period than other states, and its recovery rate is also significantly higher.

- ISMA said that the sugar production in Uttar Pradesh is anticipated to be 11.9 million tonnes in 21-22, while in Maharashtra, production could reach 12.1 million tonnes, Karnataka is expected to contribute to a production of 4.87 million tonnes. In comparison, other states are expected to contribute 5.46 million tonnes to the overall sugar production in the country.

- Overall, nearly 5.45 million hectares of land have been brought under sugarcane this year from across the country, which is 3% above the current sugar season.

- In Maharashtra, the area under sugarcane was around 11% last year, while in UP, it has increased marginally by 0.21%. In Karnataka, nearly 4.19% more area has been brought under sugarcane in 21-22 regarding the 2020-21 season.

- **One of the primary reasons for the increasing demand for sugar is the growing population of India and improving economic conditions.** The majority of the sugar consumers that are produced directly by mills are bakeries, local sweets, and candy manufacturers. Together with the soft drink makers, they comprise almost 60% of the clientele. The primary consumers of khandsari are locally operating sweets establishments. Gur is also used in
Import and Export of Indian Sugar Industry

- The Indian government has a rather strict policy when it comes to the import of sugar.
- During 2014, it raised the import duty from 15% to 40% to discourage this side of the sugar trade and promote exports.
- Thanks to the increased import duty, refiners find it rather hard – economically unfeasible to be precise – to bring in sugar, especially from countries such as Brazil, Pakistan, and Thailand.
- The All India Sugar Trade Association (AISTA) stated that mills had exported 2.49 million tonnes of the sweetener so far in the 2020-21 marketing year ending September, with several shipments to Indonesia.

Problems of Sugar Industry in India

Sugar industry in India is plagued with several serious and complicated problems which call for immediate attention and rational solutions. Some of the burning problems are briefly described as under:

1. Low Yield of Sugarcane:
   - Although India has the largest area under sugarcane cultivation, the yield per hectare is extremely low as compared to some of the major sugarcane producing countries of the world. For example, India’s yield is only 64.5 tonnes/hectare as compared to 90 tonnes in Java and 121 tonnes in Hawaii.
   - This leads to low overall production and results in short supply of sugarcane to sugar mills. Efforts are being made to solve this problem through the introduction of high yielding, early maturing, frost resistant and high sucrose content varieties of sugarcane as well as by controlling diseases and pests which are harmful for sugarcane.

2. Short crushing season:
   - Manufacturing of sugar is a seasonal phenomena with a short crushing season varying normally from 4 to 7 months in a year. The mills and its workers remain idle during the remaining period of the year, thus creating financial problems for the industry as a whole.
One possible method to increase the crushing season is to sow and harvest sugarcane at proper intervals in different areas adjoining the sugar mill. This will increase the duration of supply of sugarcane to sugar mills.

3. Fluctuating Production Trends:

- Sugarcane has to compete with several other food and cash crops like cotton, oil seeds, rice, etc. Consequently, the land available to sugarcane cultivation is not the same and the total production of sugarcane fluctuates. This affects the supply of sugarcane to the mills and the production of sugar also varies from year to year.

4. Low rate of recovery:

- It is clear from Table 27.29 that the average rate of recovery in India is less than ten per cent which is quite low as compared to other major sugar producing countries. For example recovery rate is as high as 14-16 per cent in Java, Hawaii and Australia.

5. High cost of Production:

- High cost of sugarcane, inefficient technology, uneconomic process of production and heavy excise duty result in high cost of manufacturing. The production cost of sugar in India is one of the highest in the world. Intense research is required to increase the sugarcane production in the agricultural field and to introduce new technology of production efficiency in the sugar mills. Production cost can also be reduced through proper utilisation of by-products of the industry.
  - For example, bagasse can be used for manufacturing paper pulp, insulating board, plastic, carbon cortex etc. Molasses comprise another important by-product which can be gainfully used for the manufacture of power alcohol.
  - This, in its turn, is useful in manufacturing DDT, acetate rayon, polythene, synthetic rubber, plastics, toilet preparations, etc. It can also be utilised for conversion into edible molasses and cattle feed. Press-mud can be used for extracting wax.

6. Small and uneconomic size of mills:

- Most of the sugar mills in India are of small size with a capacity of 1,000 to 1,500 tonnes per day. This makes large scale production uneconomic. Many of the mills are economically not viable.
7. Old and obsolete machinery:

- Most of the machinery used in Indian sugar mills, particularly those of Uttar Pradesh and Bihar is old and obsolete, being 50-60 years old and needs rehabilitation. But low margin of profit prevents several mill owners from replacing the old machinery by the new one.

8. Competition with Khandsari and Gur:

- Khandsari and gur have been manufactured in rural India much before the advent of sugar industry in the organised sector. Since khandsari industry is free from excise duty, it can offer higher prices of cane to the cane growers.
- Further, cane growers themselves use cane for manufacturing gur and save on labour cost which is not possible in sugar industry. It is estimated that about 60 per cent of the cane grown in India is used for making khandsari and gur and the organised sugar industry is deprived of sufficient supply of this basic raw material.

9. Regional imbalances in distribution:

- Over half of sugar mills are located in Maharashtra and Uttar Pradesh and about 60 per cent of the production comes from these two states. On the other hand, there are several states in the north-east, Jammu and Kashmir and Orissa where there is no appreciable growth of this industry. This leads to regional imbalances which have their own implications.

10. Low per capita consumption:

- The per capita annual consumption of sugar in India is only 16.3 kg as against 48.8 kg in the USA., 53.6 kg in U.K., 57.1 kg in Australia and 78.2 kg in Cuba and the world average of about 21.1 kg. This result in low market demand and creates problems of sale of sugar.

Ethanol Blended Petrol Programme

- Ethanol is an agro-based product, mainly produced from a by-product of the sugar industry, namely molasses.
- In years of surplus production of sugarcane, when prices are depressed, the sugar industry is unable to make timely payment of cane price to farmers.
- The Ethanol Blended Petrol Programme (EBP) seeks to achieve blending of Ethanol with motor sprit with a view to reducing pollution, conserve foreign exchange and increase value addition in the sugar industry.
enabling them to clear cane price arrears of farmers.

- The Central Government has **scaled up blending targets from 5% to 10% under the EBP**.
- The procedure of procurement of ethanol under the EBP has been simplified to streamline the entire ethanol supply chain and remunerative ex-depot price of ethanol has been fixed.
- To facilitate achieving of new blending targets, a "grid" which networks distilleries to OMC depots and details quantities to be supplied has been worked out.
- State-wise demand profile has also been projected, keeping in view distances, capacities and other sectoral demands.
- **Excise duty was waived on ethanol supplies to OMCs for EBP by sugar mills during 2015-16 (up to 10 August, 2016)**. The results have been quite encouraging, with supplies doubling every year.
- In the year 2013-14, ethanol supplied for blending was only 38 crore litres, whereas in 2014-15, under the modified EBP supplies increased to 67 crore litres. In the ethanol season 2015-16, the ethanol supply has been historically high and has reached 111 crore litres achieving 4.2% of blending.

**Other efforts for Sugar Industry in India**

- The Government on 3.1.2014 notified a **Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU-2014)** envisaging interest free loans by bank as additional working capital to sugar mills, for clearance of cane price arrears of previous sugar seasons and timely settlement of cane price of current sugar season to sugarcane farmers.
- A scheme was notified on 23.6.2015 to provide **soft loan to sugar mills** to facilitate clearance of cane price arrears of current sugar season 2014-15.
- With a view to improving domestic sugar price sentiments, the Government fixed indicative export targets for each mill proportionate to their sugar production so as to evacuate 4 mMT of sugar stocks. No export subsidy or incentive is offered and the industry is expected to export at prevailing international prices and absorb the losses so incurred. It is expected that with stock evacuation, domestic sugar prices would increase and reach levels more supportive of cane prices. These are the **Minimum Indicative Export Quotas (MIEQ)**.
- The Government vide notification dated 2.12.2015 had also extended **production subsidy @ Rs. 4.50 per quintal to sugar mills** to offset cost of cane and facilitate timely payment of cane price dues of farmers for the sugar season 2015-16.
With a view to keep the sugar prices at reasonable level and to ensure smooth supply of sugar for consumers, the Central Government imposed stock holding and turn over limits on sugar and on Sugar mills.

Source: TH

CBI (Central Bureau of Investigation)

Historical Background

- The Central Bureau of Investigation traces its origin to the Special Police Establishment (SPE) which was set up in 1941 by the Government of India.
The functions of the SPE then were to investigate cases of bribery and corruption in transactions with the War & Supply Deptt. Of India during World War II.

- Superintendence of the S.P.E. was vested with the War Department.
- Even after the end of the War, the need for a Central Government agency to
investigate cases of bribery and corruption by Central Government employees was felt. The Delhi Special Police Establishment Act was therefore brought into force in 1946.

- This Act transferred the superintendence of the SPE to the Home Department and its functions were enlarged to cover all departments of the Govt. of India.
- The jurisdiction of the SPE extended to all the Union Territories and could be extended also to the States with the consent of the State Government concerned.
- The DSPE acquired its popular current name, Central Bureau of Investigation (CBI), through a Home Ministry resolution in April 1963. Initially the offences that were notified by the Central Government related only to corruption by Central Govt. servants.
- In due course, with the setting up of a large number of public sector undertakings, the employees of these undertakings were also brought under CBI purview.
- Similarly, with the nationalisation of the banks in 1969, the Public Sector Banks and their employees also came within the ambit of the CBI.
- Founder Director: The founder director of the CBI was Shri D.P. Kohli who held office from 1st April, 1963 to 31st May, 1968.
- The motto of the CBI is Industry, Impartiality and Integrity.
- From 1965 onwards, the CBI has also been entrusted with the investigation of Economic Offences and important conventional crimes such as murders, kidnapping, terrorist crimes, etc., on a selective basis.
- The SPE initially had two Wings. They were the General Offences Wing (GOW) and Economic Offences Wing (EOW). The GOW dealt with cases of bribery and corruption involving the employees of Central Government and Public Sector Undertakings. The EOW dealt with cases of violation of various economic/fiscal laws. Under this set-up, the GOW had at least one Branch in each State and the EOW in the four metropolitan cities, i.e, Delhi, Madras, Bombay and Calcutta. These EOW Branches dealt with offences reported from the Regions, i.e, each Branch had jurisdiction over several States.
- As the CBI, over the years, established a reputation for impartiality and competence, demands were made on it to take up investigation of more cases of conventional crime such as murder, kidnapping, terrorist crime, etc.
- Apart from this, even the Supreme court and the various High Courts of the country also started entrusting such cases for investigation to the CBI on petitions filed by aggrieved parties.
- CBI is not only a premier anti corruption investigative agency in India but it has also the experience of handling high profile conventional crimes,
economic offences, banking frauds and crimes with international linkages.

- The CBI is designated as the National Central Bureau of India for ICPO-INTERPOL.

Mission

- To uphold the Constitution of India and law of the land through in-depth investigation and successful prosecution of offences;
- To provide leadership and direction to police forces and
- To act as the nodal agency for enhancing inter-state and international cooperation in law enforcement.

Vision

Based on its motto, mission and the need to develop professionalism, transparency, adaptability to change and use of science and technology in its working, the CBI will focus on:

- **Combating corruption** in public life, curb economic and violent crimes through meticulous investigation and prosecution.
- **Evolve effective systems** and procedures for successful investigation and prosecution of cases in various law courts.
- Help fight **cyber and high technology crime**.
- Create a healthy work environment that encourages team-building, free communication and mutual trust.
- Support state police organizations and law enforcement agencies in national and international cooperation particularly relating to enquiries and investigation of cases.
- Play a **lead role in the war against national and transnational organized crime**.
- **Uphold Human Rights**, protect the environment, arts, antiques and heritage of our civilization.
- **Develop a scientific temper, humanism and the spirit of inquiry and reform**.
- Strive for excellence and professionalism in all spheres of functioning so that the organization rises to high levels of endeavor and achievement.

Who exercises supervision over CBI?

- The superintendence of CBI related to investigation of offences under the Prevention of Corruption Act, 1988 lies with the Central Vigilance.
What types of Crime CBI investigate today?

CBI has grown into a multidisciplinary investigation agency over a period of time. Today it has the following **three divisions** for investigation of crime:-

- **Anti-Corruption Division** - for investigation of cases under the Prevention of Corruption Act, 1988 & the Prevention of Corruption(Amendment) Act, 2018 against Public officials and the employees of Central Government, Public Sector Undertakings, Corporations or Bodies owned or controlled by the Government of India - it is the largest division having presence almost in all the States of India.
- **Economic Offences Division** - for investigation of major financial scams and serious economic frauds, including crimes relating to Fake Indian Currency Notes, Bank Frauds and **Cyber Crime**.
- **Special Crimes Division** - for investigation of serious, sensational and organized crime under the Indian Penal Code and other laws on the requests of State Governments or on the orders of the Supreme Court and High Courts. The laws under which CBI can investigate Crime are notified by the Central Government under section 3 of the DSPE Act.

Other Functions of CBI

- **CBI can take over the investigation of a criminal case registered by the State Police** in the following situations
  1. The concerned State Government makes a request to that effect and the Central Government agrees to it.
  2. The State Government issues notification of consent under section 6 of the DSPE Act and the Central Government issues notification under section 5 of the DSPE Act.
  3. The Supreme Court or High Courts orders CBI to take up such investigations.

- **Difference between National Investigation Agency and CBI**: The **NIA** has been constituted after the Mumbai terror attack in November 2008 mainly for investigation of incidents of **terrorist attacks, funding of terrorism and other terror related crime**, whereas **CBI** investigates crime of corruption, economic offences and serious and organized crime **other than terrorism**.
SBI cannot take up suo moto investigation of any crime anywhere in India. As per section 2 of the DSPE Act, CBI can suo-moto take up investigation of offences notified in section 3 only in the Union Territories. Taking up investigation by CBI in the boundaries of a State requires prior consent of that State as per Section 6 of the DSPE Act. The Central Government can authorize CBI to investigate such a crime in a State but only with the consent of the concerned State Government. The Supreme Court and High Courts, however, can order CBI to investigate such a crime anywhere in the country without the consent of the State.

- The conviction rate of CBI is as high as 65 to 70% and it is comparable to the best investigation agencies in the world.
- CBI has been notified as the Interpol of India. **CBI has a training academy in Ghaziabad, where it organizes training courses** in various subjects not only for its own officers but for officers from other countries as well as from State & UT police organizations, vigilance officers of Public Sector Undertakings, Banks etc.

### Role of CBI as Interpol of India

- In this era of globalization and information technology crime and criminals easily cross national boundaries.
- Crime and Criminals have gone transnational.
- The International Police Criminal Organization (ICPO or Interpol) has emerged as an important institution for strengthening cooperation amongst law enforcement agencies of various countries.
- As Interpol of India, **CBI acts as an interface between the law enforcement agencies of India and other countries** to ensure such cooperation.
- **It facilitates exchange and sharing of information** by these agencies. It also gets the red notices of the fugitive criminals, wanted in India, published. Besides above it also plays a role in negotiation and finalization of Mutual Legal Assistance Treaties (MLATs) and Extradition Treaties between India and other countries.
- CBI also facilitates execution of Letter of Requests for Investigation in India and out of India.
- **Extradition of Fugitives**: CBI has a limited role in such matters. The Ministry of External Affairs (MEA) is the nodal agency for extradition of fugitives. CBI Interpol can help the law enforcement agencies in tracing/locating the fugitive so that it can make a formal request for
extradition of the fugitive to the MEA.

Source: cbi.gov.in

Lake Sambhar is shrinking
GS-III | 27 August, 2021

About Sambhar Lake

- The Sambhar Salt Lake, **India's largest inland salt lake**, is located 80 km southwest of the city of Jaipur and 64 km northeast of Ajmer, Rajasthan. It surrounds the historical Sambhar Lake Town.
The lake receives water from six rivers: Mantha, Rupangarh, Khari, Khandela, Medtha and Samod.
The lake is an extensive saline wetland, with water depth fluctuating from as few as 60 centimetres (24 in) during the dry season to about 3 meters (10 ft) at the end of the monsoon season.
Sambhar has been designated as a Ramsar site (recognized wetland of international importance) because the wetland is a key wintering area for tens of thousands of pink flamingos and other birds that migrate from northern Asia and Siberia.
The specialized algae and bacteria growing in the lake provide striking
water colours and support the lake ecology that, in turn, sustains the
migrating waterfowl. There is other wildlife in the nearby forests, where Nilgai
move freely along with deer and foxes.

- The salt (NaCl) concentration in this lake water differs from season to
season. The salt concentration in the pans (kyars or Salt pans) varies and,
accordingly, the color of the brine ranges from green, orange, pink,
purple, pink and red due to the bloom of haloalkaliphilic microorganisms.
- In November 2019, nearly 20,000 of migratory birds were found dead
mysteriously in the lake area.

Avian Botulism in Sambhar Lake

- In late 2019, the lake bed had turned into a mass graveyard for migratory
birds. An estimated 25,000 birds dropped dead: Kentish plovers, tufted
ducks, northern shovelers, pied avocets, little ringed plovers, stilts and
gadwalls, among 36 species.
- The Indian Veterinary Research Institute (IVRI), Bareilly, confirmed avian
botulism — a neuro-muscular illness caused by a toxin which is
produced by a bacterial strain — as the reason for mass mortality of birds,
including migratory species from Northern Asia, at Sambhar Lake in
Rajasthan.
- The illness, caused by a bacterium called Clostridium botulinum, affected
the nervous system of birds, leading to flaccid paralysis in their legs and
wings and neck touching the ground.

Why is Sambhar Lake Shrinking?

- As Sambhar Lake came under the international spotlight for this mass die-off,
another phenomenon drew attention to the lake: rampant illegal salt mining
and a shrinking wetland.
- Salt pans were proliferating and illegal borewells dotted the area, causing a
massive degradation of the famous lake.

Protection needed

- The 230 sq.km., shallow, elliptical wetland straddles the districts of Jaipur,
Nagaur and Ajmer.
- Salt production in Sambhar is nothing new. It has taken place for centuries,
but in a traditionally sustainable manner, providing livelihood to the local
community. The Mughals, the British, and now Sambhar Salts Ltd (a
subsidiary of Hindustan Salts Ltd, a public sector company) have all
directed to closed salt production.

- But today, there is a mushrooming of illegal salt mining and that is
grievously threatening the wetland ecosystem.
- Nawa, on the northern side of Sambhar Lake, is controlled by private salt
manufacturers. It is notorious for the many illegal borewells that over-extract
brine. The salt pans encroach upon the lake, and pipelines transport the
brine, with unauthorised electric cables, across several kilometres,
connecting the lake bed to villages.
- Following a National Green Tribunal direction, some action against illegal
borewells was initiated. Last year, 288 borewells, 32 submersible pumps, and
14 hectares of encroachment were cleared.
- Sambhar Lake’s future is totally dependent on the seasonal rivers that flow
into it during the monsoon. But now this water is being sucked away before it
reaches the lake, causing it to dry up.
- Mendha, Rupangarh, Kharain, Khandel and several such streams and
rivulets used to recharge the lake. But the farmers in the 7,560 sq.km.
catchment area of the lake have built surface embankments across the
rivers, obstructing their downstream flow into the lake.
- They have sunk tubewells along the rivers and laid pipelines to transport
water to their fields, choking the rivers and ultimately threatening the wetland
ecosystem.
- The lake supports flamingos and migratory birds from as far away as Siberia
that feed on the algae and micro-organisms found in the saline waters.
Members of Wildlife Creature Organization, a local NGO, recall wistfully how
the entire lake would turn pink with thousands of flamingos just a decade
ago.
- T.K. Roy, a conservationist, counted 1,004 birds belonging to 30 species
during the annual Asian waterbird census in 2019. This is a dramatic decline
from last year’s 43,510 birds.
- Sambhar, being on revenue land, was never scientifically managed as an
ecosystem. “Sustainability will come only when there is optimum use. There
is a habitat here for birds. Until the forest department is given an identified
area for the habitat, they cannot make it sustainable.”
- To add to the wetland’s woes, a tented heritage resort has come up, and a
117-year-old, 11 km meter gauge train line was re-laid three years ago.

Why in news?

- The world famous Sambhar Salt Lake in Rajasthan, which is constantly
shrinking with the degradation of soil and water quality and a decline in the population of migratory birds, needs a faster restoration for conservation of its wetland and salt brine worth $300 million, an expert study on the lake’s ecology has said.

- The study, undertaken by a research team of the Central University of Rajasthan’s School of Earth Sciences, has recommended an urgent action to restore the lake’s ecosystem for protecting the birds and biodiversity as well as the salt production.
- 30% of the Sambhar Lake’s area had been lost to mining and other activities, including the illegal salt pan encroachments.
- It has also threatened the livelihoods of local people who have always lived in harmony with the lake and its ecology.
- The study team conducted geospatial modelling for 96 years, from 1963 to 2059, at a decadal scale with the integration of ground data on birds, soil and water. The satellite images were classified to cover Aravalli hills, barren land, saline soil, salt crust, salt pans, wetland, settlement and vegetation.
- Dr. Sharma said while the past trends showed a reduction of wetland from 30.7% to 3.4% at a constant rate with its conversion into saline soil, which increased by 9.3%, the future predictions had depicted a loss of 40% of wetland and 120% of saline soil and net increase of 30% vegetation, 40% settlement, 10% salt pan and 5% barren land.

Source: TH

Drone Rules in India
GS-II | 27 August, 2021

- The Civil Aviation Ministry has notified the Drone Rules, 2021, under which the weight of a fully loaded unmanned aircraft system has been increased from 300 kg to 500 kg to include heavy payload-carrying craft for use in the logistics and transportation sectors. The rules will also cover drone taxis.
- In aviation and in space, a drone refers to an unpiloted aircraft or spacecraft.
- The key features of these rules include the development of drone corridors for cargo deliveries.
- An unmanned aircraft systems promotion council will be set up to facilitate a business-friendly regulatory regime.
Under the new rules, no security clearance will be required before any registration or licence issuance for drones.

- The number of forms or permissions has been reduced from 25 to just five.
- No pilot licence will be required for operating nano drones and micro drones for non-commercial use.
- The Director General or an entity authorised by it, on the recommendation of the Quality Council of India or an authorised testing entity, will issue a type certificate for drones.
- No type certificate, unique identification number, prior permission and remote pilot licence will be needed for research and development entities.
- The import of drones will be regulated by the Directorate General of Foreign Trade.
- There will be no restriction on foreign ownership in Indian drone companies.
- Importing and manufacturing drones purely for exports are now exempt from type certification and unique identification number.
- Manufacturers and importers will be able to generate their drones’ unique identification number on the Digital Sky Platform through the self-certification route. The online registration of all drones will happen through the Digital Sky Platform.
- An interactive airspace map with green, yellow, and red zones will be displayed on the Digital Sky Platform. The yellow zone has been reduced from 45 km to 12 km from the airport perimeter. No permission will be required for operating a drone in the green zones and up to 200 feet in the area between eight and 12 km from the airport perimeter.
- Safety features like ‘no permission-no take-off’, real-time tracking beacon, geo-fencing, etc., will have to be notified soon. A minimum six-month lead time will be given for compliance.
- A remote pilot licence holder enlisted on the Digital Sky Platform will only be allowed to operate a drone covered under the Rules. The training and examination will be conducted by an authorised drone school. The Directorate General of Civil Aviation will prescribe the training requirements, oversee the schools and provide pilot licences online.
- Carriage of arms, ammunition, explosives and military stores and so on on drones has been prohibited.
- “No person shall carry dangerous goods on unmanned aircraft unless such operation is in compliance with the Aircraft (Carriage of Dangerous Goods) Rules, 2003,” said the notification.
Any accident involving drones should be reported within 48 hours. The maximum penalty for violations had been reduced to ₹1 lakh.

Significance of Drone Rules

- The new Drone Rules will tremendously help start-ups and our youth working in this sector.
- It will open up new possibilities for innovation & business.
- It will help leverage India’s strengths in innovation, technology & engineering to make India a drone hub.
- The rules are aimed at simplifying the procedures and reducing compliance burden for drone operation.
- It would enable start-ups and small and medium enterprises to create innovative-use cases and applications in various sectors such as e-commerce, agriculture, mining, healthcare, emergency response and logistics.
- The new rules were a major breakthrough for the Indian drone industry, and would make India an over $5 billion drone market in the next three years.

Source: PIB

Northeast SDG Index by NITI Aayog

- A milestone towards localising the Sustainable Development Goals (SDGs) was achieved with the release of the first edition of the North Eastern Region (NER) District SDG Index Report and Dashboard 2021–22 by NITI Aayog and Ministry of Development of North Eastern Region (M/DoNER), today.
- The NER District SDG Index& Dashboard, a collaborative effort by NITI Aayog and Ministry of DoNER, with technical support from UNDP, is the first of its kind in the country as it focuses on the North Eastern Region, which is of critical significance to the country’s development trajectory.
- The Index measures the performance of the districts of the eight States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura on the Sustainable Development Goals and their corresponding targets and ranks the districts based on the same.
The index is based on NITI Aayog’s SDG India Index – the principal and official tool for monitoring progress on the SDGs at the national and State/Union Territory levels and shares the common ethos of benchmarking performance and ranking on the SDGs to foster competition among the districts.

The index offers insights into the **social, economic, and environmental status of the region and its districts** in their march towards achieving the SDGs. It is a unique policy tool which has immense potential to measure district level progress, highlight critical gaps, facilitate resource allocation, and will be a handy tool for policy makers in the eight North Eastern States, Ministry of DoNER and other Union Ministries.

The NER District SDG Index aims at delineating progress at the district level on a basket of indicators and enhancing analytical understanding of sectoral issues as well as data gaps, while assisting in designing future courses of action in the region.

The modular nature of the index makes it a policy tool and a ready reckoner for gauging progress of districts on the expansive set of the Global Goals, including **health, education, gender, economic growth, institutions, climate change and environment**, among others.

**Overall results and findings**
Out of the 103 districts considered for ranking, 64 districts belonged to the Front Runner category while 39 districts were in the Performer category in
the composite score and ranking of districts. All districts in Sikkim and Tripura fall in the Front Runner category and there are no districts in the Aspirant or Achiever categories.

- **East Sikkim [Score 75.87] ranks first in the region** followed by districts Gomati and North Tripura [Score 75.73] in the second position.
- The score for the 103 districts ranges from 53.00 in Kiphire [NL] to 75.87 in East Sikkim [SK].

Source: PIB

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**Mission Karmayogi**

GS-II | 27 August, 2021

- Dubbed as the biggest bureaucratic reform initiative, the Union Cabinet in 2020 approved ‘Mission Karmayogi’, a **new capacity-building scheme for civil servants aimed at upgrading the post-recruitment training mechanism of the officers and employees at all levels**.
- Mission Karmayogi aims to prepare Indian civil servants for the future by making them more creative, constructive, imaginative, innovative, proactive, professional, progressive, energetic, enabling, transparent and technology-enabled.
- Mission Karmayogi programme will be delivered by setting up a digital platform called **iGOTKarmayogi**. Empowered with specific role-competencies, a civil servant will be able to ensure efficient service delivery of the highest quality standards, the government said.
- The platform will act as a launchpad for the **National Programme for Civil Services Capacity Building (NPCSCB)**, which will enable a comprehensive reform of the capacity building apparatus at the individual, institutional and process levels.
- NPCSCB will be governed by the **Prime Minister’s Human Resource Council**, which will also include state Chief Ministers, Union Cabinet ministers and experts. This council will approve and review civil service capacity building programmes.
- Besides this, there will be a **Cabinet Secretary Coordination Unit** comprising of select secretaries and cadre controlling authorities.
- Also, there will be a **Capacity Building Commission**, which will include
experts in related fields and global professionals. This commission will prepare and monitor annual capacity building plans and audit human resources available in the government.

- Finally, there will be a wholly-owned Special Purpose Vehicle (SPV), which will govern the iGOT-Karmayogi platform. It will be set up under Section 8 of the Companies Act, 2013.
- The SPV will be a “not-for-profit” company and will own and manage iGOT-Karmayogi platform. The SPV will create and operationalise the content, market place and manage key business services of iGOT-Karmayogi platform, relating to content validation, independent proctored assessments and telemetry data availability. The SPV will own all Intellectual Property Rights on behalf of the Government of India.
- **How will it be funded?** To cover around 46 lakh central employees, a sum of Rs 510.86 crore will be spent over a period of 5 years from 2020-21 to 2024-25. The expenditure is partly funded by multilateral assistance to the tune of $50 million.
- Besides the setting up of the SPV, an appropriate monitoring and evaluation framework will also be put in place for performance evaluation of all users of the iGOT-Karmayogi platform so as to generate a dashboard view of Key Performance Indicators.
- This exercise will “radically” improve the government’s human resource management practices and asserted it will use state-of-the-art infrastructure to augment the capacity of civil servants.
- Officers and employees in the government will get an opportunity to improve their performance under the Mission Karmayogi.

Source: PIB
A black hole is an object in space that is so dense and has such strong gravity that no matter or light can escape its pull. Because no light can escape, it is black and invisible.

**What is Event Horizon?**

- There’s a **boundary at the edge of a black hole** called the **event horizon**, which is the **point of no return** — any light or matter that crosses that boundary is sucked into the black hole.
- **It would need to travel faster than the speed of light to escape**, which is impossible.

**What is Singularity?**

- Anything that crosses the event horizon is destined to fall to the very **centre**.
of the black hole and be squished into a single point with infinite density, called the singularity.

If black holes are invisible, how can we detect or photograph them?

1. By looking for the effects of their extreme gravity, which pulls stars and gases toward them.
2. Also, while anything past the event horizon is invisible, outside that boundary there is sometimes a spiral disk of gas that the black hole has pulled toward — but not yet into — itself.
3. The gases in that accretion disk are heated up as they accelerate toward the black hole, causing them to glow extremely brightly. The colours they glow are invisible to us, but are detectable with an X-ray telescope.
4. Scientists have also detected the gravitational waves generated when two black holes collide — light surrounding the black hole right to the edge of the event horizon, which is the goal of the Event Horizon Telescope.

How big are black holes?

- Small black holes are called stellar-mass black holes. They have masses similar to those of larger stars — about five to 20 times the mass of the sun.
- The other kind is supermassive black holes, which are millions to billions of times more massive than the sun. That’s the kind the Event Horizon Telescope has been trying to photograph, as bigger objects ought to be easier to see. There is some evidence that black holes between these two sizes exist, but that has yet to be confirmed.
- While black holes are very massive, that doesn’t mean they take up a lot of space. Because they’re so dense, they’re actually quite small. According to NASA, a black hole 20 times the mass of the sun could fit inside a ball 16 kilometres wide — the width of the Island of Montreal at its widest point.

Intermediate mass Black Holes

- Using data from the Hubble Space Telescope and two X-ray observatories, the researchers determined that this black hole is more than 50,000 times the mass of our sun and located 740 million light years from Earth in a dwarf galaxy, one containing far fewer stars than our Milky Way.
- Black holes are extraordinarily dense objects possessing gravitational pulls so powerful that not even light can escape.
- This is one of the few “intermediate-mass” (PT SHOT) black holes ever
identified, being far smaller than the supermassive black holes that reside at the center of large galaxies but far larger than so-called stellar-mass black holes formed by the collapse of massive individual stars. An object that was discovered originally back in 2010 is indeed an intermediate-mass black hole that ripped apart and swallowed a passing star.

- The star was probably roughly a third the mass of the sun. Scientists have searched for intermediate-mass black holes for four decades and fewer than 10 good examples are known, though large numbers may exist.
- “So finding a new one is very significant. Also, a black hole swallowing a star happens on average only once every 10,000 years or so in any particular galaxy so these are rare occurrences,”
- The supermassive black hole at the centre of the Milky Way is 4 million times the mass of the sun and located 26,000 light years from Earth. The closest stellar-mass black star is about 6,000 light years from Earth. A light year is the distance light travels in a year, 5.9 trillion miles (9.5 trillion km).
- Scientists called intermediate-mass black holes the “missing link” in understanding the range of black holes.

Where are black holes found?

- Supermassive black holes are found at the centre of most galaxies, including our own Milky Way. The one in our galaxy is called Sagittarius A* and is one of those the Event Horizon Telescope has been attempting to photograph.
- Sagittarius A* isn’t the only black hole in our galaxy, though. Earlier this year, astronomers discovered another 12 within three light-years of it, suggesting there could be upwards of 10,000 black holes around the galactic centre.

Where do black holes come from?

- Supermassive black holes are believed to form at the same time as the galaxy that surrounds them, but astronomers aren’t sure exactly how.
- **Stellar mass black holes** form when a star with a mass greater than three times that of our sun runs out of fuel. It explodes into a supernova and collapses into an extremely dense core that we know as a black hole — something predicted by Albert Einstein’s general theory of relativity.
- Einstein’s theory also predicts the size and shape of the black holes that the Event Horizon Telescope is trying to photograph.

The scientists at Event Horizon Telescope Project have released the first-ever
The black hole is located in the center of galaxy Messier 87, in the constellation Virgo. It is located about 53 million light-years away from earth.

The black hole has a mass of 6.5 billion Suns.

The image was made possible by the Event horizon telescope (EHT).

The EHT picks up the radiation emitted by particles in the galaxy heated to billion degrees as they revolve around the black hole close to the speed of light.

**Event Horizon**

There is a region of space beyond the black hole called the event horizon. This is a "point of no return", beyond which it is impossible to escape the gravitational effects of the black hole.

**Event Horizon Telescope Project**

EHT is a group of 8 radio telescopes (used to detect radio waves from space) located in different parts of the world.

**What is a Blazar?**

- Through 153 nights, 17 scientists from 9 countries in Europe and Asia including researchers from Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital (PT), an autonomous institution of the Department of Science and Technology (DST), Government of India took 2263 image frames and observed the changes in a very high energy gamma-ray emitting blazar ‘1ES 0806+524’ using seven optical telescopes in Europe and Asia.

- A blazar is a feeding super-massive black-hole (SMBH) in the heart of a distant galaxy that produces a high-energy jet viewed face-on from Earth. Blazars are one of the most luminous and energetic objects in the known universe with a jet composed of ionized matter traveling at nearly the speed of light directed very nearly towards an observer.

- Blazars are among one of the most favourite astronomical transient objects because they emit radiation in the complete electromagnetic (EM) spectrum, and their flux and polarization are highly variable.

Click here to read about all the other terminologies related to Black Hole and Universe.
With a view to strengthening and institutionalizing the mechanism for maintaining financial stability, enhancing inter-regulatory coordination and promoting financial sector development, the Financial Stability and Development Council (FSDC) was set up by the Government as the apex level forum in December 2010.

- The **Chairman of the FSDC is the Finance Minister** and its members include the heads of financial sector Regulators (RBI, SEBI, PFRDA, IRDA & FMC), Finance Secretary and/or Secretary, Department of Economic Affairs, Secretary, Department of Financial Services, and Chief Economic Adviser.
- The Council can invite experts to its meeting if required.
- Without prejudice to the autonomy of regulators, the **Council monitors macro prudential supervision of the economy**, including functioning of large financial conglomerates, and **addresses inter-regulatory coordination** and financial sector development issues.
- It also focuses on financial literacy and financial inclusion.

What is Macroprudential policy?

- **Macroprudential policy** is a novel way of looking into financial regulation. It **aims to prevent build-up of risk** (resulting from external factors and market failures); **make financial sector more resilient and limit contagion effects** and create a perspective to create the right set of incentives.

What is Financial Stability?

- **Monetary stability** (say maintaining low and stable inflation) leads to financial stability. Monetary stability is an important precondition for financial stability. Contextually, financial stability in India means
  1. ensuring **uninterrupted settlements** of financial transactions (both

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**FSDC (Financial Stability and Development Council) GS-III | 28 August,2021**

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internal and external),
2. maintenance of a level of confidence in the financial system amongst all the participants and stakeholders and
3. absence of excess volatility that unduly and adversely affects real economic activity.

- Forces affecting financial stability, include:
  1. boom in credit to private sector, both investment and consumption, A particular form of boom and bust cycle is generated by the end of hyperinflation episodes.
  2. highly regulated systems have also suffered crises.
  3. Direct effects of fiscal difficulties and crisis in one country has a direct effect on economic conditions.
  4. Terms of trade shocks and movements in real exchange rates.
  5. Political instability, unrest, civil conflict.

About Financial Stability and Development Council (FSDC)

- The idea to create such a super regulatory body was first mooted by the Raghuram Rajan Committee in 2008.
- Finally in 2010, the then Finance Minister of India, Pranab Mukherjee, decided to set up such an autonomous body dealing with macro prudential and financial regularities in the entire financial sector of India.
- It was set up as a non statutory organisation in 2010. To maintain financial stability and enhancing inter-regulatory coordination.
- The Chairman of the FSDC is the Finance Minister and its members include the heads of the financial sector regulatory authorities (i.e, SEBI, IRDA, RBI, PFRDA and FMC) , Finance Secretaries and the Chief Economic Adviser.
- FMC was added in 2013. FSDC would monitor macro prudential supervision of the economy, including the functioning of large financial conglomerates.
- It will address inter-regulatory coordination issues.
- It will also focus on financial literacy and financial inclusion. Prior to FSDC, it was an objective of monetary policy.
- The recent global economic meltdown has put pressure on governments and institutions across the globe to regulate their economic assets.
- This council is seen as India's initiative to be better conditioned to prevent such incidents in future.
- The new body envisages to strengthen and institutionalise the mechanism of maintaining financial stability, financial sector development, inter-regulatory coordination along with monitoring macro-prudential regulation' of economy.
No funds are separately allocated to the council for undertaking its activities.

Composition of FSDC

- **Chairperson: The Union Finance Minister of India**
- Governor Reserve Bank of India (RBI),
- Finance Secretary and/ or Secretary, Department of Economic Affairs (DEA),
- Secretary, Department of Financial Services (DFS),
- Secretary, Ministry of Corporate Affairs,
- Secretary, Ministry of Electronics and Information Technology,
- Chief Economic Advisor, Ministry of Finance,
- Chairman, Securities and Exchange Board of India (SEBI),
- Chairman, Insurance Regulatory and Development Authority (IRDA),
- Chairman, Pension Fund Regulatory and Development Authority (PFRDA),
- Chairman, Insolvency and Bankruptcy Board of India (IBBI),
- Additional Secretary, Ministry of Finance, DEA, will be the Secretary of the Council,
- The Chairperson may invite any person whose presence is deemed necessary for any of its meetings.

Responsibilities

- Financial Stability
- Financial Sector Development
- Inter-Regulatory Coordination
- Financial Literacy
- Financial Inclusion
- Macro prudential supervision of the economy including the functioning of large financial conglomerates.
- Coordinating India’s international interface with financial sector bodies like the Financial Action Task Force (FATF), Financial Stability Board (FSB) and any such body as may be decided by the Finance Minister from time to time.

The institutional structure for India’s Financial Inclusion/ Literacy programme is unique as it has an apex body in the Financial Stability and Development Council (FSDC), headed by the Finance Minister of Government of India, mandated, inter alia, to focus on attaining financial inclusion/ literacy goals.

Structural and Functional changes

- To Entrust it with the tasks of existing regulators i.e. RBI, IRDA, SEBI, PFRDA.
- The Council shall have a sub-committee headed by the Governor, RBI. The sub-committee will replace the existing High Level Coordination Committee.
on Financial Markets.
- Sectoral regulators’ autonomy to be protected.
- Guidelines prepared on functioning of the Financial Stability and Development Council (FSDC), a high-level body set up to sort out inter-regulatory issues, will define the role of the finance ministry and how member regulators’ autonomy is not compromised.
- FSDC was formed to bring greater coordination among financial market regulators. The council is headed by the finance minister and has the Reserve Bank of India (RBI) governor and chairpersons of the Securities and Exchange Board of India, Insurance Regulatory and Development Authority and Pension Fund Regulatory and Development Authority as other members along with finance ministry officials.
- RBI and other regulators had earlier feared that their autonomy was at stake as FSDC was headed by the finance minister herself. After the assurance of FM, this fear was set to rest but functional guidelines was supposed to address this issue.

Financial Sector Legislative Reforms Commission (FSLRC- 2013)

- Financial Sector Legislative Reforms Commission (FSLRC- 2013) had thoroughly redefined the role of FSDC. It recommended
  1. It recommended making FSDC a statutory body to perform the mandate of financial stability/ systemic risk management.
  2. It also suggested a data center called Financial Data Management Center (FDMC) to work with FSDC.

Financial Data Management Center (FDMC)

- Budget 2016-17 set up FDMC under FSDC to facilitate integrated data aggregation and analysis in financial sector.
- FSDC presently works in a two-tier structure.
- While FSDC functions under Finance Minister, its Sub-Committee (FSDC-SC) operates as an executive arm of the main Council under the chairmanship of Governor, RBI.
- Although India has institutionalised financial stability mechanism, an explicit macroprudential policy framework is yet to develop.

Financial Stability Board

1. It was established in 2009 under G20 by bringing together national authorities, standard setting bodies and international financial institutions.
2. For addressing vulnerabilities and developing and implementing strong
policies for financial stability.
3. India is an active member having 3 seats.

Source: TH

ASTROSAT Mission
GS-III | 28 August, 2021

- ASTROSAT is India’s first dedicated multi wavelength space observatory.
UPSC "PT" DNA (Daily News Analysis)
AstroSat is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously.

The payloads cover the energy bands of Ultraviolet (Near and Far), limited optical and X-ray regime (0.3 keV to 100keV).

One of the unique features of AstroSat mission is that it enables the simultaneous multi-wavelength observations of various astronomical objects with a single satellite.

AstroSat with a lift-off mass of 1515 kg was launched on September 28, 2015 into a 650 km orbit inclined at an angle of 6 deg to the equator by PSLV-C30 from Satish Dhawan Space Centre, Sriharikota. The minimum useful life of the AstroSat mission is expected to be 5 years.

The science data gathered by five payloads of AstroSat are telemetered to the ground station at MOX. The data is then processed, archived and distributed by Indian Space Science Data Centre (ISSDC) located at Bylalu, near Bengaluru.

The scientific objectives of AstroSat mission are:

- To understand high energy processes in binary star systems containing neutron stars and black holes;
- Estimate magnetic fields of neutron stars;
- Study star birth regions and high energy processes in star systems lying beyond our galaxy;
- Detect new briefly bright X-ray sources in the sky;
- Perform a limited deep field survey of the Universe in the Ultraviolet region.

ASTROSAT detects a rare galaxy

India’s first multi-wavelength satellite, which has five unique X-ray and ultraviolet telescopes working in tandem, AstroSat, has detected extreme-UV light from a galaxy, called AUDFs01, 9.3 billion light-years away from Earth,” Inter-University Centre for Astronomy and Astrophysics (IUCAA) said.

The discovery was made by an international team of astronomers led by Dr Kanak Saha, associate professor of astronomy at the IUCAA, and published on August 24 by ‘Nature Astronomy’, the release said.

This team comprised scientists from India, France, Switzerland, the USA, Japan and The Netherlands.

Saha and his team observed the galaxy, which is located in the Hubble Extreme Deep field, through AstroSat.

Earlier, NASA’s Hubble Space Telescope (HST), a significantly larger than...
UVIT (UV imaging telescope), did not detect any UV emission (with energy greater than 13.6 eV) from this galaxy because it is too faint, it said. AstroSat/UVIT was able to achieve this unique feat because the background noise in the UVIT detector is much less than the ones on HST.

Source: ISRO

Indian astrophysicists spot rare merger of 3 jumbo black holes

A rare merging of three supermassive black holes has been spotted by a team of astrophysicists from the Indian Institute of Astrophysics (IIA), working with Professor Francoise Combes from the Paris Observatory.

This is only the third time such an event has been observed and the findings were published as a letter in the journal Astronomy and Astrophysics in June. The team were observing the merging of two galaxies — NGC7733 and NGC7734 — in the earth’s celestial neighbourhood when they detected unusual emissions from the centre of the latter and a curious movement of a large bright clump within it, having a different velocity than that of NGC7733.
Inferring that this was a separate galaxy, the scientists named it NGC7733N.

- All three merging black holes were part of galaxies in the Toucan constellation. They are quite far away given that the Earth’s nearest galactic neighbour — the Andromeda galaxy — is 2.5 million light years away. Yet the paper describes these as nearby galaxies.
- The group observed these galaxies with a near infrared telescope in South Africa.
- Then, later on, because they appeared interesting, we also observed them with the UVIT [onboard the first Indian space observatory ASTROSAT].

**What is Final parsec?**

- If two galaxies collide, their black holes will also come closer by transferring the kinetic energy to the surrounding gas.
- The distance between the black holes decreases with time until the separation is around one parsec (3.26 light-years).
- The two black holes, however, are then unable to lose any further kinetic energy to get even closer and merge. This is known as the **final parsec problem**.
- But the presence of a third black hole can solve this problem.
- The two can come closer when another black hole or a star passes by and takes away some of their combined angular momentum.
- Thus, the dual merging black holes merge with each other in the presence of a third.
- Many Active Galactic Nuclei (AGN), or supermassive black hole at the centre of a galaxy, pairs have been detected in the past, but triple AGN are extremely rare, and only a handful have been detected before using X-ray observations.
- Multiple accreting black holes [AGN] may be more common in our universe and especially common in galaxy groups. So the growth of black holes may be driven by such mergers in groups.
- The study used data from the Ultraviolet Imaging Telescope (UVIT) on board the first Indian space observatory ASTROSAT, the European integral field optical telescope called MUSE mounted on the Very Large Telescope (VLT) in Chile and infrared images from the optical telescope (IRSF) in South Africa.

Source: TH
What is Hydroelectric power?

- Hydroelectric power is electricity produced from generators driven by turbines that convert the potential energy of falling water into mechanical energy.

India overtook Japan in 2019 as the fifth largest world hydropower producer by capacity which currently is 50 GW. Only China, Brazil, the US and Canada have a greater hydropower capacity globally.

- The country has 197 hydropower plants capable of producing more than 25 megawatts (MW), according to the International Hydropower Association (IHA), plus nine pumped storage stations accounting for 4,786MW capacity.
- As of 31 March 2020, India’s installed utility-scale hydroelectric capacity was 46,000 MW, or 12.3% of its total utility power generation capacity. The public sector accounts for 92.5% of India’s hydroelectric power production.
- Additional smaller hydroelectric power units with a total capacity of 4,683 MW
India also imports surplus hydroelectric power from Bhutan. Indian companies have also constructed hydropower projects in Bhutan, Nepal, Afghanistan, and other countries. India is the world's third largest producer and third largest consumer of electricity. The national electric grid in India has an installed capacity of 383.37 GW as of 31 May 2021. Renewable power plants, which also include large hydroelectric plants, constitute 37% of India's total installed capacity. Companies engaged in the development of hydroelectric power in India include the National Hydroelectric Power Corporation (NHPC), Northeast Electric Power Company (NEEPCO), Satluj Jal Vidyut Nigam (SJVNL), Tehri Hydro Development Corporation, and NTPC-Hydro. With a population of well over a billion people and a fast growing economy, India’s electricity demand is expected to double over the next decade.
Advantage of Hydro power

- A renewable source of energy - saves scarce fuel reserves.
- **Non-polluting** and hence environment friendly.
- **Long life** - The first hydro project completed in 1897 is still in operation at Darjeeling is still in operation.
- **Cost of generation, operation and maintenance** is lower than the other sources of energy.
- Hydropower is clean and cheap in long run. It has features like quick ramping, black start and reactive absorption — required for ideal peaking power or spinning reserve.
- Ability to start and stop quickly and instantaneous load acceptance/rejection makes it suitable to meet peak demand and for enhancing system reliability and stability.
Has higher efficiency (over 90%) compared to thermal (35%) and gas (around 50%).
Cost of generation is free from inflationary effects after the initial installation.
Storage based hydro schemes often provide attendant benefits of irrigation, flood control, drinking water supply, navigation, recreation, tourism, pisciculture etc.
Being located in remote regions leads to development of interior backward areas (education, medical, road communication, telecommunication etc.)

Classification of Hydro power projects:

Hydro power projects are classified as large and small hydro projects based on their sizes.

1) Large Hydropower – Ministry of Power

India has an estimated hydropower potential of 1,45,320 MW, excluding small hydro projects (SHPs) which has 20 GW potential.
Several hydroelectric projects (HEPs) in India are languishing due to contractual conflicts, environmental litigations, local disturbances, financial stress and unwilling purchasers.
Only about 10,000 MW of hydropower could be added over the last 10 years.
India has close to 100 hydropower plants above 25 MW, plus nine pumped storage stations. In 2019, it surpassed Japan to become fifth largest in the world for potential hydropower capacity, surpassing 50 GW.
2) Small Hydropower - Ministry of New and renewable energy (MNRE)

- India has a history of about 120 years of hydropower.
- In India, hydro power plants of 25MW or below capacity are classified as small hydro and comes under purview of Ministry of New and renewable energy (MNRE).
- The first small hydro project of 130 kW commissioned in the hills of Darjeeling in 1897 mark the development of hydropower in India.
- The Sivasamudram project of 4500 kW was the next to come up in Mysore district of Karnataka in 1902, for supply of power to the Kolar gold mines.
- Following this, there were number of small hydro projects set up in various hilly areas of the country.
- Till the Independence (1947), the country had an installed capacity of 1362
MW, which included 508 MW hydropower projects, mainly small and medium.

As per MNRE, **the estimated potential of small hydro power plant is 20 GW** across the country.

- Depending upon the capacity of the project, a Small hydro Project can be classified as below:

1. **Micro (up to 100 kW)**
2. **Mini (101 kW to 2 MW)**
3. **Small Hydro (2 MW to 25 MW)**

**Hydro Power was being looked after by Ministry of Power prior to 1989** mainly with the help of State Electricity Boards.

- In 1989, plant capacity up to 3MW and below was transferred to the Ministry of New and Renewable Energy (MNRE) and as such 63 MW aggregate installed capacity of 3MW and below hydro projects came within the jurisdiction of MNRE.

- **Subsequently plant capacity up to 25MW and below was entrusted with the MNRE in November 1999.**

**Small Hydro Power Programme**

- It is an ongoing programme, however continuation of scheme w.e.f 1st April 2017 onwards is under consideration of the Government.
- The **objective** of the SHP scheme is to encourage the State Government entities and Independent Private Producers (IPPs) to set-up new Small Hydro projects so as to realise the entire 21000 MW potential in phased manner.
- The immediate objective is to encourage IPPs to start work on new projects of aggregate capacity of 1000 MW, in addition to...
completing the ongoing projects, so as to reach a cumulative capacity of 6000 MW by the year 2022.

- The scheme also envisages support to set-up watermills for electrical and mechanical applications in remote and far-flung areas.

Hydroelectric Potential in India

- Hydropower potential is located mainly in northern and north-eastern regions.
- **Arunachal Pradesh has the largest unexploited hydropower potential of 47 GW, followed by Uttarakhand** with 12 GW.
- Unexploited potential is mainly along three river systems — the Indus, Ganges and Brahmaputra (see Chart). India has several international issues across these river systems. Like electricity, hydropower should also be brought on the concurrent list to formulate uniform policy and process for faster development.
- **India has over 90 GW of pumped storage potential**, with 63 sites identified and recognised in national energy policies for their valuable grid services.
- India has an estimated **hydropower potential of 1,45,320 MW, excluding small hydro projects (SHPs) which has 20 GW potential.**
- The **estimated potential of Small Hydropower** of 21135.37 MW from 7135 sites for power generation in the country from small / mini hydel projects is assessed by the Alternate Hydro Energy Centre (AHEC) of IIT Roorkee in its Small Hydro Database of July 2016.
- The **hilly States of India** mainly Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir and Uttarakhand, and **constitute around half of this potential.** Other potential States are **Maharashtra, Chhattisgarh, Karnataka and Kerala.**
- India ranks as the fourth country in the world by undeveloped **hydropower potential**, after Russia, China and Canada, and fifth by total potential, surpassed also by Brazil.
- The basin wise assessed potential is as under :-
Issues in Hydropower generation

<table>
<thead>
<tr>
<th>Basin/Rivers</th>
<th>Probable Installed Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indus Basin</td>
<td>33,832</td>
</tr>
<tr>
<td>Ganga Basin</td>
<td>20,711</td>
</tr>
<tr>
<td>Central Indian River system</td>
<td>4,152</td>
</tr>
<tr>
<td>Western Flowing Rivers of southern India</td>
<td>9,430</td>
</tr>
<tr>
<td>Eastern Flowing Rivers of southern India</td>
<td>14,511</td>
</tr>
<tr>
<td>Brahmaputra Basin</td>
<td>66,065</td>
</tr>
<tr>
<td>Total</td>
<td>1,48,701</td>
</tr>
</tbody>
</table>

Basin-wise status of hydropower capacity (in MW)
In central India, the hydroelectric power potential from the Godavari, Mahanadi, Nagavali, Vamsadhara and Narmada river basins has not been developed on a major scale due to potential opposition from the tribal population.

Hydropower’s share in the electricity mix has, however, been decreasing over the years, accounting for around 10 per cent of generation, with the majority (80 per cent) coming from thermal generation.

Many current hydropower projects have been slow going with delays due to complex planning procedures, prolonged land acquisition and resettlement, a lack of enabling infrastructure including transmission, insufficient market scope and long-term financing.

Several hydroelectric projects (HEPs) in India are languishing due to contractual conflicts, environmental litigations, local disturbances, financial stress and unwilling purchasers.

Only about 10,000 MW of hydropower could be added over the last 10 years. As water and water power are State subjects, the construction of HEPs is often delayed due to conflicts among riparian States — the Subansiri HEP is a prime example of this.

Clearance issues

- Environmental clearance would remain necessary for HEPs.
- Several HEPs were dropped or had their design and capacity modified due to environmental considerations.
- Parameters like e-flow, free flow stretch, eco-sensitive zone, impact on wild flora and fauna are now better defined.
- Therefore, the hydropower potential including pumped storage hydropower, should be reassessed using modern technology and environmental considerations.
- Thermal projects do not require techno-economic clearance (TEC) from the Central Electricity Authority (CEA), but for HEPs with capital expenditure above ₹1000 crore, the concurrence of the CEA is required.
- Site-specific changes required during construction also need approval.
- Clearance is given in consultation with the CWC, and takes an inordinately long time.
- Processes must be revisited to reduce the time taken for the TEC. A unit of the CWC may be co-located within CEA itself.
- Hydropower projects are more than engineering ventures. They have large-scale socio-economic and environmental implications.
HEPs often encounter geological surprises during construction. The land acquisition process is elaborate, requires public hearing and approval of the Gram Sabha. Forest clearances take time. Resettlement and rehabilitation (R&R) issues are not only sensitive but also entail substantial cost. It has been experienced that projects do not envisage adequate cost on these items at the approval stage. Subsequent arrangement means cost and time overruns. Adequate R&R cost should be made integral part of the project cost. The project management team should also include experts from social science, environment as well as communication. If HEPs could be allocated after obtaining requisite clearances on the pattern of Ultra Mega Power Projects, it would avoid undue delay and cost overrun.

Financial aspects

HEPs are located in difficult and inaccessible sites. They require the development of roads and bridges for project implementation. Roads and bridges provide higher opportunities for the development of neighbouring areas. Hence, the Government of India has decided to give budgetary support for them. However, the process to grant financial support needs to be streamlined. Large HEPs perform flood moderation also, but they do not get any grant unless declared a national project by the Ministry of Water Resources. The Ministry of Power has now decided to support flood moderation. These measures would certainly make the cost of power workable.

HEPs have debt-equity ratio of 70:30 and their tariff is designed to recover debt in the initial 12 years. This frontloading of tariff makes hydro energy unviable. The government has now allowed debt repayment period and project life as 18 years and 40 years respectively, and has also introduced an escalating tariff of 2 per cent annually to reduce the initial tariff.

Requisite changes in tariff regulations are required to operate them. Though the tariff can be rationalised, it may not address cost and time overrun. Geological surprises, R&R issues and environmental factors result in several unforeseen situations not
envisaged in the construction contracts, and lead to unnecessary arbitration, litigation, and delays in implementation.

- Delayed or deferred payments incapacitate contractors financially. Therefore, a robust and reliable mechanism for quick resolution of contractual conflicts must be contrived in the system to fast-track implementation of HEPs.

Solutions for Hydropower

- India is committed to have 40 per cent of its installed capacity from non-fossil fuel sources by 2030, and is pursuing a renewable target of 175 GW by 2022 and 450 GW by 2030. Therefore, hydropower is highly relevant for grid integration of renewable energy and for balancing infirmities.
- Significant reforms made in recent years include the 2008 Hydro Power Policy encouraging private sector participation and the 2016 National Tariff Policy on frequency response markets and extended certainty of power purchase agreements.
- The Central Electricity Authority (CEA) and Ministry of Power have also been actively monitoring and fast-tracking priority schemes, notably the 50,000 MW Hydro Electric Initiative.
- The government formally recognised large hydropower as renewable in 2019. This means that these projects built after March that year will be able to benefit from the renewable purchase obligation. Previously only projects up to 25 MW were considered renewable.
- Policy proposals mooted by observers include new ancillary service markets, attributing hydropower full renewable status along with separate purchase obligation benefits, and more integrated planning.
- Draft policies under preparation are expected to support stalled hydropower projects and private sector uptake and could include measures to make hydropower tariffs more competitive.
- In 2020, the country’s hydropower sector was heralded for restoring electricity to tens of millions following a huge plunge in demand.
- In 2019, the Teesta-V hydropower station in Sikkim was rated as an example of international good practice in hydropower sustainability, following an independent assessment.
- Courtesy the Draft Electricity (Amendment) Bill 2020, hydropower purchase obligation (HPO) may appear to become a reality soon.
Way Forward

However, a better option is re-engineering of the power market to treat hydropower as a peaking and grid-balancing power, and also to distribute its higher tariff over the entire energy consumption on a prorate basis.

Tehri Hydropower Project

- Topping the list of hydroelectric power plants in India is the Tehri Dam in Uttarakhand, the highest hydroelectric power project in the country. It is also the eighth-tallest dam in the world and the second-tallest in Asia.
- Commissioned in 2006, first construction began in 1978 helped by technical collaboration from the former USSR.
- Located at the confluence of the Bhagirathi and the Bhilangana rivers.

Sardar Sarovar Dam

- This dam counts as the world’s second largest concrete dam—after Grand Coulee which sits across River Columbia in the US—in terms of the volume of concrete used in its construction.

Source: TH

Why are hydropower projects in the Himalayas risky?

- The Environment Ministry, in an affidavit placed in the Supreme Court earlier this month, has disclosed that it has permitted seven hydroelectric power projects, which are reportedly in advanced stages of construction, to go ahead.
- The seven projects are the Tehri Stage 2, Tapovan Vishnugadh (which was impacted by the February flood), Vishnugadh Pipalkoti, Singoli Bhatwari,
Phata Bhuyang, Madhyamaheshwar and Kaliganga 2.

- One of them is the 512 MW Tapovan Vishnugadh project, in Joshimath, Uttarakhand that was damaged by a flood in February.
- Six months after a devastating flood of rock, ice and debris gushed down the Rishiganga river in Uttarakhand and killed at least 200 and severely damaged two hydropower projects, three Central Ministries, which initially had dissenting views on the future of hydroelectric power projects have agreed to a consensus.

Critical Analysis

- Environmental activists say that the water Ministry’s stand and the government’s pushing ahead with the project revealed that the floods of February had failed to jolt the government into realising that hydropower development in the fragile Himalayas was “illogical”.
- There were two projects, Singoli Bhatwari and Phata Bhuyang, which were specifically linked to the Kedarnath tragedy. Both have been allowed.
- The Vishnugadh project damaged in the February floods too has been allowed to progress even though 200 plus people died due to the criminal negligence of their not being a disaster warning system.
- The affidavit has the government admitting that the floods have damaged the tunnels and topography of the projects. All of this has changed.

What’s the history of hydel projects in the Himalayas?

- In the aftermath of the Kedarnath floods of 2013 that killed at least 5,000 people, the Supreme Court had halted the development of hydroelectric projects in Uttarakhand pending a review by the Environment Ministry on the role such projects had played in amplifying the disaster.
- A 17-member expert committee, led by environmentalist Ravi Chopra, was set up by the Ministry to examine the role of 24 such proposed hydroelectric projects in the Alaknanda and Bhagirathi basin, which has the Ganga and several tributaries.
- The Chopra committee concluded that 23 projects would have an “irreversible impact” on the ecology of the region.
- Following this, six private project developers, whose projects were among those recommended to be axed, impleaded themselves in the case on the ground that since their projects had already been cleared for construction before the Kedarnath tragedy, they should be allowed to continue.
- The SC directed a new committee to be set up to examine their case. This committee, led by Vinod Tare of the Indian Institute of Technology, Kanpur,
concluded that these projects could have a significant environmental impact.

- The Environment Ministry in 2015 set up yet another committee, led by B.P. Das, who was part of the original committee, but had filed a “dissenting report”. The Das committee recommended all six projects with design modifications to some.
- The Water Resources Ministry, then led by Minister Uma Bharti, has been consistently opposed to hydropower projects in the Ganga.
- In charge of the National Mission for Clean Ganga, the Water Ministry has maintained that the cleanliness of the river was premised on minimum levels of water flow in all seasons and the proposed projects could hinder this. By 2019, however, the renamed Jal Shakti Ministry had changed its stance to accommodate seven out of the 24 projects. Its current position is that barring these, it is “not in favour” of new projects in the Ganga river basin.
- Though hearings in the Supreme Court are ongoing, this is the first time that the government has a formal uniform position on hydropower projects in the Uttarakhand region.

What are the challenges such projects face?

- Following the break in the Raunthi glacier that triggered floods in the Rishiganga river in Uttarakhand on February 7, which washed away at least two hydroelectric power projects — the 13.2 MW Rishiganga hydroelectric power project and the Tapovan project, environmental experts have attributed the glacial melt to global warming.
- Glacier retreat and permafrost thaw are projected to decrease the stability of mountain slopes and increase the number and area of glacier lakes.
- Moreover, with increased instances of cloudbursts, and intense spells of rainfall and avalanches, residents of the region were also placed at increased risk of loss of lives and livelihood.

How can these conflicts be resolved?

- The challenges facing development in the Himalayan region are multi-faceted. The Uttarakhand government has said that it’s paying over ₹1,000 crore annually to purchase electricity and therefore, the more such projects are cancelled, the harder for them to meet their development obligations.
- Several environmentalists and residents of the region say that the proposed projects being built by private companies allot only a limited percentage of their produced power for the State of Uttarakhand itself.
- Thus the State, on its own, takes on massive environmental risk without
being adequately compensated for it or its unique challenges accounted for.

- Though the Centre is committed to hydropower projects because it’s a renewable source of power, the ecological damage combined with the reduced cost of solar power means that it has in recent times said that it is not in favour of greenfield hydropower projects in the region.
- But several environmental activists say that the Centre will continue to prioritise infrastructural development in the region, even if it comes at a heavy environmental cost.

Source: TH

ONORC (One Nation One Ration Card)

About ONORC

- The One Nation One Ration Card (ONORC) is an ambitious plan and endeavour of the Department to ensure seamless delivery of subsidised food-security entitlements to all beneficiaries covered under the National Food Security Act, 2013 (NFSA), irrespective of their physical location anywhere in the country.
- The objective of this programme is to empower all NFSA beneficiaries to be self-reliant for their food security anywhere in the country, through portability of their same existing ration cards to seamlessly lift their subsidized foodgrains (in part or full) from any ePoS (electronic Point of Sale device) enabled Fair Price Shop in the country with biometric/Aadhaar authentication at the time of lifting the foodgrains through portability. Further, their family members back home can also lift balance/their requirement of foodgrains on the same ration card.
- Further, due to the potential of ONORC to empower migrants, this plan has now also become a part of the “Prime Minister’s Technology Driven System Reforms under the AtmaNirbhar Bharat Abhiyan”.
- While taking the PDS reforms under End-to-End Computerization of TPDS Operations in the country to a next level, the Department of Food and Public Distribution had started the implementation of a technology driven reform for the nation-wide portability of ration cards under NFSA as an integral part of a
Central Sector Scheme, namely, ‘Integrated Management of Public Distribution System (IM-PDS)’ from April 2018. This scheme is being implemented with a total outlay of Rs. 127.30 Crore and presently, the validity of this scheme has been extended by the Standing Finance Committee (SFC) up to 31.03.2022 without escalation in the total project cost.

- Although the facility of ONORC shall equally benefit about all 80 Crore NFSA beneficiaries in the country to lift their foodgrains from any FPS of choice, **but it primarily aims to enable migratory NFSA beneficiaries** (mostly labourers, daily-wagers, urban poor like rag-pickers, street-dwellers, temporary workers in organised and unorganised sectors, domestic workers, etc.) who frequently migrate across the country in search of better opportunities or for any other reasons, to access the Public Distribution System (PDS) and if desire, may lift their entitled foodgrains from any ePoS enabled FPS in the country through portability.
- Thus, installation of ePoS devices at the FPSs and Aadhaar seeding of beneficiaries with their digitised ration card data are the two main enablers of this technology driven initiative.
- With respect to publicity and awareness of this high impact programme, the responsibility has been entrusted to the respective State/UT Government, as under TPDS the responsibilities of identification of beneficiaries and distribution of foodgrains to them rests with the States/UTs.
- Besides above, the Department is also making efforts for the promotion, beneficiary outreach and awareness generation of ONORC from time to time. The Department is regularly coordinating with other relevant Ministries/Departments such as MoIB, MoLE, MoHUA, Railways and some other agencies for strategic outreach to beneficiaries and publicity campaigning of the initiative.
- Various Information, Education and Communication (IEC) material in different languages have been developed by the Department with the support of MyGov (MeitY) and other relevant agencies and have shared with States/UTs for use on outdoor/physical and digital publicity mediums, social media, and Government websites/portals/etc.
- The ONORC is also a part of the **PM-SVANidhi program of the MoHUA**.

**Mera Ration App**

- From its launch on March 12th 2021, ‘Mera Ration’ app has recorded over 15 lakh downloads on Google Play Store. The app was launched under One Nation One Ration Card (ONORC) plan to benefit National Food Security Act
NFSA beneficiaries, particularly migrant beneficiaries to avail maximum benefit of ration cards portability.

- The App has been developed by the Department in technical association with Central NIC Unit - providing a host of useful TPDS/ONORC information and features.
- To facilitate better access and maximum benefit, the app is available in 12 languages viz. English, Hindi, Oriya, Punjabi, Tamil, Telugu, Malayalam, Kannada, Urdu, Gujarati, Marathi and Bangla.
- The App provides the following main features/services to the beneficiaries:

  - Know your NFSA entitlement
  - Make advance registration
  - View the states that have joined ONORC
  - Know your Aadhaar seeding status
  - Find nearby ration shop
  - View last 6 months transaction
  - Know your eligibility
  - Feedback by Beneficiary
  - Feedback by FPS dealer

- Beside promoting the app from the central level, all States/UTs have also been requested to undertake wide-spread publicity and awareness of this Mobile App— which is envisaged to give a boost to the portability transactions under ONORC, as this application is very useful for the migrant NFSA beneficiaries to easily know their entitlement details, recent transactions details, check Aadhaar seeding status and eligibility for national portability besides doing a voluntary registration for ONORC as well.
- Through the feature of locate nearby Fair Price Shop, the migrant beneficiary can easily find shops in new area and follow the map to reach the closest fair price shop to avail foodgrain benefits.
UPSC "PT" DNA (Daily News Analysis)

Source: PIB
Why in news?

- The Reserve Bank of India (RBI) said it has received applications from two more entities — Cosmea Financial Holdings Private Ltd. and Tally Solutions Private Ltd. — seeking licences to operate Small Finance Banks (SFBs).
- This is as per RBI’s guidelines for ‘on tap’ licensing of small finance banks in the private sector.
- With this, a total of six entities have applied for the licence.
- The other four applicants who were named in April 2021 are VSoft Technologies Private Ltd., Calicut City Service Co-operative Bank Ltd., Akhil Kumar Gupta, and Dvara Kshetriya Gramin Financial Services Private Ltd.

Local Area Banks: An experiment with Small Banks

- In India, where extending banking services to the underserved and unserved sections of the population is a challenge, there is merit in considering access to bank credit and services through expansion of small banks in unbanked and under-banked regions.
- In India an experiment with small banks was taken up following an announcement made by the then Finance Minister in the Union Budget in August 1996 and the RBI issued guidelines for setting up of Local Area Banks (LABs) vide its Press Release dated August 24, 1996.
- The LABs were conceived as low cost structures which would provide efficient and competitive financial intermediation services in a limited area of operation, i.e., primarily in rural and semi-urban areas.
- LABs were required to have a minimum capital of Rs. 5 crore and an area of operation comprising three contiguous districts. Presently, four LABs are functioning satisfactorily.
- Taking into account the above and that small finance banks can play an important role in the supply of credit to micro and small enterprises, agriculture and banking services in unbanked and under-banked regions in the country, the RBI has decided to licence new “small finance banks” in the private sector.
- While permitting small banks, however, the issues relating to their size, capital requirements, area of operations, exposure norms, regulatory prescriptions, corporate governance and resolution need to be suitably addressed in the light of experience gained.
Hence RBI has come out with following guidelines for licensing of small finance banks in the private sector.

**Objectives**

- The objectives of setting up of small finance banks will be to further **financial inclusion by provision of savings** vehicles, and
- **supply of credit** to small business units, small and marginal farmers, micro and small industries and other unorganised sector entities, through high technology-low cost operations.

**Eligible promoters**

- Resident individuals/professionals with **10 years of experience** in banking and finance;
- Companies and societies owned and controlled by residents will be eligible to set up small finance banks.
- **Existing Non-Banking Finance Companies (NBFCs), Micro Finance Institutions (MFIs), and Local Area Banks (LABs)** that are owned and controlled by residents **can also opt for conversion into small finance banks**.
- Promoter/promoter groups should be ‘fit and proper’ with a sound track record of professional experience or of running their businesses for at least a period of five years in order to be eligible to promote small finance banks.

**Scope of activities**

- The small finance bank shall primarily undertake basic banking activities of acceptance of deposits and lending to unserved and underserved sections including small business units, small and marginal farmers, micro and small industries and unorganised sector entities.
- There will not be any restriction in the area of operations of small finance banks.

**Capital requirement**

- The minimum paid-up equity capital for small finance banks shall be **Rs. 100 crore**.

**Promoter’s contribution**

- The promoter's minimum initial contribution to the paid-up equity capital of
such small finance bank shall at least be 40 per cent and gradually brought down to 26 per cent within 12 years from the date of commencement of business of the bank.

Foreign shareholding

- The foreign shareholding in the small finance bank would be as per the Foreign Direct Investment (FDI) policy for private sector banks as amended from time to time.

Prudential norms

- The small finance bank will be subject to all prudential norms and regulations of RBI as applicable to existing commercial banks including requirement of maintenance of Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR). No forbearance would be provided for complying with the statutory provisions.
- The small finance banks will be required to extend 75 per cent of its Adjusted Net Bank Credit (ANBC) to the sectors eligible for classification as priority sector lending (PSL) by the Reserve Bank.
- At least 50 per cent of its loan portfolio should constitute loans and advances of upto Rs. 25 lakh.

Procedure for RBI decisions

- An External Advisory Committee (EAC) comprising eminent professionals like bankers, chartered accountants, finance professionals, etc., will evaluate the applications.
- The decision to issue an in-principle approval for setting up of a bank will be taken by the Reserve Bank. The Reserve Bank’s decision in this regard will be final.
- The validity of the in-principle approval issued by the Reserve Bank will be eighteen months.
- The names of applicants for bank licences will be placed on the Reserve Bank’s website.

Operational SFBs in India

Some of the operational Small Finance Banks in India are as follows.

- Ujjivan Small Finance Bank.
- Janalakshmi Small Finance Bank.
NITI bats for tax breaks to achieve monetisation goal

GS-III | 30 August, 2021

- To make the National Monetisation Pipeline (NMP) a success, the government should give Income Tax breaks to attract retail investors into instruments such as Infrastructure Investment Trusts (InvITs), the NITI Aayog has recommended.
- The Centre’s think tank driving the NMP, estimated to raise almost ₹6 lakh crore for the exchequer over four years, has also called for bringing such trusts within the ambit of the Insolvency and Bankruptcy Code (IBC) to provide greater comfort to investors.
- Bringing in policy and regulatory changes to scale up monetisation instruments such as InvITs and Real Estate Investment Trusts (REITs) and expand their investor base have been identified as a critical element for the NMP. The government plans to use the InvIT and REIT route to monetise public assets such as highways, gas pipelines, railway tracks and power transmission lines.
- “More tax-efficient and user-friendly mechanisms like allowing tax benefits in InvITs as eligible security to invest under Section 54EC of the Income Tax Act, 1961, are important starting points for initiating retail participation in the instruments,” the Aayog said in its blueprint, indicating that further taxation-related tweaks may be needed along the way.
- Section 54EC allows taxpayers to offset long-term capital gains from transactions in immovable properties through investments in bonds issued by some government-backed infrastructure firms. “Though this will entail a cost in the form of loss of revenue for exchequer, the long-term benefits may outweigh the cost as linking investments in specified bonds with the capital...
gains exemption had proved to be a success in the past,” Amit Singhania, partner at Shardul Amarchand Mangaldas & Co., told The Hindu, adding that this will encourage retail investor participation in InvITs.

- While InvIT structures have been used in India since 2014, the Aayog pointed out that such trusts are not considered a ‘legal person’ and cannot be brought under IBC proceedings, deterring lenders from participating. “Since the trusts are not considered as ‘legal person’ under the extant regulations, the IBC regulations are not applicable for InvIT loans,” the Aayog said.
In a letter to Prime Minister Narendra Modi last week, soon after the launch of the ₹11,040 crore National Mission on Edible Oil-Oil Palm (NMEO-OP), Meghalaya MP Agatha Sangma warned that the focus areas were “biodiversity hotspots and ecologically fragile” and oil palm plantations would denude forest cover and destroy the habitat of endangered wildlife.

- The palm is an invasive species. It is not a natural forest product of northeastern India and its impact on our biodiversity as well as on soil conditions has to be analysed even if it is grown in non-forest areas. Any kind of monoculture plantation is not desirable.

- Given the widespread destruction of rainforests and native biodiversity caused by oil palm plantations in Southeast Asia, environmental experts and politicians are warning that the Union government’s move to promote their cultivation in the northeastern States and in the Andaman and Nicobar Islands can be disastrous.

- Other concerns include the impact on community ownership of tribal lands, as well as the fact that the oil palm is a water-guzzling, monoculture crop with a long gestation period unsuitable for small farmers.

- However, the government says land productivity for palm oil is higher than that for oilseeds, with Union Agriculture Minister Narendra Singh Tomar giving an assurance that the land identified for oil palm plantations in the northeastern States is already cleared for cultivation.

- It could also detach tribespeople from their identity linked with the community ownership of land and “wreak havoc on the social fabric”.

- Congress leader and former Environment Minister Jairam Ramesh said proposals for large-scale oil palm cultivation had been studied and rejected as part of the technology mission on edible oils in the late 1980s as it was a “recipe for ecological disaster”.

Source: TH
India and Russia are expecting to conclude the bilateral logistics agreement, Reciprocal Exchange of Logistics Agreement (RELOS), and a Navy-to-Navy cooperation memorandum of understanding (MoU). The two sides are also looking at expanding cooperation in Central Asia and the possibility of supplementing bilateral exercises with trilateral and multilateral ones, Indian Envoy in Russia D.B. Venkatesh Varma said.

It will simplify interoperability and enable military platforms to receive support and supplies across bases in both nations.

It is also known as Agreement on Reciprocal Logistics Support (ARLS).

It is an arrangement that will allow access to India and Russia, to each other’s military facilities for supplies and fuel, expanding the logistics support and operational turnaround of the Indian military.

On the deal for S-400 air defence systems, the envoy, in an exclusive interview to The Hindu, said: “There are specific defence and national security considerations that led India to conclude the contract for the supply of S-400 systems. All I can say is that this contract will be implemented. We will do what we have to do and necessary for India to preserve and protect its national security interests.”

Both countries are also scheduled to hold the maiden 2+2 ministerial dialogue during the visit of Gen. Shoigu. On the summit meeting, he said that dates were yet to be fixed, but was expected to take place towards the end of this year subject to the COVID situation.

Mr. Varma said that both sides were also looking at how they could cooperate in using India as a production base for exporting to third countries of Russian-origin equipment and services and would add to the Make in India programme. “Russia will remain a key defence partner for India for decades to come,” he said.

Mr. Varma, who will be retiring in two months, described the transformation in the India-Russia relationship in the last two years as a “quiet revolution.”

Benefits and mutual significance:
This will be beneficial for the Indian Navy, which has a large number of Russian origin ships, that will get access to Russian ports for supplies and refuelling. It would be crucial for joint exercises.

The air force too will benefit by finding it easier to deploy aircraft for the same purpose.

This access will also be for ports in the Russian part of the Arctic, allowing access to energy resources there.

Russia, on the other hand, will be able to access Indian ports and air bases. Russia has also assured India access to energy resources in the vast Arctic region.

Source: TH
Israel-Palestine Conflict

Chronology of Israel-Palestine conflict

- The seeds of the conflict were laid in 1917 when the then British Foreign Secretary Arthur James Balfour expressed official support of Britain for a Jewish "national home" in Palestine under the Balfour Declaration. The lack of concern for the "rights of existing non-Jewish communities" i.e. the Arabs led to prolonged violence.
- Unable to contain Arab and Jewish violence, Britain withdrew its forces from Palestine in 1948, leaving responsibility for resolving the competing claims to the newly created United Nations. The UN presented a partition plan to create independent Jewish and Arab states in Palestine. Most Jews in Palestine accepted the partition but most Arabs did not.
- In 1948, the Jewish declaration of Israel's independence prompted...
surrounding Arab states to attack. At the end of the war, Israel controlled about 50 percent more territory than originally envisioned UN partition plan. Jordan controlled the West Bank and Jerusalem's holy sites, and Egypt controlled the Gaza Strip.

- **1964**: Founding of the Palestine Liberation Organization (PLO)
- **1967**: In Six-day Arab- Israeli war, Israeli forces seize the Golan Heights from Syria, the West Bank & East Jerusalem from Jordan and Sinai Peninsula & Gaza strip from Egypt.
- The United Nations grants the PLO observer status in 1975 and recognizes Palestinians' right to self-determination.
- Camp David Accords (1978): "Framework for Peace in the Middle East" brokered by U.S. set the stage for peace talks between Israel and its neighbors and a resolution to the "Palestinian problem". This however remained unfulfilled.
- **1981**: Israel effectively annexes the Golan but this is not recognized by the United States or the international community.
- **1987**: Founding of Hamas, a violent offshoot of Egypt's Muslim Brotherhood seeking "to raise the banner of Allah over every inch of Palestine" through violent jihad.
- **1987**: Tensions in the occupied territories of West Bank and Gaza reached boiling point resulting in the First Intifada (Palestinian Uprising). It grew into a small war between Palestinian militants and the Israeli army.
- **1988**: Jordan cedes to the PLO all the country's territorial claims in the West Bank and Eastern Jerusalem.
- **1993**: Under the Oslo Accords Israel and the PLO agree to officially recognize each other and renounce the use of violence. The Oslo Accords also established the Palestinian Authority, which received limited autonomy in the Gaza Strip and parts of the West Bank.
- **2005**: Israel begins a unilateral withdrawal of Jews from settlements in Gaza. However, Israel kept tight control over all border crossings (blockade).
- **2006**: Hamas scores a victory in Palestinian Authority elections. The vote leaves the Palestinian house divided between Fatah movement, represented by President Mahmoud Abbas, and Hamas, which will control the cabinet and parliament. Efforts at cohabitation fail almost immediately.
- **2007**: Palestinian Movement Splits after few months of formation of a joint Fatah-Hamas government. Hamas militants drive Fatah from Gaza. Palestinian Authority President Mahmoud Abbas appoints a new government in Ramallah (West Bank), which is quickly recognized by the United States and European Union. Gaza remains under Hamas control.
- **2012**: UN upgrades Palestinian representation to that of "non-member
observer state".

- **2014** - Israel responds to the kidnapping and murder of three Jewish teenagers in the West Bank by arresting numerous Hamas members. Militants respond by firing rockets from Gaza. Clashes end in uneasy Egyptian-brokered ceasefire.

- **2014** - Fatah and Hamas form a unity government, though distrust remains between the two factions.

#joinourtelegram#
Areas of Conflict

- **West Bank**: The West Bank is sandwiched between Israel and Jordan. One of its major cities is Ramallah, the de facto administrative capital of Palestine. Israel took control of it in the 1967 war and has over the years established settlements there.

- **Gaza**: The Gaza Strip located between Israel and Egypt. Israel occupied the strip after 1967, but relinquished control of Gaza City and day-to-day administration in most of the territory during the Oslo peace process. In 2005, Israel unilaterally removed Jewish settlements from the territory, though it continues to control international access to it.

- **Golan Heights**: The Golan Heights is a strategic plateau that Israel captured from Syria in the 1967 war. Israel effectively annexed the territory in 1981. Recently, the USA has officially recognized Jerusalem and Golan Heights a part of Israel.

- **Palestinian Authority**: Created by the 1993 Oslo Accords, it is the official governing body of the Palestinian people, led by President Mahmoud Abbas of the Fatah faction. Hobbled by corruption and by political infighting, the PA has failed to become the stable negotiating partner its creators had hoped.

- **Fatah**: Founded by the late Yasir Arafat in the 1950s, Fatah is the largest Palestinian political faction. Unlike Hamas, Fatah is a secular movement, has nominally recognized Israel, and has actively participated in the peace process.

- **Hamas**: Hamas is regarded as a terrorist organization by the U.S. government. In 2006, Hamas won the Palestinian Authority's legislative elections. It ejected Fatah from Gaza in 2007, splitting the Palestinian movement geographically, as well.
Two-State Solution

- The “two state solution” is based on a UN resolution of 1947 which proposed two states - one would be a state where Zionist Jews constituted a majority, the other where the Palestinian Arabs would be a majority of the population. The idea was however rejected by the Arabs.
- For decades, it has been held by the international community as the only
Why is the solution so difficult to achieve?

- **Borders**: There is no consensus about precisely where to draw the line – with Israel building settlements and constructing barriers in areas like the West Bank that creates a de facto border. This makes it difficult to establish that land as part of an independent Palestine, breaking it up into non-contiguous pieces.
- **Jerusalem**: Both sides claim Jerusalem as their capital and consider it a center of religious worship and cultural heritage making its division difficult. In December 2017, Israel declared Jerusalem as its capital and the step found support from the USA, intensifying the situation in the region.
- **Refugees**: Large numbers of Palestinians who fled their homes in what is now Israel, during the preceding wars as well as their descendants believe they deserve the right to return but Israel is against it.
- **Divided Political Leadership on Both sides**: The Palestinian leadership is divided - two-state solution is supported by Palestinian nationalists in West Bank but the leadership in Gaza does not even recognize Israel. Further, while successive Israeli Prime Ministers - Ehud Barak, Ariel Sharon, Ehud Olmert and Benjamin Netanyahu - have all accepted the idea of a Palestinian state, they have differed in terms of what it should actually comprise.

Global Stand

- Nearly 83% of world countries have officially recognized Israel as a sovereign state and maintain diplomatic relations with it. However, at the same time, many countries are sympathetic to Palestine.

What do both parties want?

- Palestine wants Israeli to halt all expansionary activities and retreat to pre-1967 borders. It wants to establish a sovereign Palestine state in West Bank and Gaza with East Jerusalem as its capital.
- Palestine wants Palestine refugees who lost their homes in 1948 be able to come back.
- Israel wants it to be recognised as a Jewish state. It wants the Palestine refugees to return only to Palestine, not to Israel.

India’s Stand
India was one of the few countries to oppose the UN’s partition plan in November 1947, echoing its own experience during independence a few months earlier. In the decades that followed, the Indian political leadership actively supported the Palestinian cause and withheld full diplomatic relations with Israel.

India recognised Israel in 1950 but it is also the first non-Arab country to recognise Palestine Liberation Organisation (PLO) as the sole representative of the Palestinian. India is also one of the first countries to recognise the statehood of Palestine in 1988.

In the 2014, India favored UNHRC’s resolution to probe Israel’s human rights violations in Gaza. Despite supporting probe, India abstained from voting against Israel in UNHRC in 2015.

As a part of Link West Policy, India has de-hyphenated its relationship with Israel and Palestine in 2018 to treat both the countries mutually independent and exclusive.

In June 2019, India voted in favor of a decision introduced by Israel in the UN Economic and Social Council (ECOSOC) that objected to granting consultative status to a Palestinian non-governmental organization.

So far India has tried to maintain the image of its historical moral supporter for Palestinian self-determination, and at the same time to engage in the military, economic, and other strategic relations with Israel.

**Way Forward**

The world at large needs to come together for a peaceful solution but the reluctance of the Israeli government and other involved parties have aggravated the issue more. Thus a balanced approach towards the Israel-Palestine issue would help to maintain favourable relations with Arab countries as well as Israel.

Source: TH
At the United Nations Security Council on Sunday, India, a non-permanent member, reaffirmed its support for Palestine, but stopped short of making any direct reference to the status of Jerusalem or the future Israel-Palestine borders.

Israeli Prime Minister Benjamin Netanyahu on Sunday tweeted the national flags of 25 countries, from the United States to Albania, that he said were “resolutely standing with Israel and supporting our right to self defence”. Indian flag was not among them.

Ambassador Tirumurti’s statement made two things clear.

1. One, he said the “violence began in East Jerusalem a week back”, referring to the clashes in the Al-Aqsa compound and East Jerusalem’s neighbourhood. This means, India doesn’t see Hamas’s rocket firing on May 10, which followed Israeli forces storming Al-Aqsa Mosque in the morning, as the trigger of the conflict.

2. Second, India has expressed “our deep concern over the violence in Jerusalem, especially on Haram esh-Sharif/Temple Mount during the holy month of Ramzan and about the possible eviction process in Sheikh Jarrah and Silwan neighbourhood in East Jerusalem.” Dozens of Arab families in the occupied East Jerusalem face eviction by the Israelis, which was one of the triggers of Arab protests in the last week of Ramzan.

India has also urged both sides to “refrain from attempts to unilaterally change the existing status quo, including in East Jerusalem and its neighbourhood.”

Here, it is Israel which is trying to unilaterally change the status quo by moving to evict the Palestinian families, and deploying troops to the Al-Aqsa compound.

India called for “the historic status quo at the holy places of Jerusalem, including Haram esh-Sharif/Temple Mount must be respected”.

So, without mentioning any country, India has, in effect, called for the eviction process to be stopped and status quo ante to be restored at the Al Aqsa compound.

While refusing to toe the Israeli line on the conflict, India’s comments also point to its evolving position on the larger Israel-Palestine issue.

“It’s a very carefully drafted statement. For example, it’s called for the status quo relating to East Jerusalem. But the crucial point that’s missing is that East Jerusalem should be the capital [of a future Palestinian state]. Earlier, this used to be the mantra from India regarding the two-state solution. This portion is now taken out.
Therefore, we are simply giving lip service to the two-state solution without mentioning that East Jerusalem is the core part of that two-state solution,” said Talmiz Ahmad, a former diplomat who was India’s Ambassador to Saudi Arabia and the U.A.E.

Until 2017, India’s position was that it supported “the Palestinian cause and called for a negotiated solution resulting in a sovereign, independent, viable and united State of Palestine, with East Jerusalem as its capital, living within secure and recognised borders, side by side at peace with Israel”.

Then Prime Minister Manmohan Singh stated this position in November 2013. So did then President Pranab Mukherjee, in October 2015.

India dropped the references to East Jerusalem and the borders in 2017 when Palestinian Authority President Mahmoud Abbas visited Delhi. Prime Minister Narendra Modi said back then, “[W]e hope to see the realisation of a sovereign, independent, united and viable Palestine, coexisting peacefully with Israel. I have reaffirmed our position on this to President Abbas during our conversation today.”

In 2018, when Mr. Modi visited Ramallah, he reaffirmed the same position, with no direct reference to the borders or Jerusalem. Ambassador Tirumurti stated this line while calling for a “just” solution, without giving specifics on what that solution should be.

For Israel-Palestine conflict: complete history and analysis: [click here](#)

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**DRDO (Defence Research & Development Organisation)**

**GS-III | 31 August, 2021**

- DRDO is the R&D wing of Ministry of Defence, Govt of India, with a vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in critical defence technologies and systems, while equipping our armed forces with state-of-the-art weapon systems and equipment in accordance with requirements laid down by the three Services.
- DRDO’s pursuit of self-reliance and successful indigenous development and production of strategic systems and platforms such as Agni and Prithvi series of missiles; light combat aircraft, Tejas; multi-barrel...
rocket launcher, Pinaka; air defence system, Akash; a wide range of radars and electronic warfare systems; etc., have given quantum jump to India's military might, generating effective deterrence and providing crucial leverage.

- "Balasya Mulam Vigyanam"—the source of strength is science—drives the nation in peace and war. DRDO has firm determination to make the nation strong and self-reliant in terms of science and technology, especially in the field of military technologies.
- DRDO was formed in 1958 from the amalgamation of the then already functioning Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) with the Defence Science Organisation (DSO). DRDO was then a small organisation with 10 establishments or laboratories.
- Over the years, it has grown multi-directionally in terms of the variety of subject disciplines, number of laboratories, achievements and stature.
- Today, DRDO is a network of more than 50 laboratories which are deeply engaged in developing defence technologies covering various disciplines, like aeronautics, armaments, electronics, combat vehicles, engineering systems, instrumentation, missiles, advanced computing and simulation, special materials, naval systems, life sciences, training, information systems and agriculture.
- Several major projects for the development of missiles, armaments, light combat aircrafts, radars, electronic warfare systems etc are on hand and significant achievements have already been made in several such technologies.

Source: PIB

North Korea may have resumed Nuclear reactor: IAEA

GS-II | 31 August, 2021

- Nuclear-armed North Korea appears to have restarted its plutonium-producing reprocessing reactor in a “deeply troubling” development, the UN atomic agency has said, a possible sign Pyongyang is expanding its banned weapons programme.
- The development on the 5-megawatt reactor in Yongbyon — North Korea's main nuclear complex — comes with nuclear talks between Pyongyang and
Washington at a standstill.

- North Korean leader Kim Jong-un offered to dismantle part of the Yongbyon complex at a second summit with then U.S. President Donald Trump but not other sites, in exchange for sanctions relief, and his offer was rejected.
- North Korea is under multiple sets of international sanctions over its nuclear weapons and ballistic missile programmes.
- “Since early July, there have been indications, including the discharge of cooling water, consistent with the operation of the reactor,” the International Atomic Energy Agency said in its annual report.
- The Yongbyon reactor appeared to have been inactive from December 2018 until then, added the report dated Friday.
- IAEA inspectors were kicked out of North Korea in 2009, and the agency has since monitored it from outside.
- The possible operation of the reactor follows a recent indication that Pyongyang is also using a nearby radiochemical laboratory to separate plutonium from spent fuel previously removed from the reactor.
- The signs of the reactor and laboratory operations were “deeply troubling”, the IAEA said, adding the activities were a “clear violation” of UN resolutions.
- A senior U.S. State Department official said Washington was aware of the report and was closely coordinating with partner countries.
- The Biden administration has previously promised a “practical, calibrated approach”, including diplomatic efforts, to persuade the impoverished North to give up its banned weapons programmes.
- But Pyongyang has never shown any indication it would be willing to surrender its nuclear arsenal, and this month Mr. Kim’s sister and key adviser Kim Yo Jong demanded the withdrawal of U.S. troops from the peninsula.
- Pyongyang has stayed away from nuclear talks since the collapse of the second Trump-Kim summit in Hanoi.
- This is just a part of Nuclear Arm race of the World countries.

For Article on Nuclear Arm Race and Nuclear treaties: click here
For complete Nuclear Programme of India: click here