General Studies-1

River Bhavani

Why in News?

Flood alert has been sounded to people living along River Bhavani banks in Mettupalayam taluk, Tamil Nadu.

About Bhavani river:

- Bhavani River, is a tributary of the River Cauvery originating from the South West Corner of the Nilgiri hills of the Western Ghats in Tamil Nadu. It drains Tamil Nadu, Kerala and Karnataka.
- It is the second longest river in Tamil Nadu. It enters kerala through Palakkad district. It passes through the Silent Valley National Park in Kerala.

Twelve major rivulets including West and East Varagar rivers join Bhavani draining the southern Nilgiri slopes

Swacch Iconic Places

Why in News?

Ten new iconic sites, namely, RaghavendraSwamy Temple (Kurnool, Andhra Pradesh); Hazardwari Palace (Murshidabad, West Bengal); Brahma Sarovar Temple (Kurukshetra, Haryana); VidurKuti (Bijnor, Uttar Pradesh); Mana village (Chamoli, Uttarakhand); Pangong Lake (Leh-Ladakh, J&K); Nagvasuki Temple (Allahabad, Uttar Pradesh); ImaKeithal/market (Imphal, Manipur); Sabarimala Temple (Kerala); and Kanvashram (Uttarakhand) have been taken up under Phase III of the flagship project Swachh Iconic Places (SIP) of the Swachh Bharat Mission.

About Swacch Iconic Places

The project envisioned by the Prime Minister is being coordinated by Ministry of Drinking Water and Sanitation with the support of State governments and local administration.

C.A From 11th June to 17th June 2018

SIP is a collaborative project with three other central Ministries: Ministry of Housing and Urban Affairs, M/o Culture, and M/o Tourism. It also involves local administrations in the concerned States and Public Sector and Private Companies as sponsoring partners.

Launched in 2016, the Phase I iconic places are: Ajmer Sharif Dargah, CST Mumbai ,Golden Temple, Kamakhya Temple, MaikarnikaGhat, Meenakshi Temple, Shri Mata Vaishno Devi, Shree Jagannath Temple, The Taj Mahal and Tirupati Temple.

Phase II of Swachh Iconic Places was launched in Nov 2017, and included Gangotri, Yamunotri, Mahakaleshwar Temple, Charminar, Convent and Church of St. Francis of Assissi, Kalady, Gommateswara, BaidyanathDham, Gaya Tirth and Somnath temple.

Phase I iconic sites have seen notable initiatives taken up like:

Improved sewage infrastructure, drainage facilities,

Installation of Sewage Treatment Plant (STP)& improved sanitation facilities,

Water vending machines (Water ATMs), Solid and Liquid Waste Management (SLWM) set-up, structure restoration, roads maintenance, lighting arrangements, beautification of parks, better transport facilities in approach and access areas besides at the main sites.

Global warming:

Why in News?

Antarctica has lost a staggering three trillion tonnes of ice since 1992, according to a landmark study published on Wednesday that suggests the frozen continent could redraw the earth's coastlines if global warming continues unchecked.

Details of Study:

Two-fifths of that ice loss occurred in the last five years, a three-fold increase in the pace at which Antarctica is shedding its kilometres-thick casing, a consortium of 84 scientists reported. .

The findings also highlight the existential threat facing low-lying coastal cities and communities home to hundreds of millions of people.

Up to now, scientists have struggled in determining whether Antarctica has accumulated more mass through snowfall than it loses in meltwater run-off and ice flows into the ocean.

But more than two decades of satellite data — the new findings draw from 24 separate space-based surveys — have finally yielded a more complete picture.

Covering twice the area of the continental U.S., Antarctica is blanketed by enough ice pack to lift global oceans by nearly 60 metres (210 feet).

More than 90% of that frozen water sits atop East Antarctica, which has remained mostly stable even as climate change has driven up earth's average surface temperature by a full degree Celsius.

West Antarctica, however, has proven far more vulnerable to global warming. Already floating, ice shelves breaking off into icebergs do not add to sea level.

But massive glaciers on West Antarctica slowly gliding seaward hold enough water to push oceans up by 3.5 metres (11 feet).

Two of these glaciers — Pine Island and Thwaites — have accelerated and are today seen as unstable. Together, they act as corks holding back ice mass further inland from falling into the ocean.

Nearly all of the mass shed over the last quarter century has come from West Antarctica, the study found.

Effect on Ocean:

Oceans are currently rising by 3.4 millimetres (0.13 inches) per year. Since 1993, the global ocean watermark has gone up by 84.8 mm (3.3 inches).

In another study published in the journal *Nature Communications* , scientists pointed out that loss of coral reefs due to spikes in water temperature could double the damage from coastal flooding, and triple the destruction caused by storm surges.

Mou between Sanchi Stupa of India and Pho Minh Pagoda of Viet Nam

C.A From 11th June to 17th June 2018

<u>Why in News?</u>

Cabinet approves MoU between India and Viet Nam on Joint issue of postage stamp. Joint Issue depicts Sanchi Stupa of India and Pho Minh Pagoda of Viet Nam.

About Sanchi Stupa:

- **_When was it built:_** Commissioned in 3rd century BCE, Expansion/ additions/restoration works/ made in different periods.
- **_Who built it:_** Commissioned by Emperor Ashoka of the Maurya Dynasty.
- **_Where is it located:_** Located 46 km north-east of Bhopal, the capital city of Madhya Pradesh, India.
- **_Architectural Style:_** Buddhist Art and Architecture.
- **_Other facts:_** It is a UNESCO World Heritage Site.

About Pho Minh Pagoda:

- The pagoda was originally built during the Ly Dynasty and later expanded in 1262 during the Tran Dynasty.
- It was a place for high-ranking mandarins and the aristocracy of the Tran Royal Court to worship and lead their religious life.

Par-Tapi-Narmada inter-state river link project

Gujarat government has expressed its inability to divert 434 MCM water for Maharashtra in Tapi basin as requested by Maharashtra as part of the Par-Tapi-Narmada inter-state river link project. The project has been mired in controversy for years now.

About Par-Tapi-Narmada inter-state river link project:

- The projects envisages transfer of surplus water of rivers in Maharashtra and south Gujarat to feed the command area of the Miyagam branch of Narmada canal. It will save water in Narmada dam, which will be taken to Saurashtra and Kutch.
- The project is aimed at diverting "surplus" water from parts of west flowing rivers like the Par, the Nar, the Ambika and the Auranga basins in Maharashtra.
- Besides providing irrigation benefits to the enroute command and Narmada command, the link will generate hydropower of the order of 93.00 Mkwh through the power houses installed at four dam sites viz. Jheri, Paikhed, Chasmandva and Chikkar and in two feeder canals taking off from Dabdar and Kelwan dams. The reservoirs will also provide flood relief to the people residing in downstream areas.
- The project of Par-Tapi-Narmada link generally falls in the state of Gujarat except Jheri reservoir which falls in Maharashtra state. Jheri dam is located in Nasik district of Maharashtra, while remaining dams viz. Mohankavchali, Paikhed, Chasmandva, Chikkar, Dabdar and Kelwan dams are located in Valsad and Dang districts of Gujarat.

General Studies-2

Open Data for Good Governance:

Open government data means publishing information collected by the government in its entirety, such as government budgets, spending records, health-care measures, climate records, and farming and agricultural produce statistics.

Usefulness in Governance:

One, such data collected by governments are for citizen welfare; hence they have an implicit right to benefit from the information.

Two, data sets such as government budget usage, welfare schemes and subsidies increase transparency and thereby build trust.

Third, and most important, it paves the way to develop technology-led innovations which can unlock massive economic value, thereby benefitting even the poorest of poor, the under-represented and the marginalised.

Economic Benefits:

Research by PwC in Australia estimated that open data can add an additional 1.5% to the country's GDP.

In the Indian context, this could conservatively translate to about $22 billion.

A case in point here is Transport for London, a public utility, which has digitised and shared only about 80 data sets, yet this has led to the creation of multiple technology applications for city transport and maps, unlocking estimated economic benefits and savings for the city to the tune of £130 million.

Steps taken By GoI:

The Ministry of Electronics and Information Technology has made some laudable efforts, including a policy around open data.

India currently houses more than 1.6 lakh data resources and has published over 4,015 application programme interfaces (APIs) from across 100-plus departments.

As a result, India's global ranking by the Global Open Data Barometer has jumped.

Way forward:

The first step is to ensure completeness of data stacks opened for use either through machine-readable formats or direct APIs.

Completeness would imply a data set. For example, soil data cards will have data on all relevant aspects as well as current emerging technologies such as Blockchain and the Internet of Things to provide the opportunity to automate data collection.

Clustering of relevant data sets and APIs would be the next step. This would mean combining data sets which can lead to the creation of applications such as farm insurance from weather, soil and crop cycle/sale data. Therefore, technology developers have a road map of "innovations in focus" for national development.

Thenext step is building anchor cases or use-cases to encourage data usage. A case in point is Aadhaar/identity data which has seen exponential growth (post identification in e-KYC). eg. an Aadhaar-enabled payment system, and direct benefit transfers among others which are clearly pushing the "financial inclusion" drive.

The final step would be setting up a comprehensive governance framework which includes an open data council with cross-sector representation to monitor, regulate and build usage after proportionate oversight.

Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM)

Why in News?

The Union Minister of Rural Development, Panchayati Raj and Mines, Shri Narendra Singh Tomar will confer the National Awards on Best Performing Self Help Groups under Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM) .

The National Awards to the Self-Help Groups (SHGs) are intended to provide public recognition to the outstanding performance of the community institutions and incorporate a sense of pride among the poor community members.

Conferring awards to best performing SHG and Village Organizations was initiated by DAY-NRLM in 2016-17.

The DAY-NRLM awards are conferred on the Best Performing Community Based Organizations (Self Help Groups and Village Organizations) after screening the nominations received from the SRLMs.

The selection process adopted is that the SHGs are first assessed for their performance on several indicators such as Institution Building-Capacity Building, Financial Inclusion, Livelihoods, Convergence etc. and then nominated by the respective SRLMs for receiving awards.

The National Unit of DAY-NRLM then screens the applications thus received and finalizes the awardee list.

Advantages of awards:

The Awards have motivated the State Missions across the country to perform better and it has also brought the programme to the attention to the senior officers in the states.

The financial resources leveraged by the Self Help Group members has enabled them to undertake a large ensemble of livelihood activities such as agriculture and allied activities, sheep and goat rearing, horticulture, running of local means of transportation, rearing of milch animals, irrigation development through bore wells, carpentry etc.

About SHG's:

The SHGs are a perfect example of how livelihoods of households can transform through a collective approach, managed in line with core democratic and financial principles.

The SHG has contributed to several community level activities for the common good.

These include awareness promotion for constructing household toilets using SBM funds, environmental sanitation, liquid waste management and support for maintenance of village commons.

The members are conscious of their social responsibilities and have undertaken several collective activities including campaign against child labour, illicit distillation and child marriages etc. SHG has demonstrated strong features of a progressive community based institution.

Swachh Bharat Mission

Why in News?

Under the Swachh Bharat Mission, the largest behavior change programme in the world, the rural sanitation coverage of India has now risen to 85%. Through mobilization of rural communities, 7.4 crore toilets have been built across rural India, and as an outcome, over 3.8 lakh villages and 391 districts have been declared Open Defecation Free (ODF).

This is significant because, under the Swachh Bharat Mission (Grameen), sanitation coverage has increased to more than double the coverage at the time of the launch of the Mission.

Analysis of survey:

A recent survey conducted by an Independent Verification Agency across 90,000 households in over 6000 villages has found the usage of toilets in rural India to be 93.4%.

Two independent surveys conducted in the past by the Quality Council of India in 2017, and National Sample Survey Organization in 2016, have pegged the usage of these toilets at 91% and 95% respectively.

This success has been achieved due to the difference in approach to sanitation adopted by the Swachh Bharat Mission in comparison to previous sanitation programmes in the country.

About SBM:

The Swachh Bharat Mission is the first sanitation programme in the country to measure outcomes (ODF) instead of output (toilets) alone.

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The SBM's emphasis on behavior change in rural sanitation at the grassroots also leads to rigorous verification and sustainability of the benefits accrued to rural communities under the progress made.

The SBM is a people's movement, a true *jan andolan*, and it is this people's participation that has led to the success being witnessed under the Mission.

The Mission is on track to achieve an ODF India by October 2019.

Objectives:

- To bring about an improvement in the general quality of life in the rural areas, by promoting cleanliness, hygiene and eliminating open defecation.
- To accelerate sanitation coverage in rural areas to achieve the vision of Swachh Bharat by 2nd October 2019.
- To motivate communities to adopt sustainable sanitation practices and facilities through awareness creation and health education.
- To encourage cost effective and appropriate technologies for ecologically safe and sustainable sanitation.
- To develop, wherever required, community managed sanitation systems focusing on scientific Solid & Liquid Waste Management systems for overall cleanliness in the rural areas.
- To create significant positive impact on gender and promote social inclusion by improving sanitation especially in marginalized communities.

Pradhan Mantri Matritva Vandana Yojana

Why in News?

After initial hiccups in implementing the maternity benefit programme Pradhan Mantri Matru Vandana Yojana (PMMVY), the government has finally made some headway and provided cash incentives to nearly 23.6 lakh beneficiaries out of an estimated 51.6 lakh a year.

About PMMVY:

Pradhan Mantri Matritva Vandana Yojana (PMMVY), previously Indira Gandhi Matritva Sahyog Yojana (IGMSY), is a maternity benefit program run by the government of **India**.

It was introduced in 2010 and is implemented by the [Ministry of Women and Child Development](#).

It is a [conditional cash transfer](#) scheme for pregnant and lactating women of 19 years of age or above for first live birth.

It provides a partial wage compensation to women for wage-loss during childbirth and childcare and to provide conditions for safe delivery and good nutrition and feeding practices. In 2013, the scheme was brought under the [National Food Security Act, 2013](#) to implement the provision of cash maternity benefit of ₹6,000 (US$89) stated in the Act.

Presently, the scheme is implemented on a pilot basis in 53 selected districts and proposals are under consideration to scale it up to 200 additional 'high burden districts' in 2015-16.

Significance:

The announcement assumes significance as India accounts for 17% of all maternal deaths in the world.

The country's maternal mortality rate is pegged at 167 per 100,000 live births, whereas infant mortality is estimated at 43 per 1,000 live births.

Among the primary causes of high maternal and infant mortality are poor nutrition and inadequate medical care during pregnancy and childbirth.

Objectives:

- Promoting appropriate practice, care and institutional service utilization during pregnancy, delivery and lactation
- Encouraging the women to follow (optimal) nutrition and feeding practices, including early and [Exclusive breastfeeding](#) for the first six months; and
- Providing cash incentives for improved health and nutrition to pregnant and lactating mothers

Smart India Hackathon:

C.A From 11th June to 17th June 2018

The Ministry of HRD along with AICTE, Persistent Systems, i4C and IIT Kharagpur is all set to host the Grand Finale of Smart India Hackathon 2018 – Hardware edition from Jun 18-22, 2018.

Smart India Hackathon 2018 is in line with the 'Make in India' initiative of the Prime Minister Shri Narendra Modi and is proving to be an important vehicle for scouting new ideas and help them convert them into products and businesses.

SIH2018 – Hardware edition is the first of its kind innovative initiative by Ministry of HRD to provide national platform to young technical minds of India to showcase their disruptive innovations and creative products which can bring out revolutionary changes in crucial sectors like agriculture, health, clean water, waste management, automotive, smart communication, and education. The Hardware edition is the sub-edition of SIH2018.

Grand Finale of the Hardware Hackathon will be a 5 days event and will take place simultaneously at 10 prestigious institutions (Nodal centers) across India

- IIT Kanpur (Drones theme), IIT Kharagpur (Agriculture theme), IIT Guwahati (Rural Technology theme), CEERI Pilani (Smart Communication theme), CSIO Chandigarh (Healthcare theme), IISc Bengaluru (Smart Vehicles theme), IIT Roorkee (Clean water theme), NIT Trichy (Waste Management theme), COEP Pune (Security theme), and Forge Coimbatore (Import Substitution theme).

Rail Madad – An App to expedite & streamline passenger grievance redressal.

In line with digital initiatives of Hon'ble PM, Indian Railways has for the first time completely digitized the Complaint management system. Shri Piyush Goyal, Minister of Railways & Coal today launched a new App "Rail Madad" – An App to expedite & streamline passenger grievance redressal.

It relays real time feedback to passengers on the status of redressal of their complaints- the passenger gets an instant ID through SMS on registration of complaint followed by a customized SMS communicating the action taken thereon by Railway.

How does It Work?

RPGRAMS integrates all the passenger complaints received from multiple modes (14 offline/online modes currently) on a single platform, analyzes them holistically and

generates various types of management reports which enable the top management to continuously monitor the pace of grievance redressal as well as evaluate the performance of field units/ trains/ stations on various parameters viz cleanliness, catering, amenities etc.

It also identifies weak/deficient areas and laggard trains/stations for undertaking focussed corrective actions.

Salient features of Rail Madad application are-

❖ Rail **MADAD (M**obile **A**pplication for **D**esired **A**ssistance **D**uring travel**)** registers a complaint with minimum inputs from passenger(option of photo also available), issues unique ID instantly and relays the complaint online to relevant field officials for immediate action. The action taken on complaint is also relayed to passenger through SMS, thus fast tracking the entire process of redressal of complaints through digitisation.

❖ Rail **MADAD** also displays various helpline numbers (e.g., Security, Child helpline etc) and provides direct calling facility for immediate assistance in one easy step

❖ All modes of filing complaints including offline and online modes are being integrated on a single platform, therefore the resultant management reports present a holistic picture of weak/deficient areas and enable focused corrective action by officials concerned.

❖ The data analysis would also generate trends on various performance parameters of a selected train/station like cleanliness, amenities etc thus making managerial decision more precise and effective.

❖ Hierarchy based dashboard/reports will be available for management at Division /Zonal/Railway board level and sent through auto email to every concerned officer weekly

Atal Innovation Mission

Why in News?

NITI Aayog's Atal Innovation Mission (AIM) has selected 3,000 additional schools for the establishment of Atal Tinkering Labs (ATLs), bringing the total number of ATL schools to 5,441.

The selected schools shall receive a grant of Rs 20 lakh spread over the next five years to establish Atal Tinkering Labs for nurturing innovation and entrepreneurial spirit among secondary school children across India.

ATLs will soon be established in every district of India, seeking to enable an innovation ecosystem, which will facilitate transformational change in technological innovation and pedagogy.

These additional schools will facilitate the creation of over One Million Neoteric Child Innovators by 2020.

ATLs will function as innovation hubs for these student innovators to explore solutions to unique local problems which they come across in their everyday lives.

About Atal Innovation Mission of NITI Aayog

The Atal Innovation Mission (AIM) is the Government of India's flagship initiative to promote a culture of innovation and entrepreneurship in the country.

AIM is mandated to create an umbrella structure to oversee innovation ecosystem of the country and revolutionizing the innovation eco-system - touching upon the entire innovation life cycle through various programs.

The Atal Tinkering Laboratories (ATLs) create innovators, Atal Incubation Centres and support to Established Incubation Centreensure that innovations are taken to the market and help create enterprises around these innovations.

US-N.Korea Summit:

The historic summit between U.S. President Donald Trump and North Korean leader Kim Jong-un in Singapore is an affirmation of the power of diplomacy.

Until a few months ago, the two countries had been trading nuclear threats, as the North raced along with its nuclear weapons programme.

Outcomes of summit:

In the brief joint statement after their meeting, Mr. Kim iterated his "firm and unwavering commitment to complete denuclearisation" of the Korean Peninsula, while Mr. Trump offered security guarantees to the North.

Mr. Kim had earlier promised to denuclearise the peninsula in return for security assurances, while Mr. Trump had promised that the North would be welcomed into the international community as a respectable member and be allowed to prosper economically.

The two leaders have put these demands and promises into a document that could guide future diplomatic engagement.

Mr. Trump also announced that he would end the regular American "war games" with South Korea, a concession to the North.

The joint statement provided few specifics on how denuclearisation can take place or how North Korea's steps to dismantle its arsenal will be monitored. There are no deadlines mentioned.

There is no reference to China, North Korea's only ally. There has been no word on whether the two will establish formal diplomatic ties.

Besides, being unpredictable and impulsive, Mr. Trump and Mr. Kim must also stare down hardline elements in their respective administrations. This bold beginning must not be wasted.

India-central asia

India joined the Shanghai Cooperation Organisation (SCO) as a full-fledged member for the first time at the Qingdao summit this month, a development that may over time influence Central Asian geopolitics.

Background:

The historical rivalry between the British Empire in the Indian subcontinent and Tsarist Russia in the 19th and early 20th centuries, known as the Great Game, was a clash of imperial ambitions between two great powers, in which the territory of Afghanistan helped minimise the risk of direct confrontation between them.

In the early and mid-19th century, British officials of the East India Company feared that the advance of Tsarist Russia into the Khanates of Central Asia might prove detrimental to British interests in the Indian subcontinent.

The officials were worried that if the Russians crossed Afghanistan, it would be easier for them to cross over the plains of Punjab and advance deep into the territories of northern India.

Today's Status of Central Asia:

This logic applies equally to what has come to be known as the "New Great Game", or the modern geopolitics in Central Asia since the 1991 break-up of the Soviet Union, characterised by competition among the U.S., the U.K. and other NATO member states on the one hand, and Russia, China and other states of the SCO on the other.

Central Asia has historically witnessed tussles over access to the region's rich natural resources, because preferential access to these resources better enable energy-hungry global powers to meet their domestic demand.

Built around this immense imperative for natural resources, the New Great Game is manifested in efforts to expand regional connectivity, with links through trade, commerce, energy, ideology, ethnicity and even terrorism.

The New Great Game became more entrenched after the 9/11 attacks in the U.S., with Washington getting deeply enmeshed in the region.

India's Stake in the region:

India's engagement with the region has also become active, with the Ministry of External Affairs making it clear that it considers the Central Asian region to be India's "extended neighbourhood."

India and Central Asia have enjoyed shared cultural linkages for around 2,000 years. From the Kushan Empire in ancient India to the Mughal Empire later, the connectivity between the two regions has always been considerable.

When India got independence and parts of modern-day Central Asia were within the USSR rubric, India was one of the few countries that managed to maintain its access to this region.

Today, projects such as the Chabahar port and the International North-South Transport Corridor have increased India's involvement and stakes in the region's stability.

Conclusion:

India's admission to the SCO was a step towards its more holistic engagement with the region.Given the multipolar competition for Central Asia's resource bounty, India would do well to tread lightly, yet manoeuvre to protect its interests.

National Dam Safety Bill, 2018

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved the proposal for introduction of Dam Safety Bill, 2018 in the Parliament.

Benefits:

It will help all the States and Union Territories of India to adopt uniform dam safety procedures which shall ensure safety of dams and safeguard benefits from such dams. This shall also help in safeguarding human life, livestock and property.

The draft Bill has been finalised after wide consultation with leading Indian experts and international experts.

Details:

- The Bill provides for proper surveillance, inspection, operation and maintenance of all specified dams in the country to ensure their safe functioning.
- The Bill provides for constitution of a National Committee on Dam Safety which shall evolve dam safety policies and recommend necessary regulations as may be required for the purpose.
- The Bill provides for establishment of National Dam Safety Authority as a regulatory body which shall discharge functions to implement the policy, guidelines and standards for dam safety in the country.
- The Bill provides for constitution of a State Committee on Dam Safety by State Government.

National Dam Safety Authority

- It shall maintain liaison with the State Dam Safety Organisations and the owners of dams for standardisation of dam safety related data and practices;

- It shall provide the technical and managerial assistance to the States and State Dam Safety Organisations;
- It shall maintain a national level data-base of all dams in the country and the records of major dam failures;
- It shall examine the cause of any major dam failure;
- It shall publish and update the standard guidelines and check-lists for the routine inspection and detailed investigations of dams and appurtenances;
- It shall accord recognition or accreditations to the organisations that can be entrusted with the works of investigation, design or construction of new dams;
- It will also look into unresolved points of issue between the State Dam Safety Organisation of two states, or between the State Dam Safety Organisation of a State and the owner of a dam in that State, for proper solution;
- Further, in certain cases, such as dams of one State falling under the territory of another State, the National Authority shall also perform the role of State Dam Safety Organization thereby eliminating potential causes for inter-state conflicts.

State Committee on Dam Safety

It will ensure proper surveillance, inspection, operation and maintenance of all specified dams in that State and ensure their safe functioning. It further provides that every State shall establish a "State Dam Safety Organisation", which will be manned by officers from the field dam safety preferably from the areas of dam-designs, hydro-mechanical engineering, hydrology, geo-technical investigation, instrumentation and dam-rehabilitation.

Background:

There are over 5200 large dams in India and about 450 are under construction. Plus there are thousands of medium and small dams. Due to lack of legal and institutional architecture for dam safety in India, dam safety is an issue of concern. Unsafe dams are a hazard and dam break may cause disasters, leading to huge loss of life and property.

The Dam Safety Bill, 2018 address all issues concerning dam safety including regular inspection of dams, Emergency Action Plan, comprehensive dam safety review, adequate repair and maintenance funds for dam safety, Instrumentation and Safety

Manuals. It lays onus of dam safety on the dam owner and provides for penal provisions for commission and omission of certain acts.

Polio Experts commend India for maintaining polio-free status

The experts commended the strong leadership of the Government of India, as well as the ownership of the state governments to for maintaining polio-free status for more than seven years andensuring that every child is vaccinated against the disease.

Observations made:

The last case of polio in India was reported in January 2011.

The programme has ensured adequate protection of children through both mass polio vaccination campaigns and childhood immunization.

There are two types of polio vaccine - oral polio vaccine and injectable polio vaccine, which are both used in India to provide enhanced protection.

Dr. Michel Zaffran – Head of Polio Eradication, WHO stated that globally the world is closer to polio eradication than ever before.

Eleven cases have been registered in 2018 in only two countries – Afghanistan and Pakistan.

"The experts appreciate the example that India sets for the rest of the world. By eliminating polio in India, the country has demonstrated that global polio eradication is feasible and within reach," he added.

Community participation remains an integral part of polio vaccination efforts in the country.

The expert group noted that more than 23 lakh vaccinators are mobilized to support every polio mass campaign during which 17 crores children get the oral polio drops.

About Polio:

Poliomyelitis, often called **polio** or **infantile paralysis**, is an infectious disease caused by the poliovirus.

In about 0.5 percent of cases there is muscle weakness resulting in an inability to move.

This can occur over a few hours to a few days.

Poliovirus is usually spread from person to person through infected fecal matter entering the mouth.

It may also be spread by food or water containing human feces and less

commonly from infected saliva.

Those who are infected may spread the disease for up to six weeks even if no symptoms are present.

The disease may be diagnosed by finding the virus in the feces or detecting antibodies against it in the blood.

The disease only occurs naturally in humans

The disease is preventable with the polio vaccine; however, multiple doses are required for it to be effective

E-Governance related developments:

Cashless Ticketing through 'Utsonmobile' app developed by CRIS

Continuing towards digitalization and moving towards becoming a cashless economy, the initiative of faster and more techno-advanced transactions in Indian Railways is being taken up, the Centre for Railway Information System (CRIS) has developed a mobile based application 'utsonmobile'. This application has the following features:

1. The 'utsonmobile' application enables booking and cancellation of unreserved tickets, issue and renewal of season and platform tickets, check and load R-wallet balance and helps maintain user profile management and booking history.

2. The 'utsonmobile' application is very handy, free and is available for both Android and Windows smart phone. Users can download this app from Google Play Store or Windows store free of cost.

3. Upon successful registration, Railway Wallet (R-Wallet) will be created automatically with zero balance to the passenger. There will be no extra cost for creating R-Wallet.

Ayushman bharat Scheme

Why in News?

Shri J P Nadda, Union Minister of Health and Family Welfare exchanged the Memorandum of Understanding with the State Health Ministers of 20 States marking their commitment towards the launch of the Ayushman Bharat – National Health Protection Mission (AB-NHPM) at a Health Ministers conclave, here today.

About Ayushman bharat:

Ayushman Bharat -National Health Protection Mission (AB-NHPM) has the benefit cover of Rs. 5 lakh per family per year.

The target beneficiaries of the proposed scheme will be more than 10 crore families belonging to poor and vulnerable population based on SECC database.

AB-NHPM will subsume the on-going centrally sponsored schemes - RashtriyaSwasthyaBimaYojana (RSBY) and the Senior Citizen Health Insurance Scheme (SCHIS),

Salient Features:

AB-NHPM will have a defined benefit cover of Rs. 5 lakh per family per year.

1. Benefits of the scheme are portable across the country and a beneficiary covered under the scheme will be allowed to take cashless benefits from any public/private empanelled hospitals across the country.
2. AB-NHPM will be an entitlement based scheme with entitlement decided on the basis of deprivation criteria in the SECC database,
3. The beneficiaries can avail benefits in both public and empanelled private facilities.

One of the core principles of AB-NHPM is to co-operative federalism and flexibility to states.

Implementation Strategy:

At the national level to manage, an Ayushman Bharat National Health Protection Mission Agency (AB-NHPMA) would be put in place.

States/ UTs would be advised to implement the scheme by a dedicated entity called State Health Agency (SHA). They can either use an existing Trust/ Society/ Not for Profit Company/ State Nodal Agency (SNA) or set up a new entity to implement the scheme. States/ UTs can decide to implement the scheme through an insurance company or directly through the Trust/ Society or use an integrated model.

Major Impact:

In-patient hospitalization expenditure in India has increased nearly 300% during last ten years. (NSSO 2015).

More than 80% of the expenditure are met by out of pocket (OOP). Rural households primarily depended on their 'household income / savings' (68%) and on 'borrowings' (25%), the urban households relied much more on their 'income / saving' (75%) for financing expenditure on hospitalizations, and on '(18%) borrowings. (NSSO 2015). Out of pocket (OOP) expenditure in India is over 60% which leads to nearly 6 million families getting into poverty due to catastrophic health expenditures.

AB-NHPM will have major impact on **reduction of Out Of Pocket (OOP) expenditure** on ground of:

1. i) Increased benefit cover to nearly 40% of the population, (the poorest&the vulnerable)
2. ii) Covering almost all secondary and many tertiary hospitalizations. (except a negative list)

iii)   Coverage of 5 lakh for each family, (no restriction of family size)

This will lead to **increased access to quality health and medication**.

In addition, **the unmet needs** of the population which remained hidden due to lack of financial resources will be catered to.

This will lead to **timely treatments, improvements in health outcomes, patient satisfaction, improvement in productivity and efficiency, job creation thus leading to improvement in quality of life.**

Animal Welfare Board

The Animal Welfare Board (AWBI) was established in 1962 under Section 4 of the Prevention of Cruelty to Animals Act, 1960.

The Board ensures implementation of the animal welfare laws in the country in a very diligent manner and provides grants to Animal Welfare Organizations and advice the Centre, States and UTs on animal welfare issues.

As per the Act, the Board comprises of of 28 Members including 6 MPs (4 from Lok Sabhas and 2 from Rajya Sabha).

"The Board mandate is to prevent cruelty, suffering and pain to all creatures except human beings that is why our slogan is to protect 'ants to elephants".

AWBI MAJOR INITIATIVES

GOCHAR / GRAZING LAND: The most important concern before the Board is the depletion of Gochar / grazing lands for want of which animal sufferings are maximum as they have neither feed , nor fodder including basic necessities.

STATE ANIMAL WELFARE BOARD (SAWB) / DISTRICT SOCIETY FOR PREVENTION OF CRUELTY TO ANIMALS (DSPCA) : AWBI has its no network up to the grass root level to prevent cruelty and protection and welfare of Animals.

STRAY ANIMALS : The problem of stray animals especially cows, dogs, cats and monkeys have become rampant in all parts of the country whether it is rural, urban or semi-urban. Therefore, priority would be given to such helpless animals with adequate shelter, feed and water.

SETTING OF ANIMAL SHELTERS / ANIMALS HOSTELS IN SMART / METRO CITIES

To effectively implementation of the above programs and enforcement of supreme court guidelines, the Board has launched a programme to meet the Chief Ministers of every States / UTs along with concerned ministers and officers. The Chairman along with other members of the Board has already met the Chief Ministers of Uttar Pradesh, Gujarat and Uttarakhand and the results of these meetings are very fruitful and these States have already starting taking adequate steps for prevention of cruelty to animal**s.**

Composite Water Management Index (CWMI)

Why in News?

In pursuit of cooperative and competitive federalism, NITI Aayog has been laying emphasis on developing indicators on various social sectors. In February 2018, NITI Aayog had released a report on "Healthy States, Progressive India" which covered the ranking of States/ UTs in various health parameters.

As a step further in direction and keeping in view the criticality of water for life, NITI Aayog has prepared a report on Composite Water Management Index (CWMI).

About CWMI:

CWMI has been developed by NITI Aayog comprising 9 broad sectors with 28 different indicators covering various aspects of ground water, restoration of water bodies, irrigation, farm practices, drinking water, policy and governance.

The CWMI is an important tool to assess and improve the performance of States/ Union Territories in efficient management of water resources.

This has been done through a first of its kind water data collection exercise in partnership with Ministry of Water Resources, Ministry of Drinking Water & Sanitation and all the States/ Union Territories.

The index would provide useful information for the States and also for the concerned Central Ministries/Departments enabling them to formulate and implement suitable strategies for better management of water resources.

Simultaneously a web portal on the subject has also been launched.

Observations of Index:

The report released today ranks Gujarat as number one in the reference year (2016-17), followed by Madhya Pradesh, Andhra Pradesh, Karnataka and Maharashtra.

In North Eastern and Himalayan States, Tripura has been adjudged number 1 in 2016-17 followed by Himachal Pradesh, Sikkim and Assam.

In terms of incremental change in index (over 2015-16 level), Rajasthan holds number one position in general States and Tripura ranks at first position amongst North Eastern and Himalayan States.

NITI Aayog proposes to publish these ranks on an annual basis in future.

Swajal Scheme

Why in News?

The government recently launched Swajal schemes in 115 aspirational districts of the country. It will involve an outlay of Rs 700 crores through flexible-funds under the existing National Rural Drinking Water Programme (NRDWP) budget.

About Swajal?

- Swajal is a community owned drinking water programme for sustained drinking water supply.
- Under the scheme, 90% of the project cost will be taken care by the Government and the remaining 10% of the project cost will be contributed by the community. The Operations and management of the project will be taken care by the local villagers.

About NRDWP:

The NRDWP was started in 2009, with a major emphasis on ensuring sustainability (source) of water availability in terms of potability, adequacy, convenience, affordability and equity. NRDWP is a Centrally Sponsored Scheme with 50: 50 fund sharing between the Centre and the States

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General Studies-3

Bad Banks:

Union Minister Piyush Goyal, currently in charge of the Finance Ministry, has announced the formation of a committee to assess the idea of special asset reconstruction companies or asset management companies to take over bad loans from banks.

Background:

Chief Economic Adviser Arvind Subramanian had suggested the creation of a Public Sector Asset Rehabilitation Agency (PARA) to deal with what he described as India's "festering twin balance sheet problem".

Benefits:

A professionally-run PARA, or the so-called 'bad bank', could assume custody of the largest and most difficult-to-resolve NPAs from lenders' balance sheets.

This would allow banks to focus on extending fresh credit and supporting the pick-up in growth.

More importantly, a bad bank taking tough decisions on borrowers-gone-bad, it was argued, could free bankers from the risks entailed in large loan write-downs.

Challenges:

It would be very time-consuming and there would be challenges on its ownership structure as well as the pricing of bad loans taken over from banks.

In any case, going by the experience of private asset reconstruction companies, a PARA by itself would not be able to deploy dramatically different tools to extract better value from underlying assets and would, at best, amount to window-dressing bank books to attract investors.

As former RBI Governor Raghuram Rajan had pointed out, a government-owned bad bank could still face scrutiny from the Comptroller and Auditor General and the Central Vigilance Commissioner.

Way Forward:

Whether or not the knots in the bad bank idea are sorted out, the government should focus on other reforms as well.

One, amend the Prevention of Corruption Act to shield bankers and officers from investigative witch-hunts.

Two, back bankers to take demonstrable action against wilful defaulters.

And three, take a hard look at what ails the Insolvency and Bankruptcy Code.

CSIR lab to give technology for India's first indigenous Lithium Ion Battery project

Central Electro Chemical Research Institute (CECRI), Karaikudi, Tamil Nadu under Council of Scientific & Industrial Research (CSIR) and RAASI Solar Power Pvt Ltd have

signed a Memorandum of Agreement for transfer of technology for India's first Lithium Ion (Li-ion) Battery project.

CSIR-CECRI has set up a demo facility in Chennai to manufacture prototype Lithium-Ion cells.

It has secured global IPRs with potential to enable cost reduction, coupled with appropriate supply chain and manufacturing technology for mass production.

Currently, Indian manufacturers source Lithium Ion Battery from China, Japan and South Korea among some other countries. India is one of the largest importers and in 2017, it imported nearly 150 Million US Dollar worth Li-Ion batteries.

Benefits of Li-Ion Batteries:

It will give tremendous boost to two flagship programmes of Prime Minister Narendra Modi – increasing the share of Clean Energy in the energy basket by generating 175 Giga Watts by 2022, of which 100 Giga Watts will be Solar and the second, National Electric Mobility Mission, to switch completely to electric vehicles by 2030."

The project is in tune with Prime Minister's vision of "Make in India", to turn India into a manufacturing hub and to cut down outflow of foreign exchange.

Li-Ion batteries have applications in Energy Storage System – from hearing aid to container sized batteries to power a cluster of villages, Electric Vehicles (2-wheeler, 3-wheeler, 4-wheeler and Bus), portable electronic sector, Grid Storage, Telecom and Telecommunication Towers, Medical Devices, Household and Office Power Back (UPS), Powering Robots in Processing Industry.

Lithium-ion batteries can power any electrical application without the need of physical wires-means wireless.

Artificial Intelligence:

Why in News?

The NITI Aayog has published an ambitious discussion paper on kickstarting the artificial intelligence (AI) ecosystem in India.

About AI Ecosystem:

AI is the use of computers to mimic human cognitive processes for decision-making.

The paper talks of powering five sectors — agriculture, education, health care, smart cities/infrastructure and transport — with AI.

It highlights the potential for India to become an AI 'garage', or solutions provider, for 40% of the world.

Need of hour?

To pull this off, India would have to develop AI tools for a range of applications: reading cancer pathology reports, rerouting traffic in smart cities, telling farmers where to store their produce, and picking students at high risk of dropping out from school, among them.

The U.S., Japan and China have published their AI strategy documents and, importantly, put their money where their aspirations are.

China, for example, plans to hand out a million dollars in subsidies to AI firms, as well as to run a five-year university programme for 500 teachers and 5,000 students.

The NITI Aayog does not talk about how India's ambitions will be funded, but proposes an institutional structure to get things going.

This structure includes a network of basic and applied research institutions, and a CERN-like multinational laboratory that would focus on global AI challenges.

Benefits for India:

India, with its acute shortage of specialist doctors in rural areas, could benefit greatly from such a tool.

Challenges:

These are lofty goals, but they beg the question: can India bring it to pass? In answer, the NITI Aayog offers a sombre note of caution.

India hardly has any AI expertise today.

The paper estimates that it has around 50 top-notch AI researchers, concentrated in elite institutions like the IITs.

Further, only around 4% of Indian AI professionals are trained in emerging technologies such as deep learning.

And while India does publish a lot, these publications aren't very impactful;

India's H-index, a measure of how often its papers are cited, is behind 18 other countries. This is not encouraging, considering that returns on AI are not guaranteed.

The technology has tripped up as often as it has delivered. Among successes, a recent study found that a Google neural network correctly identified cancerous skin lesions more often than expert dermatologists did.

On the other hand, studies have found that AI image-recognition technologies do badly at identifying some races, because the data used to train them over-represent other races.

This highlights the importance of quality data in building smart AI tools; India lacks this in sectors such as agriculture and health.

Where data exist, this is poorly annotated, making it unusable by AI systems.

Conclusion:

Despite these formidable challenges, the scope of NITI Aayog's paper must be lauded.

The trick will be to follow it up with action, which will demand a strong buy-in from policymakers and substantial funds.

The coming years will show if the country can manage this.

Neutrino Observatory:

Why in News?

Researchers in Germany have started collecting data with a 60 million euro ($71 million) machine designed to help determine the mass of the universe's lightest particle.

Physicists, engineers and technicians at the Karlsruhe Institute of Technology hope the 200-metric tonne device will narrow down or even pinpoint the actual mass of neutrinos.

Those are sometimes called "ghost particles" because they're so difficult to detect.

Scientists with the Karlsruhe Tritium Neutrino experiment, or KATRIN, said on Monday they'll be taking measurements "well into the next decade" and hope to produce "high-impact results."

Objectives of Study:

Researchers say determining the mass of neutrinos is one of the most important open questions in particle physics and will help scientists better understand the history of the universe.

Threat from Artificial intelligence

Norman: also known as the first psychopathic artificial intelligence, just unveiled by US researchers.

Norman "represents a case study on the dangers of Artificial Intelligence gone wrong when biased data is used in machine learning algorithms..

Pinar Yanardag, Manuel Cebrian and Iyad Rahwan, part of an MIT team, added: "there is a central idea in machine learning: the data you use to teach a machine learning algorithm can significantly influence its behavior."

"So when we talk about AI algorithms being biased or unfair, the culprit is often not the algorithm itself, but the biased data that was fed to it," they said via email.

Hence the idea of creating Norman, which was named after the psychopathic killer Norman Bates in the 1960 Alfred Hitchcock film "Psycho."

Norman was "fed" only with short legends describing images of "people dying" found on the Reddit internet platform.

The researchers then submitted images of ink blots, as in the Rorschach psychological test, to determine what Norman was seeing and compare his answers to those of traditionally trained AI.

The results are scary, to say the least: where traditional AI sees "two people standing close to each other," Norman sees in the same spot of ink "a man who jumps out a window."

And when Norman distinguishes "a man shot to death by his screaming wife," the other AI detects "a person holding an umbrella."

Business Correspondents

Why in News?

The government is planning to make all CSCs across the country Business Correspondents of Banks. 2.90 lakh CSCs will be able to work as Business Correspondents (BCs).

About Business Correspondents?

Business Correspondents are retail agents engaged by banks for providing banking services at locations other than a bank branch/ATM.

Banks are required to take full responsibility for the acts of omission and commission of the BCs that they engage and have, therefore, to ensure thorough due diligence and additional safeguards for minimizing the agency risk.

Basically, BCs enable a bank to expand its outreach and offer limited range of banking services at low cost, as setting up a brick and mortar branch may not be viable in all cases. BCs, thus, are an integral part of a business strategy for achieving greater financial inclusion.

What they can do?

BCs are permitted to perform a variety of activities which include identification of borrowers, collection and preliminary processing of loan applications including verification of primary information/data, creating awareness about savings and other products, education and advice on managing money and debt counseling, processing and submission of applications to banks, promoting, nurturing and monitoring of Self Help Groups/ Joint Liability Groups, post-sanction monitoring, follow-up of recovery.

They can also attend to collection of small value deposit, disbursal of small value credit, recovery of principal / collection of interest, sale of micro insurance/ mutual fund

products/ pension products/ other third party products and receipt and delivery of small value remittances/ other payment instruments.

Benefits:

- Corporates with large and widespread retail network bring in larger resources, higher organizational strength and financial backing needed for a large network of BCs besides providing financial security to the bank.
- Corporates as BC would be more suitable to render banking services in accordance with the bank's internal policies and standards than individuals and other small entities.
- Over years, these companies have developed efficient systems of monitoring and control over the retail outlets/franchises, including cash management, which could be used to advantage. These outlets are already dealing with the local population and are familiar with them.
- The shopkeepers and other retail agents of the large corporates may be more comfortable dealing with the company that they are already used to and familiar with, rather than with the bank.
- Failure of large companies as BCs would mean a reputation risk to the company and endanger its substantive business. As such, the companies could be relied upon to ensure that their agents do not jeopardize their reputation.
- A corporate is likely to continue as BC for a longer period than individuals, thus ensuring continuity of services.

SURYA KIRAN

Exercise SURYA KIRAN-XIII, a joint military training exercise between India & Nepal culminated today at Pithoragarh, wherein the troops of both Armies participated in 14-day long joint training based on counter terrorist operations.

Besides training, both the contingents also participated in a number of extra-curricular activities including friendly Football, Basketball, Volleyball matches and a cultural event on the final day to increase the bonhomie between troops.

The joint training was undoubtedly, an unprecedented success. Besides promoting understanding and inter-operability between the two armies, it further helped in cementing ties between both the nations.

Pollution and Duststorm:

Context:

The high pollution levels during this time of the year in Delhi are unusual and primarily due to dust storms from Rajasthan.

Rajasthan is facing extremely dry weather conditions, with high temperatures and wind speeds.

Ministry of Environment, Forest and Climate Change (MoEFCC) has requested Chief Secretary, Delhi to issue appropriate instructions in the matter to the concerned agencies.

Central Pollution Control Board (CPCB) convened an urgent meeting of the Task Force regarding implementation of Graded Response Action Plan (GRAP) today and issued necessary directions to contain local dust sources.

The Task Force has also recommended that public should avoid prolonged exposure.

What is a Duststorm?

A **dust storm** is a meteorological phenomenon common in arid and semi-arid regions.

Dust storms arise when a gust front or other strong wind blows loose sand and dirt from a dry surface.

Fine particles are transported by saltation and suspension, a process that moves soil from one place and deposits it in another.

Drylands around North Africa and the Arabian peninsula are the main terrestrial sources of airborne dust. It has been argued that poor management of the Earth's drylands, such as neglecting the fallow system, are increasing dust storms size and frequency from desert margins and changing both the local and global climate, and also impacting local economies

About GRAP:

The Government has notified a Graded Response Action Plan for Delhi and NCR, which comprises measures such as:

1) prohibition on entry of trucks into Delhi;

2) ban on construction activities,

3) introduction of odd and even scheme for private vehicles,

4) shutting of schools, closure of brick kilns, hot mix plants and stone crushers;

5) shutting down of Badarpur power plant, ban on diesel generator sets, garbage burning in landfills and plying of visibly polluting vehicles etc.

The nature, scope and rigor of measures to be taken is linked to levels of pollution viz. Severe + or Emergency, severe, Very poor, Moderate to poor and Moderate, after due consideration by authorities concerned.

The actions are to be implemented in the entire NCR. Besides, action related to stubble burning is to be implemented by Government of Punjab.

Trade deficit widened

India's merchandise trade deficit widened to $14.62 billion in May 2018, official data released on Friday showed. The shortfall was $13.72 billion in April 2018 and $13.84 billion in May 2017.

Exports during May 2018 were valued at $28.86 billion as compared to $24.01 billion during May 2017 exhibiting a positive growth of 20.18%.

Imports during May 2018 were valued at $43.48 billion which was 14.85% higher in dollar terms."

Smart uptick

In contrast, merchandise exports in April had grown by only 5.17%, while imports grew 4.6%.

The export growth in May 2018 was better than that seen in May last year, while the import growth was slower.

The major export groups that witnessed strong growth in May 2018 included engineering goods (14.8%), petroleum products (104.5%), organic and inorganic chemicals (34.2%), drugs and pharmaceuticals (25.7%), and cotton yarn/fabrics/made-ups and handloom products (24.7%).

What is Trade Deficit?

A trade deficit is an economic measure of international trade in which a country's imports exceeds its exports.

A trade deficit represents an outflow of domestic currency to foreign markets. It is also referred to as a negative balance of trade (BOT).

Trade Deficit = Total Value of Imports – Total Value of Exports

Atacama Large Millimeter/submillimeter Array

Why in News?

Atacama Large Millimeter/submillimeter Array has uncovered convincing evidence for three young planets orbiting within a protoplanetary disk – or planet-forming disk – around an infant star. The star is called HD 163296. It's 330 light-years from Earth in the direction of the constellation Sagittarius.

About ALMA telescope:

The Atacama Large Millimeter/submillimeter Array (ALMA) is an international partnership of the European Southern Observatory (ESO), the U.S. National Science Foundation (NSF) and the National Institutes of Natural Sciences (NINS) of Japan, together with NRC (Canada), NSC and ASIAA (Taiwan), and KASI (Republic of Korea), in cooperation with the Republic of Chile.

- ALMA -the largest astronomical project in existence- is a single telescope of revolutionary design, composed of 66 high precision antennas located on the Chajnantor plateau, 5000 meters altitude in northern Chile.
- ALMA allows scientists to unravel longstanding and important astronomical mysteries, in search of our Cosmic Origins.

Apache helicopters:

Why in News?

The US has approved a deal to sell six AH-64E Apache helicopters to India for $930 million as well as Hellfire and Stinger missiles to bolster the country's ability to defend its homeland and deter "regional threats".

About Apache helicopters:

- The AH-64 Apache is a multi-role combat helicopter and is used by the US Army and a number of international defence forces.
- It is equipped with all-weather and night-fighting features apart from an advanced weapons system.
- The Apache has advanced laser, infrared, and target acquistion designation, including other systems, to locate, track and attack targets.
- It also has stealth characteristics, advanced sensors and beyond-visual-range missiles.

Pinaka rocket:

Why in News?

The indigenous Pinaka rocket system of the Defence Research and Development Organisation (DRDO) is being evolved into a precision-guided missile, with enhanced range and accuracy to hit its targets.

About Pinaka:

- The rocket has been developed by the Armament cluster of the DRDO, with a lead from Pune-based Armament Research and Development Establishment (ARDE).
- It is used to neutralize the enemy's positions that are strategically important for the enemy. The advanced versions of this system can also be used to conduct surgical strikes even without entering into the enemy area.
- The launcher can fire 12 rockets with 1.2 tonnes of high explosives within 44 seconds and destroy a target area of 4-square km at a time.
- Pinaka is capable of working in different modes – autonomous mode, stand-alone mode, remote mode and manual mode.
- The second variant of Pinaka, known as Mark-II, has a maximum range of 75 km.
- DRDO is working with Israel's IMI to develop Pinaka Mark-III which will use IMI's Trajectory Correction System (TCS) that will enhance the accuracy of the attack.