

General Studies- 1

Flash Flood:

Why in News?

India has been designated as a nodal centre for preparing flash-flood forecasts by the World Meteorological Organization (WMO).

That means India will have to develop a customised model that can issue advance warning of floods in Vietnam, Sri Lanka, Myanmar and Thailand.

How will It Work?

Using a combination of satellite mapping and ground-based observation, this system — called the Flash Flood Guidance System — aims to provide forecasts six hours in advance.

Like India, several southeast Asian countries depend on the monsoon and are prone to its vagaries.

The proposed model would provide forecasts by computing the likelihood of rainfall and the soil moisture levels to warn of possible floods.

Though Pakistan was among the list of countries that would benefit from the forecast, it had refused to participate in the scheme.

India currently has a warning system for tsunamis that also doubles up a warning system for several Asian countries.

About Flash Floods:

A **flash flood** is a rapid [flooding](#) of [geomorphic](#) low-lying areas: washes, [rivers](#), [dry lakes](#) and [basins](#).

It may be caused by heavy [rain](#) associated with a [severe thunderstorm](#), [hurricane](#), [tropical storm](#), or [meltwater](#) from ice or snow flowing over ice sheets or snowfields.

Flash floods may occur after the collapse of a natural [ice](#) or [debris dam](#), or a human structure such as a man-made [dam](#), as occurred before the [Johnstown Flood](#) of 1889.

Flash floods are distinguished from regular floods by having a timescale of less than six hours

The WMO says flash floods account for 85% of flooding incidents across the world, causing some 5,000 deaths each year.

Study on Groundwater Contamination

Central Ground Water Board (CGWB) regularly monitors ground water quality of shallow aquifers on a regional scale, once every year.

Ground water quality data generated during various scientific studies and ground water quality monitoring indicate that the ground water in major part of the country is potable.

However, some parts of various states are contaminated by Salinity, Arsenic, Fluoride, Iron, Nitrate and Heavy metals beyond the permissible limits of BIS.

Major Pollutants:

The possible sources of contamination of ground water are either geogenic or anthropogenic in nature.

Anthropogenic contamination of ground water is due to industrial discharges, landfills, diffused sources of pollution like fertilizers and pesticides from agricultural fields etc.

Steps taken to check the ground water pollution are –

- Control of industrial pollution under the provision of Water (Prevention and Control of Pollution) Act, 1974 by consent mechanism being applied by SPCBs/ PCCs.
- A mutually agreed time targeted programme is implemented under Corporate Responsibility on Environment Protection (CREP).

- Establishment of Common Effluent Treatment Plants (CETPs) for cluster of Small Scale Industrial units.
- Continuous water quality monitoring systems are being established on industrial units in the country, through the directives issued by CPCB, for getting real time information on the effluent quality.

For improving the coverage of safe drinking water to rural population, the Ministry of Drinking Water and Sanitation supplements the efforts of the states by providing them with technical and financial assistance through the centrally sponsored National Rural Drinking Water Programme (NRDWP).

It is the State Governments who plan, design, approve, execute and operate & maintain the schemes for providing safe drinking water to rural population.

Blood Moon

Lunar Eclipse

A Lunar Eclipse (Chandra Grahan) is when one can't see the moon at night because its position is relative to the sun and earth ensures that light doesn't fall on the part of it we can see.

The moon gives off no light and is only visible because it reflects the light of the sun. We only see the part where light falls and thus as the earth and moon move through their orbits and different amounts of light falls on the moon, we see different phases of the moon.

About Blood Moon:

When a lunar eclipse (Chandra Grahan) occurs, the Earth comes between the sun and moon, preventing light from falling on the moon. When this happens, the moon appears to glow red and is thus called the blood moon.

Why red colour?

The red colour is because of the way light travels through the Earth's atmosphere. Sunlight is made of several colours and they all have different wavelengths. Depending on the way they travel through our atmosphere, we see different colours.

That's why the sun and sky have different colours during sunrise and sunset. Blues and purples have shorter wavelengths and scatter in our atmosphere, giving the sky its inky colour, but reds and oranges have the highest wavelengths and pass through our atmosphere before it is bent or refracted around Earth, hitting the surface of the Moon and making it red.

Significance of July 2018 Lunar Eclipse:

It was the longest eclipse of the 21st century. It occurred for 1 hour 43 minutes.

Geography

Holistic Development of Islands

Context:

NITI Aayog will host an Investors' Conference on August 10, 2018 at Pravasi Bharatiya Kendra for the Holistic Development of Islands.

Objective of Conference:

It will attract investment for the sustainable development of eco-tourism projects in Andaman & Nicobar and Lakshadweep islands.

The 11 anchor tourism projects are proposed to be implemented with private sector participation under suitable risk-sharing model and through open-competitive bidding.

About the Holistic Development of Islands & Investors' Conference

- Sustainable development of islands and overall maritime development has been accorded high priority by the Government.
- Island Development Agency (IDA) an apex body, under the chairmanship of Hon'ble Home Minister, was constituted in June

2017, while NITI Aayog has been mandated to steer the Holistic Development of Islands program, along with the respective UT administration/ State Governments.

- Under the said program in the first phase 10 Islands in Andaman & Nicobar and Lakshadweep have been taken up for holistic development.

About IDA:

- Island Development agency (IDA) was constituted in 2017 for the holistic development of islands.
- It will undertake holistic development in the project islands after giving due consideration to unique maritime and territorial bio-diversity of the islands.

Institutional Structure of IDA:

IDA is chaired by Union Home minister and members includes, cabinet secretary, home secretary, secretary (environment, forests and climate change), secretary (tourism) and secretary (tribal welfare).

Progress Made so far:

The IDA has reviewed 11 anchor tourism projects (6 in Andaman & Nicobar and 5 in Lakshadweep) and several other infrastructure projects, inter-alia, Ro-Ro ferry services, desalination plants, digital connectivity, green energy, for implementation in the first phase for holistic development of these islands.

General Studies- 2

Mission Satyanishtha:

Indian Railways has launched “Mission Satyanishtha”.

Aim: This mission aims at sensitizing all railway employees about the need to adhere to good ethics and to maintain high standards of integrity at work.

Objectives of the Mission are:

- To train every employee to understand the need and value of ethics in Personal and Public life.
- To deal with ethical dilemmas in life and Public Governance.
- To help understand the policies of Indian Railways on ethics and integrity and the employee’s role in upholding the same.
- To develop inner governance through tapping inner resources.

National Viral Hepatitis Control Program

Why in News?

Shri J P Nadda, Union Minister of Health and Family Welfare launched the National Viral Hepatitis Control Program to mark the World Hepatitis Day, 2018.

About NVHCP:

MoHFW has launched the ‘National Viral Hepatitis Control Program’, with the goal of ending viral hepatitis as a public health threat by 2030 in the country.

The aim of the initiative is to reduce morbidity and mortality due to viral hepatitis.

Strategies Adopted:

The key strategies include preventive and promotive interventions with focus on awareness generation, safe injection practices and socio-cultural practices, sanitation and hygiene, safe drinking water supply, infection control and

immunization; co-ordination and collaboration with different Ministries and departments.

It also focus on building capacities at national, state, district levels and sub-district level up to Primary Health Centres (PHC) and health and wellness centres such that the program can be scaled up till the lowest level of the healthcare facility in a phased manner.

Indo-US Defence Deal:

India is in talks with the U.S. to procure an advanced air [defence](#) system to defend the National Capital Region (NCR) from aerial attacks.

The process for procuring the National Advanced Surface-to-Air Missile System-II (NASAMS-II), estimated at \$1 billion, has been initiated.

This system will help in preventing 9/11-type attacks [when terrorists flew hijacked planes into New York's World Trade Center] on Delhi.

Steps taken for Secure airspace

India is deploying a multi-tiered air defence network to fully secure its airspace from incoming fighter aircraft, missiles and unmanned aerial vehicles (UAV).

This system would complement other systems such as the medium and long-range surface-to-air missile (SAM) systems under procurement.

India is also in an advanced stage of talks with Russia for the procurement of very long range S-400 air defence systems.

Apart from these imports, India is also developing an indigenous Ballistic Missile Defence (BMD) system.

Phase-I of the BMD is expected to be deployed soon.

About NASAMS:

The NASAMS was developed by Raytheon in partnership with KONGSBERG Defence and Aerospace of Norway.

The Raytheon website says it is a “highly adaptable mid-range solution” for any operational air defence requirement and provides a tailorable, state-of-the-art defence system that can maximise the ability to quickly identify, engage and destroy current and evolving enemy aircraft, UAV or emerging cruise missile threats.

NASAMS-II is an upgraded version of the NASAMS and features new 3D mobile surveillance radars and 12 missile launchers for quicker reaction.

‘NOTA’ Option

Why in News?

The Supreme Court on Monday reserved for judgment a PIL petition, which won the full support of the Centre, seeking to scrap the ‘NOTA’ option in Rajya Sabha election.

Chief Justice Misra orally observed that NOTA is meant only for universal adult suffrage and direct elections and not polls held by the system of proportional representation by means of the single transferable vote as done in the Rajya Sabha.

About NOTA:

The [Election Commission of India](#) told the [Supreme Court](#) in 2009 that it wished to offer the voter a "none of the above" option on ballots, which the government had generally opposed.

The [People's Union for Civil Liberties](#), a [non-governmental organisation](#), filed a [public-interest litigation](#) statement in support of this.

On 27 September 2013, the [Supreme Court of India](#) ruled that the right to register a "none of the above" vote in elections should apply, and ordered the Election Commission to provide such a button in the electronic [voting machines](#), noting that it would increase participation.

The Election Commission also clarified that even though votes cast as NOTA are counted, they are considered as invalid votes so they will not change the outcome of the election process.

Effect Of NOTA:

They are not taken into account for calculating the total valid votes and will not be considered for determining the forfeiture of [deposit](#).

In the [2014 general election](#), NOTA polled 1.1% of the votes, counting to over 6,000,000.

The specific symbol for NOTA, a ballot paper with a black cross across it, was introduced on 18 September 2015.

Rehabilitation Of Manual Scavengers

Ministry of Social Justice and Empowerment is implementing a Central Sector Scheme, 'Self Employment Scheme for Rehabilitation of Manual Scavengers' (SRMS) under which identified manual scavengers and their dependents are provided the following rehabilitation benefits:

- Onetime cash assistance of Rs.40000/
 - Loans upto Rs. 15.00 lacs at concessional rate of interest.
 - Credit linked back end capital subsidy upto Rs. 3,25,000/-.
 - Skill Development Training upto two years with stipend of Rs.3000/- per month.

Ministry is also implementing a Scheme titled "Pre-Matric Scholarship scheme to the Children of those engaged in occupations involving cleaning and prone to health hazards".

Children of manual scavengers are also eligible for this scholarship.

Manual Scavengers Status in India:

13 States have identified 13,657 manual scavengers up to 30.06.2018. State-wise details are given below.

In addition, a National Survey of manual scavengers has been undertaken in 170 districts of 18 States to identify all those persons who were cleaning the insanitary latrines prior to their conversion into sanitary latrines under Swachh Bharat Mission.

The survey also identifies those who are continuing to work as manual scavengers in some places.

Food Security Law

Why in News?

Department of Food and Public Distribution is implementing a scheme on 'End-to-End Computerization of TPDS Operations'.

- Component-I of the scheme comprises digitization of ration cards/beneficiary other database, online allocation, computerization of supply chain management, setting up of transparency portal and grievance redressal mechanisms.
- Under the scheme, ration cards/beneficiaries database have been completely digitized in all States/UTs, transparency portal and online grievance redressal facility/Toll-free number have been implemented in all States/UTs, online allocation has been implemented in 30 States/UTs and supply chain management has been computerized in 21 States/UTs.
- Component-II of scheme comprises automation of Fair Price Shops (FPSs), which involves installation of electronic Point of Sale (ePoS) devices at FPSs for authentication of beneficiaries and electronic recording of sale transactions.

About PDS:

Indian food security system, established by the [Government of India](#) under [Ministry of Consumer Affairs, Food and Public Distribution](#) is to distribute subsidized food and non-food items to [India's poor](#).

This scheme was first launched in February 1944, during the [Second World War](#) and was launched in the current form in June 1947.

Major commodities distributed include staple food grains, such as [wheat](#), [rice](#), [sugar](#) and [kerosene](#), through a network of fair price shops (also known as ration shops) established in several states across the country.

[Food Corporation of India](#), a [Government-owned corporation](#), procures and maintains the PDS.

Opening of generic drug stores in rural areas

The Department of Pharmaceuticals is implementing a countrywide campaign in the name of 'Pradhan Mantri Bhartiya Janaushadhi Pariyojana' (PMBJP) under which quality generic medicines are made available at affordable prices to all through specific outlets i.e. PMBJP Kendras.

As per the guidelines of PMBJP, a PMBJP Kendra may be opened in any part of the country.

PMBJP:

Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) is a campaign launched by the Department of Pharmaceuticals to provide quality medicines at affordable prices to the masses.

PMBJP stores have been set up to provide generic drugs, which are available at lesser prices but are equivalent in quality and efficacy as expensive branded drugs.

It was launched by the Department of Pharmaceuticals in November 2008 under the name Jan Aushadi Campaign. Bureau of Pharma PSUs of India (BPPI) is the implementation agency for PMBJP.

Vision, Mission and Objective

Vision

To bring down the healthcare budget of every citizen of India through providing Quality generic Medicines at Affordable Prices.

Mission

- Create awareness among the public regarding generic medicines.
- Create demand for generic medicines through medical practitioners.
- Create awareness through education and awareness program that high price need not be synonymous with high quality.

- Provide all the commonly used generic medicines covering all the therapeutic groups.
- Provide all the related health care products too under the scheme.

Objective

Making quality medicines available at affordable prices for all, particularly the poor and disadvantaged, through exclusive outlets "Jan Aushadhi Medical Store", so as to reduce out of pocket expenses in healthcare.

National Commission for Backward Classes (NCBC) Bill

Why in News?

The [Lok Sabha](#) unanimously passes the Bill for constitutional status to the National Commission for Backward Classes (NCBC).

Details of Bill:

- It seeks to grant the National Commission on Backward Classes (NCBC) constitutional status, at par with the National Commission for Scheduled Castes (NCSC) and the National Commission for Scheduled Tribes.

Role of NCSC:

- Currently, under the Constitution the NCSC has the power to look into complaints and welfare measures with regard to Scheduled Castes, backward classes and Anglo-Indians. The Bill seeks to remove the power of the NCSC to examine matters related to backward classes.

Constitutional status to National Commission for Backward Classes:

- The NCBC is a body set up under the National Commission for Backward Classes Act, 1993.

C.A From 28th July to 03rd Aug 2018

- It has the power to examine complaints regarding inclusion or exclusion of groups within the list of backward classes, and advise the central government in this regard.
- The Bill seeks to establish the NCBC under the Constitution, and provide it the authority to examine complaints and welfare measures regarding socially and educationally backward classes.

Backward classes:

- The Constitution Amendment Bill states that the President may specify the socially and educationally backward classes in the various states and union territories. He may do this in consultation with the Governor of the concerned state. However, a law of Parliament will be required if the list of backward classes is to be amended.

Composition and service conditions:

Under the Constitution Amendment Bill, the NCBC will comprise of five members appointed by the President. Their tenure and conditions of service will also be decided by the President through rules.

Functions:

- Under the Constitution Amendment Bill, the duties of the NCBC will include:
 - (i) investigating and monitoring how safeguards provided to the backward classes under the Constitution and other laws are being implemented,
 - (ii) inquiring into specific complaints regarding violation of rights, and
 - (iii) advising and making recommendations on socio-economic development of such classes. The central and state governments will be required to consult with the NCBC on all major policy matters affecting the socially and educationally backward classes.

Powers of a civil court:

- Under the Constitution Amendment Bill, the NCBC will have the powers of a civil court while investigating or inquiring into any complaints. These powers include: (i) summoning people and examining them on oath, (ii) requiring production of any document or public record, and (iii) receiving evidence.

Special Package to Boost Export of Textiles

To increase exports of textile and apparel, Government has announced a Special Package for garments and made-ups sectors.

The package offers labour law reforms, additional incentives under Amended Technology Upgradation Fund Scheme (ATUFS), enhanced duty drawback coverage and relaxation of Section 80JJAA of Income Tax Act.

Benefits of ATUFS:

DRESSING UP FOR EXPORTS		
<p>➤ Rs. 5,500 crore for an additional five per cent duty drawback for garments</p> <p>➤ Rs. 500 crore for additional incentives under Amended Technology Upgradation Funds Scheme</p> <p>➤ Fixed term employment for the sector. A fixed term workman will be considered at par with a permanent workman</p> <p>➤ Government to bear the entire employer's contribution of 12 per cent under the EPF Scheme, for</p>		<p>new employees of garment industry earning less than Rs. 15,000 per month, for the first three years</p> <p>➤ At present, 8.33 per cent of employer's contribution is provided by the Government</p>

General Studies-3

Global Tiger Day

India Post joined hands in promoting tiger conservation by releasing a special cover to mark Global Tiger Day at Bandipur on Sunday.

In all, 6,500 covers have been printed and will be made available to the public at a cost of ₹25 each. The bulk of the specially printed envelopes with a pictorial representation of tigers will be used by the Forest Department for its postal communication.

Global Tiger Day, often called **International Tiger Day**, is an annual celebration to raise awareness for [tiger](#) conservation, held annually on 29 July.

It was created in 2010 at the [Saint Petersburg](#) Tiger Summit.

The goal of the day is to promote a global system for protecting the natural [habitats](#) of tigers and to raise public awareness and support for tiger conservation issues

About Project Tiger:

Global Tiger Day highlighted the importance of tiger conservation, the threats posed to the big cat, and how it was on the brink of extinction till Project Tiger was launched in India in the early 70s.

Tiger population declined from over 40,000 in the pre-colonial days to less than 2,000 post Independence.

Launched in 1973 with nine tiger reserves in the country, it has expanded to nearly 50 reserves in the present times and the objective was to ensure a viable population of tigers in India.

There were local extinctions in the country in Sariska and Panna mainly because of international illegal demand for wildlife parts which hit India in 1990.

Progress Achieved:

After the constitution of the NTCA and the introduction of scientific tiger assessments, the numbers have shown a steady increase in the tiger population in the country – from 1,411 in 2006, to 1,706 in 2010, and 2,226 in 2014, which accounts for almost 70% of the world's tiger population in the wild.

Bandipur, Nagarahole, Wayanad, Mudumalai, Satyamangalam, and BRT forests account for nearly 585 tigers across 10,925 sq km. **Strategic**

Partnership Model:

Why in news?

The Defence Acquisition Council (DAC), chaired by Raksha Mantri Smt Nirmala Sitharaman met here today.

In continuation of its efforts to boost indigenous defence industry and to reduce timelines so as to ensure timely delivery of equipment to the Armed Forces, the DAC discussed and approved Implementation guidelines for the Strategic Partnership Model.

About Strategic Partnership:

Strategic Partnership Model aims to revitalise defence industrial ecosystem and progressively build indigenous capabilities in the private sector to design, develop and manufacture complex weapon systems for the future needs of the Armed Forces.

The amplifying guidelines lay emphasis on incentivisation of transfer of niche technology and higher indigenous content Global Majors, who in collaboration with Indian Partners are ready to make India a Regional / Global manufacturing hub for the platform will also be incentivized.

Benefits of SP Model:

This will give a major fillip towards encouraging self-reliance and aligning the defence sector with the 'Make in India ' initiative of the Government. In an endeavour to convert policy into implementable directions and to kick start the process, the DAC also approved platform specific guidelines for procurement of Naval Utility Helicopters.

All procurements under the SP Model would be executed by specially constituted Empowered Project Committees (EPC) to provide focussed attention and ensure timely execution.

PRASHAD Scheme

Why in News?

The Ministry of Tourism provides Central Financial Assistance to State Governments/Union Territory (UT) Administrations under the schemes of Swadesh Darshan, National Mission on Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive (PRASHAD) and Assistance to Central Agencies for the development of tourism related infrastructure in the country.

Under the PRASHAD Scheme, 26 religious cities/sites in 19 States have been identified for development which inter-alia include:

- Amaravati and Srisailem (Andhra Pradesh), Kamakhya (Assam), Patna and Gaya (Bihar), Dwarka and Somnath (Gujarat), Gurudwara Nada Saheb (Haryana), Hazratbal and Katra (Jammu & Kashmir), Deogarh (Jharkhand), Chamundeshwari Devi (Karnataka)
- Guruvayoor (Kerala), Una (Himachal Pradesh), Omkareshwar (Madhya Pradesh), Trimbakeshwar (Maharashtra), Puri (Odisha), Amritsar (Punjab), Ajmer (Rajasthan), Kanchipuram and
- Vellankani (Tamil Nadu), Varanasi and Mathura (Uttar Pradesh), Badrinath and Kedarnath (Uttarakhand) and Belur (West Bengal).

The Scheme of Assistance to Central Agencies for Tourism Infrastructure Development aims at developing tourism related infrastructure through central financial assistance to the Central Agencies who own the assets.

Banning of Unregulated Deposit Schemes Bill, 2018.

Why in News?

During the Union Budget 2016-17, the then Finance Minister Arun Jaitley had promised “a comprehensive central legislation” to tackle illicit deposit schemes.

Following this, the Union government has come up with two bills to tackle the menace of non-regulated deposit schemes.

The Chit Funds (Amendment) Bill, 2018 was introduced in the Lok Sabha during the second leg of the Budget Session. The second Bill is Banning of Unregulated Deposit Schemes Bill, 2018.

“The bill is aimed at tackling the menace of illicit deposit taking activities in the country.

Companies/ institutions running such schemes exploit existing regulatory gaps and lack of strict administrative measures to dupe poor and gullible people of their hard-earned savings.

Details of Bills:

The proposed Bill aims to provide a comprehensive legislation to tackle illicit deposit schemes by completely prohibiting such activities.

Nine regulators including the RBI, SEBI, the Ministry of Corporate Affairs, and the State governments regulate financial activities.

According to the Bill, all deposit-taking schemes are required to be registered with the relevant regulator, failing which the “Deposit Takers” will be considered “unregulated” and hence be banned.

According to the Bill, “Deposit Takers” include all possible entities (including individuals) receiving or soliciting deposits, except specific entities such as those incorporated by legislation.

“Deposit” is defined in such a manner that deposit takers are restricted from camouflaging public deposits as receipts, and at the same time not to curb or hinder acceptance of money by an establishment in the ordinary course of its business.

The Bill creates three different types of offences, namely:

- running of Unregulated Deposit Schemes,
- fraudulent default in Regulated Deposit Schemes, and
- wrongful inducement in relation to Unregulated Deposit Schemes.

Enforcement Mechanism:

A 'Competent Authority' will be appointed which has the powers similar to a civil court, including powers to attach properties of the deposit takers.

It also empowers police to search and seize any property believed to be connected with an offence under the Bill, with or without a warrant.

The Bill also approves creating designated courts to tackle such cases.

The Bill enables creation of an online central database, for collection and sharing of information on deposit taking activities in the country.

Unearthing of Benami Properties worth Rs. 4,300 crore

Due to intensive efforts undertaken by the Income-tax Department, provisional attachment has been made in more than 1600 cases of properties under the Benami Transactions (Prohibition) Act, 1988.

These include plots of land, flats, shops, vehicles, deposits in bank accounts, fixed deposits etc.

The value of properties under attachment is more than Rs. 4,300 crore including immovable properties of more than Rs. 3400 crore.

Suitable action under the Benami Transactions (Prohibition) Act, 1988, inter alia, against the benamidars and the beneficial owners has been taken by the Income-tax Department.

About Benami Transactions (Prohibition) Amendment Bill, 2015

The Benami Transactions (Prohibition) Amendment Bill, 2015 was introduced in Lok Sabha on May 13, 2015. The Bill seeks to amend the Benami Transactions Act, 1988. The Act prohibits benami transactions and provides for confiscating benami properties.

The Bill seeks to:

(i) amend the definition of benami transactions,

(ii) establish adjudicating authorities and an Appellate Tribunal to deal with benami transactions, and (

iii) specify the penalty for entering into benami transactions.

The Act defines a benami transaction as a transaction where a property is held by or transferred to a person, but has been provided for or paid by another person.

The Bill amends this definition to add other transactions which qualify as benami, such as property transactions where: (i) the transaction is made in a fictitious name, (ii) the owner is not aware of denies knowledge of the ownership of the property, or (iii) the person providing the consideration for the property is not traceable.

3.49 Crore New Entrepreneurs Benefited Through Mudra Yojana

Employment generation coupled with improving employability is the priority of the Government.

The Government is implementing various programs in this direction like encouraging private sector of economy, fast tracking various projects involving substantial investment and increasing public expenditure on schemes like Prime Minister's Employment Generation Programme (PMEGP), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pt.Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) and Deendayal Antodaya Yojana-National Urban Livelihoods Mission (DAY-NULM).

About PMMY:

Pradhan Mantri Mudra Yojana (PMMY) is a scheme to extend collateral free loans by Banks, Non-Banking Financial Companies (NBFCs) and Micro Finance Institutions (MFIs) to:

- Small/Micro business enterprises and individuals in the non-agricultural sector to enable them to setup or expand their business activities and to generate self employment.

Under PMMY, the number of accounts/ number of loans sanctioned during 2015-16 to 2017-18 were 12.27 crore, out of which 3.49 crore were new entrepreneurs.

Besides this, Government has been taking various steps to boost industrial development, capital formation and employment generation in the country like Make in India, Startup India and Ease of Doing Business initiatives.

Ministry of Labour & Employment is also implementing National Career Service (NCS) Project for transforming the employment services in the country using technology to bring more employment opportunities to jobseekers.

Ocean Exploration: Deep Ocean Mission (DOM)

Why in News?

Looking to emulate the success of the Indian Space Research Organisation (ISRO) in designing and launching satellites, the Centre has drawn up a five-year, ₹8,000 crore plan to explore the deep recesses of the ocean.

The Union Earth Sciences Ministry — tasked with coordinating the exercise — unveiled a blueprint of the ‘Deep Ocean Mission (DOM)’ on Friday.

Objectives:

Among the key deliverables to achieve these goals are an offshore desalination plant that will work with tidal energy, and developing a submersible vehicle that can go to a depth of at least 6,000 metres with three people on board.

The mission proposes to explore the deep ocean similar to the space exploration started by ISRO about 35 years ago.

The focus will be on technologies for deep-sea mining, underwater vehicles, underwater robotics and ocean climate change advisory services, among other aspects.

India's share:

India has been allotted a site of 75,000 square kilometres in the Central Indian Ocean Basin (CIOB) by the UN International Sea Bed Authority for exploitation of polymetallic nodules (PMN).

These are rocks scattered on the seabed containing iron, manganese, nickel and cobalt.

It is envisaged that 10% of recovery of that large reserve can meet the energy requirement of India for the next 100 years.

It has been estimated that 380 million metric tonnes of polymetallic nodules are available at the bottom of the seas in the Central Indian Ocean.

India's Exclusive Economic Zone spreads over 2.2 million square kilometres and in the deep sea, lies "unexplored and unutilised."

Infrastructure & Environment

Green corridor in Railways

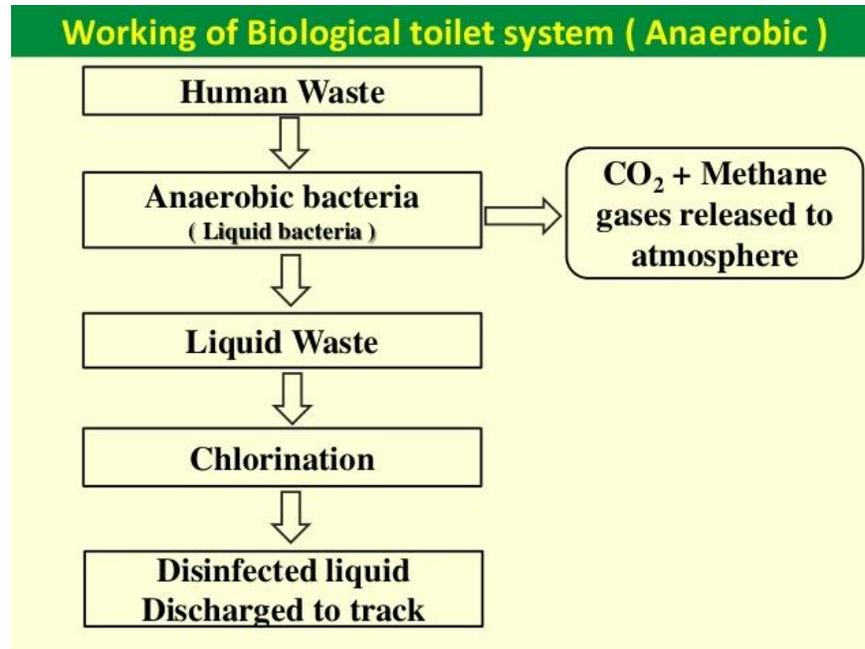
Why in News?

As a part of "Swachh Bharat Mission", Indian Railways is proliferating bio-toilets on its coaching stock so that no human waste is discharged from coaches on to the track.

In order to demonstrate the advantage of fitment of Bio-toilets, 06 green corridors were made functional in 2016-17 and 21 in 2017-2018.

- The 114-km-long Manamadurai– Rameswaram stretch of Southern Railway became India's [first 'Green corridor'](#).

About Bio-Toilets:



Energy Related Issues:

Unconventional Hydrocarbons:

Context:

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved the policy to permit exploration and exploitation of unconventional hydrocarbons such as Shale oil/gas, Coal Bed Methane (CBM) etc.

It will be carried out under the existing Production Sharing Contracts (PSCs), to encourage the existing Contractors in the licensed/leased area to unlock the potential of unconventional hydrocarbons in the existing acreages.

About Shale gas:

Shale refers to a sedimentary rock resulted from compaction process of small old rocks containing mud and minerals – such as quartz and calcite, trapped beneath the earth surface.

The shale gas is the natural gas trapped within these shale rocks. It is one of the unconventional type of natural gas along with coal bed methane, tight sandstones, and methane hydrates.

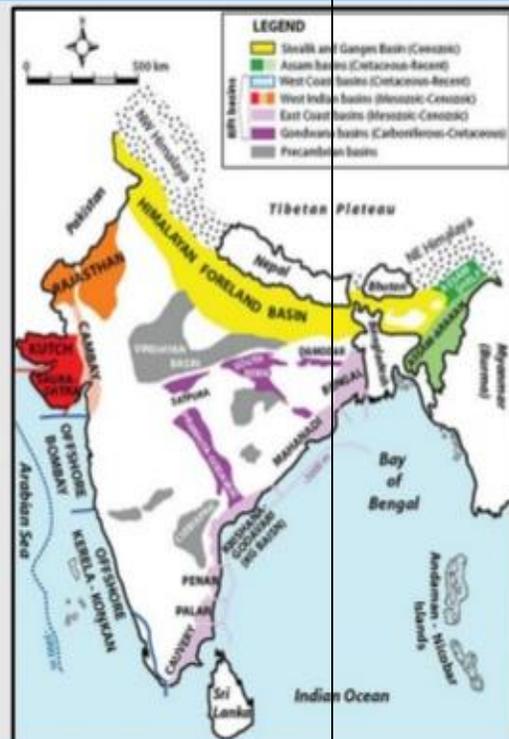
Shale Reserve in India:

In preliminary studies, ‘in place’ probable Shale gas resources in the range of 100-200 TCF in 5 Indian sedimentary basins have been assessed by various international agencies.

Presence of Shale oil/gas has a strong possibility in basins such as Cambay, Krishna- Godavari (KG), Cauvery etc. where mature organic rich Shale exist.

Potential Shale Gas Basins

- Assam-Arakan
- Cambay
- Rajasthan
- Bengal
- Krishna-Godavari
- Cauvery
- Gondwana
- Vindhyan



Current Status of Shale gas:

An area of 72,027 sq. km. held under PSCs of Pre- New Exploration Licensing Policy (NELP)/NELP regime and 5269 sq. km area under CBM contracts has been opened up for simultaneous exploration and exploitation of conventional or unconventional hydrocarbons.

Benefits:

- This policy will enable the realization of prospective hydrocarbon reserves in the existing Contract Areas which otherwise would remain unexplored and unexploited.
- With this policy dispensation, new investment in Exploration and Production (E&P) activities and chances of finding new hydrocarbon discoveries and resultant increased domestic production thereof is expected.
- Exploration and exploitation of additional hydrocarbon resources is expected to spur new investment, impetus to economic activities, additional employment generation and thus benefitting various sections of society.
- This will lead to induction of new, innovative and cutting-edge technology and forging new technological collaboration to exploit unconventional hydrocarbons.

Background:

As per existing contractual regime of PSCs, existing Contractors are not allowed to explore and exploit CBM or other unconventional hydrocarbons in already allotted licensed/leased area.

Similarly, CBM Contractors are not allowed to exploit any other hydrocarbon except CBM.

With the approval of this policy, there will be complete shift from 'One hydrocarbon Resource Type' to 'Uniform Licensing Policy'.

Space Science related Issues:

Navigation Satellites:

Why in News?

IRNSS-1I spacecraft was successfully launched aboard PSLV-C41 on 12th April 2018.

The spacecraft was the replacement for IRNSS-1A and is providing intended navigation services.

However, IRNSS-1A continues to provide messaging services like disaster alerts and other societal applications.

About IRNSS

IRNSS is an independent regional navigation satellite system being developed by India.

It is designed to provide accurate position information service to users in India as well as the region extending up to 1500 km from its boundary, which is its primary service area.

Services Provided by IRNSS:

IRNSS will provide two types of services, namely, Standard Positioning Service (SPS) which is provided to all the users and Restricted Service (RS), which is an encrypted service provided only to the authorised users.

The IRNSS System is expected to provide a position accuracy of better than 20 m in the primary service area.

Some applications of IRNSS are:

- Terrestrial, Aerial and Marine Navigation
- Disaster Management
- Vehicle tracking and fleet management
- Integration with mobile phones
- Precise Timing
- Mapping and Geodetic data capture

- Terrestrial navigation aid for hikers and travellers
- Visual and voice navigation for drivers

How does it Work?

PROVIDES INDIA WITH ASSURED NAVIGATION SERVICE FOR VITAL CIVILIAN & MILITARY APPLICATIONS WITHOUT HAVING TO DEPEND ON ANOTHER COUNTRY; FIRST SATELLITE TO BE LAUNCHED ON JULY 1, 2013; REMAINING 6 BY 2015

IRNSS: INDIAN REGIONAL NAVIGATION SATELLITE SYSTEM

7 SATELLITES

3 GEOSTATIONARY
4 GEOSYNCHRONOUS

ORBIT ALTITUDE **36,000** KM

COST **₹ 1,420** CRORES

Covers India and up to **1,500** km beyond its borders

3 extremely accurate rubidium atomic clocks in each satellite

GPS receivers will not work; need special receivers (yet to be developed)

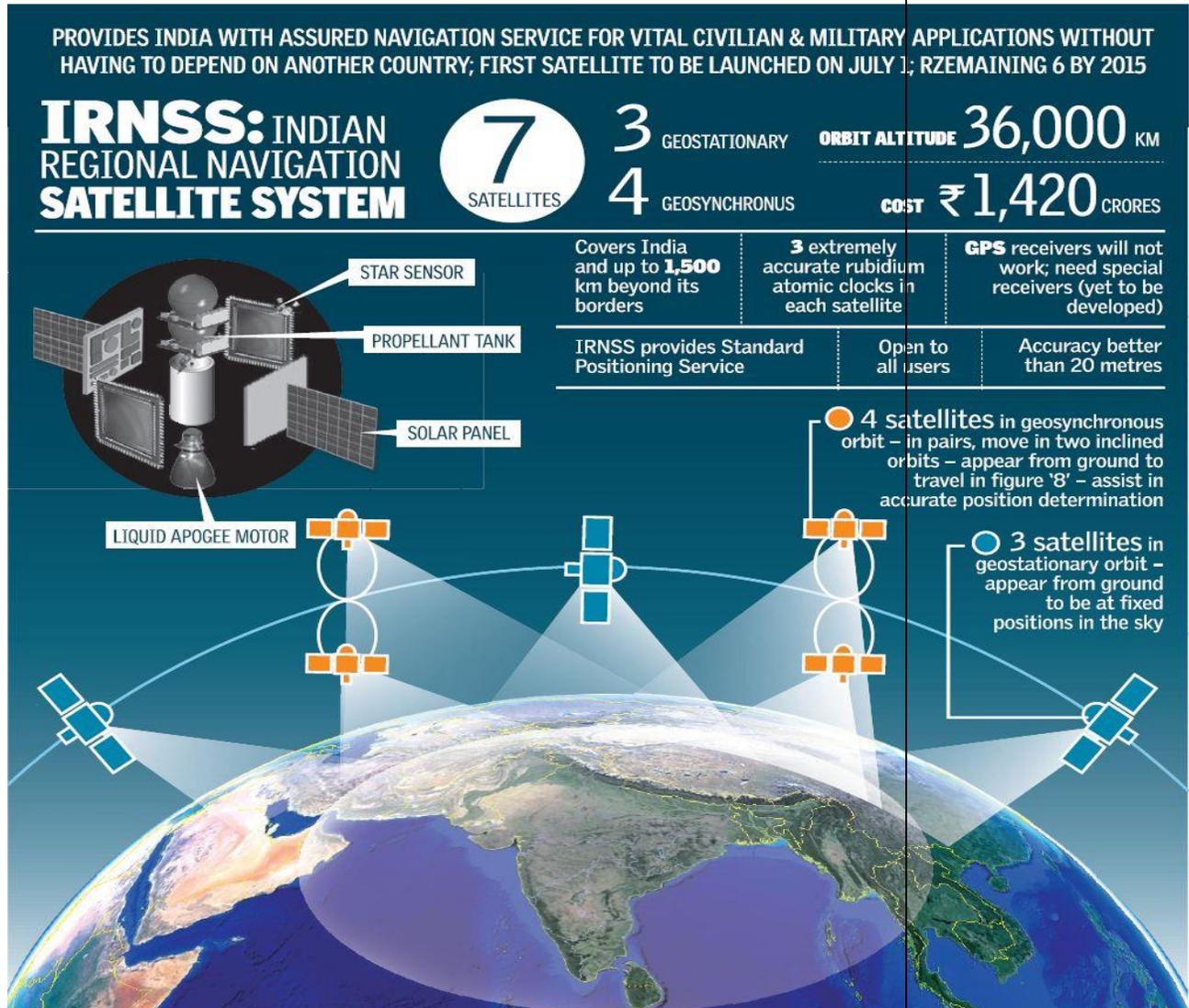
IRNSS provides Standard Positioning Service

Open to all users

Accuracy better than 20 metres

4 satellites in geosynchronous orbit – in pairs, move in two inclined orbits – appear from ground to travel in figure '8' – assist in accurate position determination

3 satellites in geostationary orbit – appear from ground to be at fixed positions in the sky



Viability of Nuclear Power Projects:

Context:

In the next three years, a capacity of 3300 MW is expected to be added by completion of three projects under construction viz.

- Kakrapar Atomic Power Project (KAPP) 3&4 (2X700 MW) at Kakrapar, Gujarat,
- Rajasthan Atomic Power Project RAPP 7&8 (2 X 700 MW) at Rawatbhata, Rajasthan and
- Prototype Fast Breeder Reactor (PFBR) (500 MW) at Kalpakkam, Tamil Nadu.

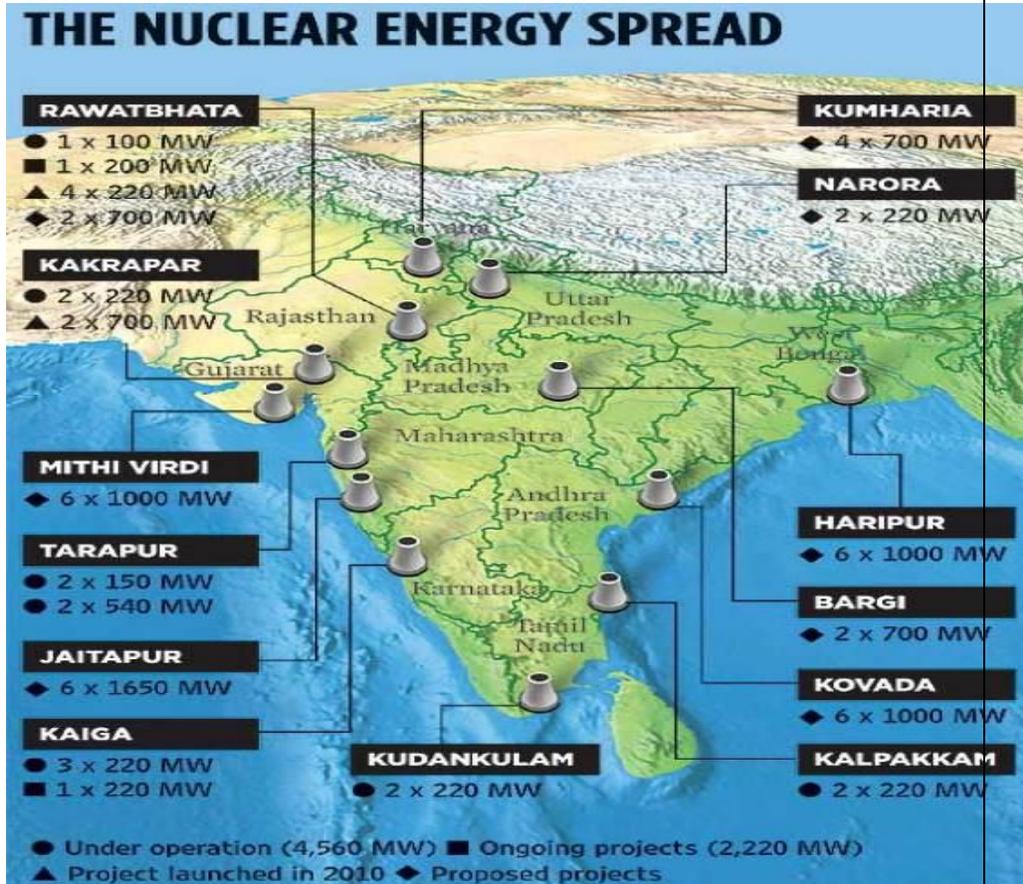
Issue with Viability::

The capital cost of nuclear power plants is higher than that of other base load electricity generating technologies.

- However, the energy (fuel) cost is much lower. Thus, the tariff of electricity generated by nuclear power plants is comparable to that of other contemporary base load technologies like coal and gas. Nuclear power projects are thus viable.
- Nuclear power is a clean, environment friendly technology available 24X7.
- It has huge potential and can ensure long term energy security of the country in a sustainable manner. It is thus being pursued along with other technologies.
- The effort to reduce capital cost of nuclear power projects is ongoing.
- Nuclear power is eco-friendly and does not emit greenhouse gases. The life cycle greenhouse gas emissions of nuclear power are comparable to those of renewable like wind power.
- There are no difficulties in setting up new nuclear power plants.

However, the pre-project activities like land acquisition at new sites, obtaining statutory environmental clearances, arriving at project proposals in respect of reactors to be set up with foreign cooperation etc. are long drawn and take time.

India's Nuclear Energy Spread:



SAATHI Initiative Launched

[Ministry of Textiles and Ministry of Power](#) have joined hands under the initiative SAATHI(Sustainable and Accelerated Adoption of efficient Textile technologies to Help Small Industries) in order to sustain and accelerate the adoption of energy efficient textile technologies in the powerloom sector and cost savings due to use of such technology.

About SAATHI Initiative:



The infographic features logos for 'myGov मेरी सरकार', 'वस्त्र मंत्रालय MINISTRY OF TEXTILES', and 'EESL'. It includes a portrait of Prime Minister Narendra Modi. The main title is 'RE-ENERGIZING TEXTILE SECTOR WITH SAATHI (SUSTAINABLE AND ACCELERATED ADOPTION OF EFFICIENT TEXTILE TECHNOLOGIES TO HELP SMALL INDUSTRIES)'. It lists five key points: 1. EESL provides powerloom equipment at no upfront cost. 2. Demonstration projects and workshops are organized in key clusters. 3. Results in energy and cost savings for unit owners. 4. Repayments to EESL are made from savings accrued from efficient equipment and cost savings. 5. Benefits of reduced capital cost are passed on to units, reducing repayment amounts. A footer note states '*EESL- Energy Efficiency Services Limited'.

Energy Efficiency Services Limited (EESL), a Public Sector entity under the administrative control of Ministry of Power, will replace old inefficient electric motors with energy efficient IE3 motors which will result in energy and cost saving up to 10-15% in the first phase.

The use of these efficient equipments will result in energy savings and cost savings to the unit owners at no upfront cost.

About EESL

- Energy Efficiency Services Limited (EESL) is an [energy service company](#) (ESCO) of the [Government of India](#) and is the world's largest public [ESCO](#).
- It is 100% government owned, a [joint venture](#) of state-owned [NTPC Limited](#), [Power Finance Corporation](#), [Rural Electrification Corporation](#) and [POWERGRID](#).

- EESL was formed under India's [Ministry of Power](#) to facilitate energy efficiency projects. Innovative business and implementation models can significantly reduce consumption and costs.

Integrate to Innovate Programme for energy Startups

Context:

Invest India has joined hands with energy sector companies to offer a unique lab-to-market opportunity for Indian startups through the Integrate to Innovate Programme.

About the Programme:

- Integrate to Innovate is a 3-month corporate acceleration programme for energy startups housed at the corporate premises
- The programme provides an opportunity for collaboration and conversation around valuable energy transitions, offering startups an opportunity to bring their ideas to life with the guidance and support from corporates.
- The selected startups will receive a cash prize grant of upto ₹ 5 Lakh per startup along with an opportunity to pilot their product with corporates. \
- The corporates would offer them access to technology, technical and commercial mentorship and access to potential customers through the corporate network of partners.

Environmental Issues

Plastics and GHG's

Plastic used in everyday objects from bottles to packaging emit [greenhouse gases](#) when exposed to sunlight, according to a study released on August 1, as global concern about its impact on the world's oceans grows.

About the Study:

Plastic pollution has come under increased scrutiny from environmentalists as the scale of the problem has become clear – this year it emerged that a giant island made up of plastic waste in the Pacific Ocean was far larger than thought.

Now scientists have discovered that commonly used plastics also generate the potent greenhouse gas methane as well as ethylene as they age, adding to the global tally of planet-warming emissions.

Implications of GHG's Emission:

Methane emissions, mainly caused by burning fossil fuels, are a major driver of [global warming](#), putting them in the crosshairs of the global fight against climate change.

More than nine billion tons of plastic has been produced since 1950 with most of it discarded in landfills or the environment, previous research has found.

Scientists have repeatedly linked exposure to some plastic chemicals, such as bisphenol A (BPA), to health risks.

Contributions of Indians in Science &Tech

Fields medal

Why in News?

Akshay Venkatesh, a renowned Indian-Australian mathematician, is one of four winners of mathematics' prestigious Fields medal, known as the Nobel prize for math.

New Delhi-born Venkatesh, 36, who is currently teaching at Stanford University, has won the Fields Medal for his profound contributions to an exceptionally broad range of subjects in mathematics.

What is fields Medal?

- The Fields medals are awarded every four years to the most promising mathematicians under the age of 40.
- The prize was inaugurated in 1932 at the request of Canadian mathematician John Charles Fields, who ran the 1924 Mathematics Congress in Toronto.
- Each winner receives a 15,000 Canadian-dollar cash prize. At least two, and preferably four people, are always honoured in the award ceremony.