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POLITY/GOVERNANCE

SVAMITVA Scheme

In a historic move set to transform rural India and empower millions of Indians, Prime Minister Shri Narendra Modi has launched the physical distribution of Property Cards under the SVAMITVA Scheme.

Details -

- The launch will enable around one lakh property holders to download their Property Cards through the SMS link delivered on their mobile phones. This would be followed by physical distribution of the Property Cards by the respective State governments.
- The move will pave the way for using property as a financial asset by villagers for taking loans and other financial benefits.
- Also, this is the first time ever that such a large-scale exercise involving the most modern means of technology is being carried out to benefit millions of rural property owners.

About SVAMITVA Scheme -

- SVAMITVA is **a Central Sector Scheme** of the **Ministry of Panchayati Raj**, which was launched by the Prime Minister on National Panchayati Raj Day, 24th April 2020.The scheme aims to **provide the 'record of rights' to village household owners** in rural areas and **issue Property Cards**.
- The Scheme is being implemented across the country in a phased manner **over a period of four years (2020-2024) and would eventually cover around 6.62 lakh villages of the country**.
- About 1 lakh villages in the States of Uttar Pradesh, Haryana, Maharashtra, Madhya Pradesh, Uttarakhand and Karnataka, and few border villages of Punjab & Rajasthan, along with establishment of **Continuous Operating System (CORS) stations**' network across Punjab & Rajasthan, are being covered in the Pilot phase (2020-21).
- **All these six States have signed MoU with Survey of India for drone survey of rural areas** and implementation of the scheme. These States have **finalised the digital property card format and the villages to be covered for drone-based survey**.
- States of Punjab and Rajasthan have signed MoU with Survey of India for establishment of CORS network to assist in future drone flying activities.
- Different States have different nomenclature for the Property Cards viz. 'Title deed' in Haryana, 'Rural Property Ownership Records (RPOR)' in Karnataka, 'Adhikar Abhilekh' in Madhya Pradesh, 'Sannad' in Maharashtra, 'Svamitva Abhilekh' in Uttarakhand, 'Gharauni' in Uttar Pradesh.

STARS Project

The Union Cabinet has approved the following -

- Implementation of the **Strengthening Teaching-Learning and Results for States (STARS) project** with a total project cost of Rs 5718 crore with the financial support of World Bank amounting to US $500 million (approximately Rs. 3700 crore).
- STARS project would be implemented as **a new Centrally Sponsored Scheme** under **Department of School Education and Literacy**, Ministry of Education.
- Setting up and support to the National Assessment Centre, **PARAKH** as an independent and autonomous institution under Department of School Education and Literacy.

Besides this project, it is also envisaged to implement **a similar ADB funded project in 5 states** namely **Gujarat, Tamil Nadu, Uttarakhand, Jharkhand and Assam**. All states will partner with one other state for sharing their experiences and best practices.

What is the STARS Project?

- The project covers 6 States namely **Himachal Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Kerala and Odisha**. The identified States will be supported tor various interventions for improving the quality of education.
- The STARS project seeks to **support the states in developing, implementing, evaluating and improving interventions with direct linkages to improved education outcomes and school** to work transition strategies for improved labour market outcomes. The overall focus and components of the STARS project are aligned with the objectives of National Education Policy (NEP) 2020 of Quality Based Learning Outcomes.
- The Project envisions **improving the overall monitoring and measurement activities in the Indian School Education System** through interventions in selected states.
- The project shifts focus from the provision of inputs and maintaining of outputs to **actual outcomes** by linking the receipt and disbursement of funds to these outcomes.

Functions -

- **At the national level,** the project envisages the following interventions which will benefit all states and UTs -
  - To strengthen MOE's national data systems to capture robust and authentic data on retention, transition and completion rates of students.
  - To support MOE in improving states PGI scores by incentivising states governance reform agenda through SIG (State Incentive Grants).
  - To support the strengthening of learning assessment systems.
  - To support MOE's efforts to establish a National Assessment Center (PARAKH). Among the tasks of such a centre would be to leverage the experiences of states selected for the operation by collecting, curating and sharing these experiences with other states through online portals (e.g. Shagun and DIKSHA), social and other media engagement, technical workshops, state visits and conferences.
- **At the State level**, the project envisages -
  - Strengthening Early Childhood Education and Foundational Learning
  - Improving Learning Assessment Systems
  - Strengthening classroom instruction and remediation through teacher development and school leadership
  - Governance and Decentralised Management for Improved Service Delivery.
  - Strengthening Vocational education in schools through mainstreaming, career guidance and counselling, internships and coverage of out of school children.

Outcomes for measurement -

Some of the measurable outcomes of the project are Increase in students achieving minimum proficiency in grade 3 language in selected states, Improvement in secondary school completion rate, Improvement in governance index scores, Strengthened learning assessment systems, Partnerships developed to facilitate cross-learning between states, and improvement in the State level service delivery such as Strengthening planning and management capacities for decentralised management by training of BRCs and CRCs, Strengthened school management by training of Head Teachers and Principals for improved education service delivery.

Background - World Banks's STARS Project -

- The programme was launched in 1994. The World Bank through the programme has helped India achieve its vision of "**Education for All**".
- The project is to **focus governance of government schools in 6 Indian states**. The fund allocated by the World Bank is to be used to implement the project called STARS (**Strengthening Teaching-Learning and Results for States**).
- The programme is to be implemented through **Samagra Shiksha Abhiyan**. The states that are to benefit under the programme includes **Madhya Pradesh, Himachal Pradesh, Kerala, Odisha, Maharashtra and Rajasthan**.

Dam Rehabilitation and Improvement Project

The Cabinet Committee on Economic Affairs has approved the Dam Rehabilitation and Improvement Project (DRIP) Phase II & Phase III with the **financial assistance of the World Bank (WB), and Asian Infrastructure Investment Bank (AIIB)** to improve the safety and operational performance of selected dams across the whole country, along with institutional strengthening with system wide management approach.

Background -

- In April 2012, **Ministry of Water Resources, River Development & Ganga Rejuvenation** through **Central Water Commission** with an objective to improve safety and operational performance of selected dams, along with institutional strengthening with system wide management approach, embarked upon the **six year Dam Rehabilitation and Improvement Project (DRIP) with World Bank assistance** at a cost of INR 2100 Crore (US$ 437.5 million).
- The project originally envisaged the rehabilitation and improvement of 223 dam projects in four states namely, **Kerala, Madhya Pradesh, Odisha, and Tamil Nadu**. Later **Karnataka, Uttarakhand (UJVNL) and Damodar Valley Corporation (DVC) joined the DRIP,** and number of dams in DRIP portfolio increased to 257; due to the addition/deletion of few dams during implementation by partner agencies, presently 198 dam projects are being rehabilitated.

Details -

- The project cost is Rs 10,211 crore. The Project will be implemented over a period of 10 years duration in two Phases, each of six years duration with two years overlapping from April, 2021 to March, 2031. **The share of external funding is Rs 7,000 crore of the total project cost, and balance Rs 3,211 crore is to be borne by the concerned Implementing Agencies (IAs**). The contribution of Central Government is Rs 1,024 crore as loan liability and Rs 285 crore as counter-part funding for Central Component.
- A total of 736 dams are covered under the project with 213 being covered in phase I, which started in 2011.
- India stands third in the world for the number of dams (5,334). China stands first followed by the US.
- There are around 4,011 dams under construction in India.

Objectives -

DRIP Phase II & Phase III envisages the following objectives -

- To improve the safety and performance of selected existing dams and associated appurtenances in a sustainable manner.
- To strengthen the dam safety institutional setup in participating states as well as at central level, and
- To explore the alternative incidental means at few of selected dams to generate the incidental revenue for sustainable operation and maintenance of dams

Components of DRIP -

To achieve the above objectives, DRIP Phase II & Phase III has following components:

- **Rehabilitation and improvement of dams** and associated appurtenances,
- Dam safety **institutional strengthening** in participating States and Central agencies,
- **Exploration of alternative incidental means** at few of selected dams to generate the incidental revenue for sustainable operation and maintenance of dams, and
- Project management.

SERB POWER

Union Ministry of Science and Technology has launched a Scheme titled "**SERB-POWER (Promoting Opportunities for Women in Exploratory Research)**", designed exclusively for women scientists.

The Science and Engineering Research Board (SERB), **a Statutory body of the Department of Science and Technology (DST)** has been contemplating to institute a scheme to mitigate gender disparity in science and engineering research in various S&T programs in Indian academic institutions and R&D laboratories.

Details -

SERB – POWER Scheme will have two components namely (i) SERB-POWER Fellowship (ii) SERB- POWER Research Grants.

Salient features of the SERB-POWER Fellowship -

- **Target** - Women researchers in 35-55 years of age. Up-to 25 Fellowships per year and not more than 75 at any point in time.
- **Components of support** - Fellowship of Rs. 15,000/- per month in addition to regular income; Research grant of Rs. 10 lakh per annum; and Overhead of Rs. 90,000/- per annum.
- **Duration** - Three years, without the possibility of extension. Once in a career.

Salient features of the SERB – POWER Research Grants -

POWER Grants will empower women researchers by funding them under following two categories -

- **Level I** (Applicants from IITs, IISERs, IISc, NITs, Central Universities, and National Labs of Central Government Institutions): The scale of funding is up to 60 lakhs for three years.
- **Level II** (Applicants from State Universities / Colleges and Private Academic Institutions): The scale of funding is up to 30 lakhs for three years.
- **POWER Grant** will be regulated through terms of reference conforming to SERB-CRG (Science and Engineering Research Board-Core Research Grant) guidelines.

Significance -

It was felt that SERB-POWER Fellowships and Grants will also serve as a benchmark of recognition in the national scenario. These Schemes of the Government will definitely empower women scientists and cultivate women friendly culture in our academic and research institutions and ensure more women in leadership positions in decision making bodies.

National Productivity Council

National Productivity Council (NPC) has been granted accreditation for undertaking inspection and audit work in the area of **Food Safety Audit and Scientific Storage of Agricultural Products**. This accreditation is valid for a period of three years.

About National Productivity Council -

- National Productivity Council (NPC) is **a national level autonomous organisation under the administrative control of the Department for Promotion of Industry and Internal Trade** to promote productivity culture in India.
- Established as a registered society in 1958 by the Government of India, it is a tripartite non-profit organisation with equal representation from the government, employers and workers' organisations, apart from technical and professional institutions including members from local productivity councils and chamber of commerce on its Governing Body.
- NPC is a constituent of the Tokyo-based **Asian Productivity Organisation (APO)**, an Inter Governmental Body, of which the Government of India is a founder member.

ECONOMICS

Atal Tunnel

Prime Minister Narendra Modi has dedicated to the nation the World's longest Highway tunnel - At Tunnel at its south portal in Manali.

About the 'Atal Tunnel' -

- The 9.02 Km long tunnel **connects Manali to Lahaul-Spiti valley** throughout the year. Earlier the valley was cut off for about 6 months each year owing to heavy snowfall.
- The Tunnel is built with ultra-modern specifications **in the Pir Panjal range of Himalayas** at an altitude of **3000 Mtrs (10,000 Feet)** from the Mean Sea Level (MSL).

- The tunnel **reduces the road distance by 46 Kms between Manali and Leh** and the time by about 4 to 5 hours.
- It has state of the art electromechanical systems including semi transverse ventilation, SCADA controlled fire fighting, illumination and monitoring systems. The Tunnel has ample safety features built into it.
- It is constructed by the **Border Roads Organisation**.

Background -

- Former Prime Minister Atal Bihari Vajpayee laid the foundation of the approach road for this tunnel in 2002. The work was so neglected that only 1300 metres i.e less than 1.5 Kms of tunnel could be built till 2013-14 i.e only about 300 metres each year. If it continued at that pace then the tunnel would be completed only in 2040.
- In 2005, the estimated cost for the construction of the tunnel was about Rs. 900 crores. But due to continuous delays, today it has been completed after spending more than 3 times i.e. 3200 crore rupees.

Natural Gas Marketing Reforms

The Cabinet Committee on Economic Affairs has approved '**Natural Gas Marketing Reforms**', taking another significant step to move towards gas based economy.

Reforms -

- The reforms include **setting up a new e-bidding platform, prohibiting producing companies from participating in the bidding process and bringing all different fiscal models under the new bidding mechanism**.
- Last year, the government declared that any new discoveries and any gas found within those regions will get pricing and marketing freedom. But, there was a bottleneck in how to implement the system.
- Now, the Director General of Hydrocarbon (DGH) will suggest an e-bidding platform to producers. It will list all government entities and other credible companies. The DGH will also issue guidelines for the same.
- Producers will have a choice between different platforms in a transparent public domain akin to how coal, spectrum and mineral auctions take place in the country. While the producing companies themselves will not be allowed to participate in the bidding process, all other players and affiliate companies will be allowed to bid.
- The government decision to allow a producer's affiliate to bid for natural gas in an auction comes following similar demand by private producers. Existing production sharing contracts barred affiliates due to conflict of interest.

Objective -

The objective of the policy is to **prescribe standard procedure to discover market price of gas** to be sold in the market by gas producers, through a transparent and competitive process, **permit Affiliates to participate in bidding process** for sale of gas and **allow marketing freedom to certain Field Development Plans (FDPs)** where Production Sharing Contracts already provide pricing freedom.

About the reforms -

These reforms in gas sector will further deepen and spur the economic activities in the following areas -

- The whole eco-system of policies relating to **production, infrastructure and marketing of natural gas** has been made more transparent with a focus on ease of doing business.
- These reforms will prove very significant for Atmanirbhar Bharat by **encouraging investments in the domestic production of natural gas and reducing import dependence**.
- These reforms will prove to be another milestone in moving towards **a gas based economy** by encouraging investments.
- The increased gas production consumption will help in **improvement of environment**.

- These reforms will also help in **creating employment opportunities in the gas consuming sectors including MSMEs**.
- The domestic production will further **help in increasing investment in the downstream industries** such as City Gas Distribution and related industries.

Significance -

- The policy aims to **provide standard procedure for sale of natural gas** in a transparent and competitive manner to discover market price by issuing guidelines for sale by contractor through e-bidding.
- This will bring **uniformity in the bidding process across the various contractual regimes** and policies to avoid ambiguity and contribute towards ease of doing business.
- The policy has also **permitted Affiliate companies to participate in the bidding process** in view of the open, transparent and electronic bidding. This will facilitate and **promote more competition in marketing of gas**. However, rebidding will have to be done in case only affiliates participate, and there are no other bidders.
- The policy will also grant **marketing freedom to the Field Development Plans (FDPs)** of those Blocks in which Production Sharing Contracts already provide pricing freedom.

National Startup Awards 2020

The Ministry of Commerce and Industry has announced the first ever National Startup Awards to recognise the outstanding startups in India.

About the 'National Startup Awards 2020' -

- **The Department for Promotion of Industry and Internal Trade (DPIIT) has conceived the first ever National Startup Awards** to recognise and reward outstanding Startups and ecosystem enablers that are building innovative products or solutions and scalable enterprises, with high potential of employment generation or wealth creation, demonstrating measurable social impact.
- The measure of success is **not only the financial gains for the investors but also the contribution to the social good**.
- The first edition of the Awards invited applications across 12 sectors which were further sub-classified into a total of 35 categories.
- These 12 sectors are **Agriculture, Education, Enterprise Technology, Energy, Finance, Food, Health, Industry 4.0, Space, Security, Tourism and Urban Services**.
- Apart from these, startups are to be selected from those which **create impact in rural areas, are women-led and founded in academic campuses**.
- The winning Startups will get cash prizes of Rs 5 lakh each, along with opportunities to present their solutions to relevant public authorities and corporates, for potential pilot projects and work orders.
- As key building blocks of a robust Startup ecosystem, one exceptional Incubator and one Accelerator each will get a cash prize of Rs 15 lakh.

Production Linked Incentive Scheme

Ministry of Electronics and Information and Technology (MeitY) has approved 16 eligible applicants under the PLI Scheme.

What is PLI Scheme?

Production Linked Incentive Scheme (PLI) for Large Scale Electronics Manufacturing notified on 1st April, 2020, extends **an incentive of 4% to 6% on incremental sales** (over base year) of goods under target segments that are **manufactured in India** to eligible companies, for a period of five years subsequent to the base year (FY2019-20).

Significance -

- Over the next 5 years, the approved companies under the PLI Scheme are expected to lead to total production of **more than INR 10,50,000 crore (INR 10.5 lakh crore)**.

- Out of the total production, the approved companies under **Mobile Phone (Invoice Value INR 15,000 and above) segment** have proposed a production of **over INR 9,00,000 crore**, **The approved companies under Mobile Phone (Domestic Companies)** segment have proposed a production of about **INR 1,25,000 crore** and those under **Specified Electronic Components** segment have proposed a production of **over INR 15,000 crore.**
- The companies approved under the scheme are expected to **promote exports significantly**. Out of the total production of INR **10,50,000 crore** in the next 5 years, around **60% will be contributed by exports** of the order of **INR 6,50,000 crore**.
- The companies approved under the scheme will bring additional investment in electronics manufacturing to the tune of **INR 11,000 crore**.
- The companies approved under the scheme will generate **more than 2 lakh direct employment opportunities** in next 5 years along with creation of additional indirect employment of nearly 3 times the direct employment.
- **Domestic Value Addition** is expected to grow from the current **15-20% to 35-40%** in case of Mobile Phones and **45-50%** for electronic components.
- With the demand for electronics in India expected to grow manifold by 2025, the PLI scheme and other initiatives to promote electronics manufacturing will help in making India a competitive destination for electronics manufacturing and give boost to **AtmaNirbhar Bharat.**
- Creation of domestic champion companies in electronics manufacturing under the Scheme will give fillip to **vocal for local while aiming for global scale.**

Zojila Tunnel

Work on the Zojila Tunnel in J&K has begun recently. The tunnel will **provide all-weather connectivity between Srinagar valley and Leh (Ladakh plateau)** on NH-1, and will bring about an all-round economic and socio–cultural integration of Jammu & Kashmir (Now UTs of J&K and Ladakh).

Details -

- It involves construction of **a 14.15 Km long tunnel at an altitude of about 3000 m under Zojila pass (presently motorable only for 6 months in a year) on NH-1 connecting Srinagar and Leh** through Dras & Kargil. It is one of the most dangerous stretch in the world to drive a vehicle & this project is also geo-strategically sensitive.
- Prime Minister Narendra Modi in May 2018, had laid the foundation stone for the ₹6,800 crore project, billed as Asia's longest bi-directional tunnel, in Jammu and Kashmir.

About Zojila Pass -

- Zoji La is a high mountain pass located in the **Kargil district of Ladakh**.
- The pass **links Leh and Srinagar** and provides an important link between Union Territories of Ladakh and Kashmir.
- Zojila pass remains closed during winters due to heavy snowfall, cutting off Ladakh region from Kashmir.

Sr No.	Salient Features	
1	Length	• Zojila Tunnel length = 14.15 Km and Approach road length = 18.63 Km. • Total project length is 32.78 km.

2	Scope of Work	• **14.150 km long Bi-directional tunnel** without Egress/ escape passage between Baltal and Minamarg. • 18.63 Km approach road between **Z-Morh tunnel and Zojila tunnels** including two tunnels of length 433m and 1958m in approach road. • **Net Road length** is 12 KMs. • Road safety & avalanche protection structures such as Catch Dams, Snow Galleries, Cut & Cover, Deflector Dam etc.	
3	Construction Period	Zojila Tunnel = 6 Years	Approach road = 2.5 Years

Significance of the project -

- The construction of Zojila Tunnel will **provide all-weather safe connectivity between Srinagar, Dras, Kargil and Leh regions**. The all-weather safe connectivity of the road is immensely important from the strategic point of view.
- The construction of Zojila Tunnel shall bring about **all round economic and socio-cultural integration of these regions** which remains cut-off from rest of the country during winters due to heavy snowfall for about six months.
- A tunnel in Zojila is the only viable alternative at present for **a full year connectivity road**. This tunnel when completed will be a landmark achievement in the history of modern India.
- It will also be of great importance to the Defence of the country, in view of the fact that massive military activities along our borders in Ladakh, Gilgit and Baltistan regions are taking place.
- Zojila Tunnel project shall bring to fruition, 30 years of overwhelming public demand of Kargil, Drass and Ladakh region.
- This Project will **make the travel on Srinagar-Kargil-Leh Section of NH-1 free from avalanches**.
- Project would enhance the safety of the travellers crossing Zojila Pass and would **reduce the Travel time from more than 3 hours to 15 minutes**.

India's first sea aeroplane project

The first of the five seaplane services in Gujarat, connecting Sabarmati River in Ahmedabad to the Statue of Unity in Kevadia in Narmada District, will be inaugurated on October 31, the birth anniversary of Sardar Vallabhbhai Patel.

What is India's first seaplane project?

- The first seaplane project of the country is **part of a directive of the Union Ministry of Civil Aviation**. As per the directive, the Airports Authority of India (AAI) requested state governments of Gujarat, Assam, Andhra Pradesh and Telangana and the administration of Andaman & Nicobar to propose potential locations for setting up water aerodromes to boost the tourism sector.
- A seaplane is **a fixed-winged aeroplane designed for taking off and landing on water**. It offers the public the speed of an aeroplane with the utility of a boat.
- There are two main types of seaplane: **flying boats** (often called hull seaplanes) and **floatplanes**. The bottom of a flying boat's fuselage is its main landing gear. This is usually supplemented with smaller floats near the wingtips, called wing or tip floats.
- The hull of a flying boat holds the crew, passengers, and cargo; it has many features in common with the hull of a ship or a boat.

Ayushman Sahakar Fund

Union Ministry of Agriculture has launched AYUSHMAN SAHAKAR, a unique scheme to assist cooperatives play an important role in creation of healthcare infrastructure in the country formulated by the apex autonomous development finance institution under the Ministry of Agriculture and Farmers Welfare, the National Cooperative Development Corporation (NCDC).

What does it intend to do?

- NCDC would **extend term loans to prospective cooperatives** to the tune of Rs.10,000 Crore in the coming years. NCDC's scheme will be a step towards strengthening farmers welfare activities by the Central Government.
- Ayushman Sahakar scheme would revolutionise the way healthcare delivery takes place in rural areas.
- There are about 52 hospitals across the country run by cooperatives. They have cumulative bed strength of more than 5,000. The NCDC fund would give a boost to provision of healthcare services by cooperatives.
- Ayushman Sahakar scheme fund would also assist cooperative hospitals take up medical / Ayush education.

How will it help?

- Any Cooperative Society with suitable provision in its bylaws to undertake healthcare related activities would be able to access the NCDC fund.
- NCDC assistance will flow either through the State Governments/ UT Administrations or directly to the eligible cooperatives.
- The scheme also provides working capital and margin money to meet operational requirements. The scheme provides interest subvention of one percent to women majority cooperatives.

About NCDC -

- The National Cooperative Development Corporation (NCDC) is **a statutory Corporation set up under an Act of Indian Parliament on 13 March 1963**.
- The objectives of NCDC are **planning and promoting programmes for production, processing, marketing, storage, export and import of agricultural produce, foodstuffs, industrial goods, livestock and certain other notified commodities and services on cooperative principles** and for matters concerned therewith or incidental thereto.
- **Functions** - Planning, promoting and financing programmes for supply of consumer goods and collection, processing, marketing, storage and export of **minor forest produce through cooperatives**, besides income generating stream of activities such as poultry, dairy, fishery, sericulture, handloom etc.
- NCDC will now be able to **finance projects in the rural industrial cooperative sectors and for certain notified services in rural areas** like water conservation, irrigation and micro irrigation, agri-insurance, agro-credit, rural sanitation, animal health, etc.

India Energy Forum

Prime Minister Narendra Modi has delivered the inaugural address at 4th India Energy Forum recently. The theme of this edition is "*India's Energy Future in a world of Change*".

Highlights of the PM's address -

- The Prime Minister pointed that **India is the third largest and the fastest growing aviation market in terms of domestic aviation** and Indian carriers are projected to increase their fleet size from 600 to 1200 by 2024.
- The Prime Minister said **India's Energy Plan aims to ensure energy justice** while fully following India's global commitments for sustainable growth. **This means more energy is needed to improve the lives of Indians with a smaller carbon foot-print**. He envisioned India's energy sector to be **growth centric, industry friendly and environment conscious**. He said that is why India is among the most active nations in furthering renewable sources of energy.
- The Prime Minister listed the interventions which made India the most attractive emerging market for clean energy investment viz, **distributing more than 36 crore LED bulbs, reducing**

the cost of LED bulbs by 10 fold, installing over 1.1 crore smart LED street-lights in the last 6 years. He said these interventions have enabled **an estimated energy savings of 60 billion units per year, estimated green-house gas emission reduction of over 4.5 crore tonnes of Carbon dioxide annually and monetary savings of around Rs. 24,000 crore annually**.

- The Prime Minister remarked that India is well on track to meet the global commitment. He said the **target to increase the installed renewable energy capacity to 175 GW by 2022 has been further extended to 450 GW by 2030**.

India's energy map -

The Prime Minister said India's energy map will have seven key drivers -

1. Accelerating our efforts to move towards a **gas-based economy**.
2. **Cleaner use of fossil fuels** particularly petroleum and coal.
3. Greater **reliance on domestic sources** to drive bio-fuels.
4. Achieving the **renewables** target of 450 GW by 2030.
5. Increasing the contribution of electricity to **de-carbonise mobility**.
6. Moving into the emerging fuels including **hydrogen**.
7. **Digital innovation** across all the energy systems.

SOCIAL ISSUES

Rashtriya Kamdhenu Aayog

Rashtriya Kamdhenu Aayog has started a nationwide campaign to celebrate "**Kamdhenu Deepawali Abhiyan**" this year on the occasion of Deepawali festival.

Details -

- Through this campaign, the RKA is promoting extensive use of cow-dung/ Panchgavya products during the Diwali Festival.
- Manufacture of Cow dung based **Diyas, Candles, Dhoop, Agarbatti, Shubh-Labh, Swastik, Samrani, Hardboard, Wall-piece, Paper-weight, Havan samagri, Idols of Lord Ganesha and Goddess Lakshmi** for this year's Diwali festival has already started.
- RKA aims **reaching 11 crore families to ignite 33 crore Diyas** made of cow-dung during this year's Deepawali festival.
- The feedback received so far is very encouraging and approximately 3 lakh Diyas will be ignited in the holy city of Ayodhya alone, 1 lakh Diyas will be lit in holy city of Varanasi.

Significance -

- Apart from generating business opportunities to thousands of cow-based entrepreneurs/ farmers/ women entrepreneurs, the use of cow-dung products will **lead to cleaner and healthier environment**.
- It will help in **making Gaushalas** '**Atma Nirbhar**' too. By providing an environment friendly alternative to Chinese made Diyas, the campaign will boost up Make in India vision and mission of Prime Minister Shri Narendra Modi and also **promote** '**Swadeshi**' **movement while reducing environmental damage**.

About Rashtriya Kamdhenu Aayog -

- Union Finance Minister in 2019's interim budget had announced that Rs 750 crore would be allocated for the **Rashtriya Gokul Mission**. Under the scheme, a '**Rashtriya Kamdhenu Aayog**' would be set up.
- The Aayog will work in collaboration with **Veterinary, Animal Sciences or Agriculture University or departments or organisations of the Central/State Government** engaged in the task of **research in the field of breeding and rearing of cow, organic manure, biogas etc**.

- It will take up scientific activities for **genetic upgradation and increasing productivity of cows**.
- It will provide the policy framework and direction to the **cow conservation and development programmes** in the country and for ensuring proper implementation of laws with respect to the welfare of cows.

ENVIRONMENT

Stockholm Convention

The Union Cabinet has approved the **ratification of seven chemicals listed under Stockholm Convention on Persistent Organic Pollutants (POPs)**. The Cabinet further delegated its powers to ratify chemicals under the Stockholm Convention to **Union Ministers of External Affairs (MEA) and Environment, Forest and Climate Change (MEFCC)** in respect of POPs already regulated under the domestic regulations thereby streamlining the procedure.

What are POPs?

Persistent Organic Pollutants (POPs) are organic chemical substances (mostly pesticides and industrial chemicals), that is, **they are carbon-based**. They possess a particular combination of physical and chemical properties such that, once released into the environment, they -

- **remain intact** for exceptionally **long periods** of time (many years);
- become widely distributed throughout the environment as a result of natural processes involving soil, water and, most notably, air;
- **accumulate in the fatty tissue of living organisms** including humans, and are found at higher concentrations at higher levels in the food chain; and
- **are toxic to both humans and wildlife**.

In addition, POPs concentrate in living organisms through another process called **bioaccumulation**. Though not soluble in water, POPs are readily absorbed in fatty tissue, where concentrations can become magnified by up to 70,000 times the background levels.

What is the 'Stockholm Convention'?

- Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, **signed in 2001 and effective from May 2004**, that aims to **eliminate or restrict the production and use of persistent organic pollutants**.
- It is **a global treaty to protect human health and environment** from POPs, which are **identified chemical substances that persist in the environment, bio-accumulate in living organisms**, adversely affect human health/ environment and have the **property of long-range environmental transport (LRET)**.
- Exposure to POPs can lead to **cancer, damage to central & peripheral nervous systems, diseases of immune system, reproductive disorders and interference with normal infant and child development**.
- POPs are listed in various Annexes to the Stockholm Convention after thorough scientific research, deliberations and negotiations among member countries.
- The Global Environmental Facility (GEF) is the designated interim financial mechanism for the Stockholm Convention.

India and the Stockholm Convention -

- India had **ratified the Stockholm Convention on January 13, 2006 as per Article 25(4),** which enabled it to keep itself in **a default "opt-out" position** such that amendments in various Annexes of the convention cannot be enforced on it unless **an instrument of ratification/ acceptance/ approval or accession is explicitly deposited with UN depositary**.
- The regulation inter alia prohibited **the manufacture, trade, use, import and export seven chemicals namely** (i) Chlordecone, (ii) Hexabromobiphenyl, (iii) Hexabromodiphenyl ether and Heptabromodiphenylether (Commercial octa-BDE), (iv) Tetrabromodiphenyl ether and Pentabromodiphenyl ether (Commercial penta-BDE), (v) Pentachlorobenzene, (vi)

Hexabromocyclododecane, and (vii) Hexachlorobutadiene, which were already listed as POPs under Stockholm Convention.

Blue Flag Certification

It is a proud moment for India as **8 beaches of India, spread across five states and two union territories, have been awarded the "BLUE FLAG"** by an International Jury comprising of eminent members viz UNEP, UNWTO, FEE, IUCN.

Details -

- The beaches that have been awarded the '**BLUE FLAG**" are Shivrajpur (Dwarka-Gujarat), Ghoghla (Diu), Kasarkod and Padubidri (Karnataka), Kappad (Kerala), Rushikonda (AP), Golden (Puri-Odisha) and Radhanagar (A&N Islands).
- India has also been awarded a 3rd Prize by the International Jury under the "**International Best Practices**" for pollution control in coastal regions.
- It is an outstanding feat considering that no 'Blue Flag' nation has ever been awarded for 8 beaches in a single attempt.
- India is also the first country in "Asia-Pacific" region which has achieved this feat in just about 2 years' time. Japan, South Korea and UAE are the only other Asian nations who have been conferred with a couple of Blue Flag beaches, however, in a time frame of about 5 to 6 years.

BEAMS Programme -

- Society for Integrated Coastal Management (SICOM), MoEFCC in pursuit of promoting its policies for sustainable development in coastal regions have embarked upon a highly acclaimed program "**BEAMS" (Beach Environment & Aesthetics Management Services) under its ICZM (Integrated Coastal Zone Management) project**.
- This is one of the several other projects of Integrated Coastal Zone Management that Government of India is undertaking for the **sustainable development of coastal regions**, striving for globally recognised and the coveted eco-label '**Blue flag**".
- The **objective of BEAMS program** is to abate pollution in coastal waters, promote sustainable development of beach facilities, protect & conserve coastal ecosystems & natural resources, and seriously challenge local authorities & stakeholders to strive and maintain high standards of cleanliness, hygiene & safety for beachgoers in accordance with coastal environment & regulations. **This program promotes beach recreation in absolute harmony with nature**.
- It is **India's own eco-label**.

About 'Blue Flag' certification -

- The 'Blue Flag' beach is an '**eco-tourism model**' and marks out beaches as providing tourists and beachgoers clean and hygienic bathing water, facilities/amenities, a safe and healthy environment, and sustainable development of the area.
- The Blue Flag Programme for beaches and marinas is run **by the international, non-governmental, non-profit organisation FEE (the Foundation for Environmental Education).**
- The Blue Flag Programme **started in France (by the Foundation for Environmental Education) in 1985** and has been implemented in Europe since 1987, and in areas outside Europe since 2001, when South Africa joined.
- Forty-seven countries currently participate in the program, and 4,573 beaches, marinas, and boats have this certification.
- Spain tops the list with 566 such beaches; Greece and France follow with 515 and 395, respectively.

INTERNATIONAL RELATIONS

Food and Agriculture Organisation

Prime Minister Narendra Modi has released commemorative coins of Rs 75 denomination to mark the 75th anniversary of FAO. He also dedicated to the nation, 17 recently developed biofortified varieties of crops.

About Food and Agriculture Organisation -

- The FAO is a specialised agency of the **United Nations**.
- Established in 1945, the Food and Agriculture Organisation (FAO) has its **headquarters in Rome, Italy**.
- It was founded with **a goal to provide food security for everyone** and assure that people will have access to high-quality food in sufficient quantities to achieve a healthy lifestyle.
- The FAO has 197 member countries, which includes the European Union as well. It conducts biennial conferences. The FAO Council is the executive arm of the governing body. The members elect the Council which is composed of 49 members.
- The FAO Council also **approved India's membership to the Executive Board** of the **United Nations World Food Program (WFP)** for 2020 and 2021.
- **World Food Day** is an international day celebrated every year worldwide on 16 October to commemorate the date of the founding of the United Nations Food and Agriculture Organisation in 1945.

Functions of FAO -

Food and Agriculture Organisation (FAO) is a global organisation and its functions can be listed as follows:

- Helping Governments and Development Agencies coordinate their activities which are targeted to develop and improve **agriculture, fisheries, forestry and other water and land resources**.
- **Conducting research and providing technical assistance** to various projects related to improving agricultural output and development.
- **Conducting training and educational programs** and also collecting and analysing agricultural data to improve yield and production.
- The FAO also brings out a number of publications/reports, some of which are, **the State of the World, the Global Report on Food Crises, the State of Food and Agriculture, the State of the World's Forests**, etc.

International Labour Organisation

After 35 years, India has assumed the **Chairmanship of the Governing Body of International Labour Organisation**, marking a new chapter in the 100 years of productive relationship between India and ILO.

About International Labour Organisation -

- International Labour Organisation was established in the year 1919 by the **Treaty of Versailles** as an affiliated agency of the **League of Nations.**
- It became the first affiliated **specialised agency** of the **United Nations in 1946.**
- Its **headquarters** is located in Geneva, Switzerland.
- **Objectives** - It promotes internationally recognised human and labour rights. It aims promote and realise standards and fundamental principles and rights at work; create greater opportunities for women and men to secure decent employment; enhance the coverage and effectiveness of social protection for all, and; strengthen tripartism and social dialogue.
- It has received the **Nobel Peace Prize in 1969** for improving peace among classes, pursuing decent work and justice for workers, and providing technical assistance to other developing nations.
- **Governing Body -**
  - It is the **executive council** of the ILO.
  - It meets **three times a year** in Geneva.
  - It takes **policy decisions of ILO** and establishes the programme and the budget, which it then submits to the Conference for adoption.
  - The work of the Governing Body and the Office is aided by **tripartite committees** covering major industries.

- It is also supported by committees of experts on such matters as **vocational training, management development, occupational safety and health, industrial relations, workers' education, and special problems of women and young workers**.

BECA

India and the US has inked the landmark defence pact, **Basic Exchange and Cooperation Agreement (BECA)** for Geo-Spatial Cooperation. The deal would help both the countries in sharing high-end military technology, geospatial maps and classified satellite data between their militaries.

About BECA -

- BECA enables **sharing geospatial information, including nautical and aeronautical charts**. The complete data, backed by highly accurate US satellites, **helps in navigation as well as targeting military assets**.
- Under BECA, the two countries can exchange maps, nautical and aeronautical charts, commercial and other unclassified imagery, geodetic, geophysical, geomagnetic and gravity data.
- Apart from the standard data, **the agreement includes sharing of classified information as well, with safeguards in place** to ensure that it is not shared with any third party.
- BECA will allow India to use US expertise on **geospatial intelligence and to enhance military accuracy of automated hardware systems** and weapons like cruise, ballistic missiles and drones.

About GSOMIA -

- It was signed in 2002 between India and USA.
- GSOMIA paved the way for **greater technology cooperation** in the military sector.
- It allows the sharing of classified information from the U.S. government and American companies with the Government of India and Defence Public Sector Undertakings (DPSU) but **not with Indian private companies**.

About LEMOA -

- Logistics Exchange Memorandum of Agreement (LEMOA) is a logistics support agreement signed in 2016.
- It gives both the nations access to each other's military facilities. But it does not make it automatic or obligatory.
- It is a tweaked India-specific version of the Logistics Support Agreement (LSA) which the U.S. has with several countries it has close military to military cooperation.
- The agreement will primarily cover four areas — **port calls, joint exercises, training and Humanitarian Assistance and Disaster Relief**. Any other requirement has to be agreed upon by both sides on a case-by-case basis.

About COMCASA -

- COMCASA is **an India-specific version of the Communication and Information on Security Memorandum of Agreement (CISMOA)**. It comes into force immediately and is valid for a period 10 years.
- It would facilitate **access to advanced defence systems** and enable India to optimally utilise its existing U.S.-origin platforms.
- COMCASA allows India to **procure transfer specialised equipment for encrypted communications** for US origin military platforms like the C-17, C-130 and P-8Is.

SCIENCE AND TECHNOLOGY

VAIBHAV Summit 2020

Prime Minister Shri Narendra Modi has inaugurated **Vaishvik Bhartiya Vaigyanik (VAIBHAV) Summit**.

About VAIBHAV Summit -

- The VAIBHAV Summit is a global virtual summit of overseas and resident Indian Researchers and Academicians, and is being organised from 2nd October to 31st October 2020.
- The aim of the summit is to **bring Indian origin luminaries in academic institutes and R&D organisations across the world and resident counterparts on a single platform** to debate upon collaboration mechanisms to strengthen academic and S&T base in India for global development.
- The initiative involves **multiple levels of interactions among overseas experts and Indian counterparts** over a month-long series of webinars, video conferences etc.
- **Key areas of discussion** will include - quantum technologies, artificial intelligence and machine learning, communications technologies, computational and data sciences and aerospace technologies among others.
- The Summit is a joint effort of various Science & Technology (S&T) and Academic organisations, including **Department of S&T, Defence Research and Development Organisation (DRDO)**.

Ind-CEPI Mission

Translational Health Science And Technology Institute (THSTI), an autonomous institute of the Department of Biotechnology, has now been recognised by CEPI as **one of the Global network of Laboratories for centralised assessment** of COVID 19 Vaccines.

Details -

- The CEPI network will initially involve **six labs, one each in Canada, Britain, Italy, the Netherlands, Bangladesh and India**.
- Under the CEPI Global network **the Laboratory will use the same reagents and follow a common set of protocols** to measure the immune response of multiple vaccine candidates under development and trial.
- This will greatly **harmonise the Vaccine trial process** and allow different vaccine candidates to be compared and speed up the selection of the most effective candidate.

About 'Ind-CEPI Mission' -

- The Ind-CEPI mission for establishment of BSL-3 facility, is a translational laboratory for platform technologies and a Bioassay laboratory for development of assays to measure clinical immunogenicity. The mandate of the bioassay laboratory at THSTI is to provide validated assays for vaccine development on par with global standards.
- The Department of Biotechnology, Ministry of Science & Technology, and Government of India has been implementing the IndCEPI mission '**India Centric Epidemic Preparedness through Rapid Vaccine Development: Supporting Indian Vaccine Development**'.
- The objectives of this mission are aligned with the Global Initiative of Coalition of Epidemic Preparedness for Innovation (CEPI) and **aims to strengthen the development of vaccines and associated competencies/technologies for the diseases** of epidemic potential in India.

About CEPI -

- The **Coalition for Epidemic Preparedness Innovations (CEPI)** is a foundation that takes donations from public, private, philanthropic, and civil society organisations, to finance independent research projects **to develop vaccines against emerging infectious diseases (EID)**.
- CEPI investment also requires "***equitable access***" to the vaccines during outbreaks.
- CEPI was conceived in 2015 and **formally launched in 2017 at the World Economic Forum (WEF) in Davos, Switzerland**.
- It was co-founded and co-funded with **US$460 million from the Bill and Melinda Gates Foundation, The Wellcome Trust, and a consortium of nations**, being Norway, Japan, Germany; to which the European Union (2019) and Britain (2020) subsequently joined.
- CEPI is headquartered in **Oslo, Norway**.

- In 2020, CEPI was identified by several media outlets as a "**key player in the race to develop a vaccine**" for coronavirus disease 2019.

Flash Flood Guidance Services

Ministry of Earth Sciences has dedicated Flash Flood Guidance services, first of its kind for South Asian countries namely **India, Bangladesh, Bhutan, Nepal and Sri Lanka**.

What are 'flash floods'?

- Flash floods are characterised by **very fast rise and recession of flow of small volume and high discharge**, which causes high damages because of suddenness. This occurs in hilly and not too hilly regions and sloping lands where heavy rainfall and thunderstorms or cloudbursts are common.
- A flood caused by **heavy or excessive rainfall in a short period of time, generally less than 6 hours**. Flash floods are usually characterised by raging torrents after heavy rains that rip through river beds, urban streets, or mountain canyons sweeping everything before them. They can occur within minutes or a few hours of excessive rainfall.
- 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 can also occur due to Dam or Levee Breaks, and/or Mudslides (Debris Flow).
- In areas on or near volcanoes, flash floods have also occurred after eruptions, when glaciers have been melted by the intense heat.
- The intensity of the rainfall, the location and distribution of the rainfall, the land use and topography, vegetation types and growth/density, soil type, and soil water-content all determine just how quickly the Flash Flooding may occur, and influence where it may occur.

Details about the 'Flash Flood Guidance System' -

- The Flash Flood Guidance is **a robust system designed to provide the necessary information in real-time** to support the development of warnings for flash floods about 6- 12 hours in advance at the watershed level with resolution of 4km x 4km for the Flash Flood prone South Asian countries viz. India, Nepal, Bhutan, Bangladesh and Sri Lanka.
- The system has **in-depth science, dynamics and diagnostics** to provide guidance for the possible occurrences of flash floods at local level.
- The model will provide forecasts by computing likelihood of rainfall and soil moisture levels to warn of possible floods. It will carry out forecasts by using combination of satellite mapping and ground-based observation.

Indian Tsunami Early Warning System

The new Director of INCOIS has said that India is much safer against the threat of tsunamis than it was in 2004 due to the state-of-the-art tsunami early warning system established in the Indian National Centre for Ocean Information Services (INCOIS).

About Indian Tsunami Early Warning System -

- The Indian Tsunami Early Warning System (ITEWS) was **established in 2007** and is based at & operated by INCOIS, Hyderabad.
- It is an **integrated effort** of different organisations including the Department of Space (DOS), Department of Science and Technology (DST), the Council of Scientific and Industrial Research (CSIR), Survey of India (SOI) and National Institute of Ocean Technology (NIOT).
- ITEWS comprises a **real-time network of seismic stations,** tide gauges and a **24X7 operational tsunami warning centre** to detect tsunami-genic earthquakes, to monitor tsunamis and to provide timely advisories to vulnerable communities.
- Indian scientists can detect large undersea earthquakes in Indian Ocean in real-time and provide a tsunami warning in 10-20 minutes after the earthquake occurs.
- India is among the **first few centres to introduce quantitative tsunami forecasts**. **Intergovernmental Oceanographic Commission (IOC)** of **UNESCO** (also known as UNESCO-IOC) accredited **Indian Tsunami Early Warning Centre** (ITEWC) as **Tsunami Service Provider**

(TSP) for 28 **Indian Ocean Rim (IOR) countries**, along with Indonesia and Australia in 2011, for issuing regional warnings.

About Indian National Centre for Ocean Information Services -

- Indian National Centre for Ocean Information Services (INCOIS) is **an autonomous organisation of the Ministry of Earth Sciences**, located in Pragathi Nagar, **Hyderabad**.
- ESSO-INCOIS was established as an autonomous body in 2007 under the Ministry of Earth Sciences (MoES) and is a unit of the Earth System Science Organization (ESSO).
- ESSO- INCOIS is **mandated to provide the best possible ocean information and advisory services to society, industry, government agencies and the scientific community** through sustained ocean observations and constant improvements through systematic and focussed research.

SECURITY

K-Missile family

A successful trial of the nuclear capable **Shaurya missile** was conducted by India recently. Shaurya is a land-based parallel of the submarine launched K-15 missile. These ballistic weapons belong to the **K missile family — codenamed after late Dr APJ Abdul Kalam — which are launched from Arihant class of nuclear submarines**.

About K-Missile Family -

- The K family of missiles are primarily **Submarine Launched Ballistic Missiles (SLBMs)**, which have been **indigenously developed by Defence Research and Development Organisation (DRDO)** and are named after Dr Kalam, the centre figure in India's missile and space programmes who also served as the 11th President of India.
- The development of these naval platform launched missiles **began in the late 1990s as a step towards completing India's nuclear triad** — the capability of launching nuclear weapons from land, sea and air based assets.
- Because these missiles are to be launched from **submarines**, they are **lighter, smaller and stealthier** than their land-based counterparts, the Agni series of missiles which are medium and intercontinental range nuclear capable ballistic missiles.
- While K family are **primarily submarine-fired missiles to be fired from India's Arihant class nuclear powered platforms**, the land and air variants of some of its members have also been developed by the DRDO.
- **Shaurya**, whose user trial was conducted recently, is **a land variant of short range SLBM K-15 Sagarika**, which has **a range of at least 750 kilometers**.
- India has also developed and successfully tested multiple times the **K-4 missiles from the family which has a range of 3500 km**. It is reported that more members of K-family — reportedly to have been codenamed **K-5 and K-6 — with ranges of 5000 and 6000 km are also under development**. The early development trials of K-15 and K-4 missiles had begun in the early 2010s.

Strategic importance of SLBMs -

- The capability of being able to launch nuclear weapons submarine platforms has great strategic importance **in context of achieving a nuclear triad**, especially in the light of 'no first use' policy of India.
- The sea-based underwater nuclear capable assets **significantly increases the second strike capability of a country** and thus **boosts its nuclear deterrence**.
- These submarines can not only survive a first strike by the adversary but also can **launch a strike in retaliation thus achieving Credible Nuclear Deterrence.**
- The 2016 commissioned nuclear powered Arihant submarine and its class members which in the pipeline, are the assets capable of launching missiles with nuclear warheads.

- Shaurya, like many of the modern missiles, **is a canister-based system**, which means that **it is stored and operated from specially designed compartments**. In the canister, the inside environment is controlled thus along with making its transport and storage easier, **the shelf life of weapons also improves significantly**.

While DRDO has been conducting these tests, there has not been any official communication from the agency about them, possibly because of classified nature of K family missile projects and their close link to the **Advanced Technology Vehicle (ATV) project** of which Arihant class vessels are part of. These recent tests of these systems can also be looked at as a strong message to China and Pakistan in light of the present situation in the region.

SMART launch

Supersonic Missile Assisted Release of Torpedo (SMART) has been successfully flight tested from Wheeler Island off the coast of Odisha.

What is a 'torpedo'?
Torpedoes are self propelled weapons with a warhead and can be used **under or on the water surface.** They are one of the mainstay of sea-warfare attack systems.

About SMART -
- SMART is **a missile assisted release of lightweight Anti-Submarine Torpedo System for Anti-Submarine Warfare (ASW) operations** far beyond Torpedo range.This launch and demonstration is significant in establishing Anti-Submarine warfare capabilities.
- A number of DRDO laboratories including DRDL, RCI Hyderabad, ADRDE Agra, NSTL Visakhapatnam have developed the technologies required for SMART.

Significance -
- The test encompasses **hybrid technology** which helps to upgrade the present system and also **increase the striking range**.
- SMART, when **launched from warship or a truck-based coastal battery**, takes off like a regular supersonic missile.
- It covers **most of its flight in the air at lower altitudes** with two-way data link from the warship or an airborne submarine target detection system and **provides the exact location of the hostile submarine to correct its flight path midway**.
- Just when it approaches close enough to the submerged submarine, **the missile will eject the torpedo system into the water and the autonomous torpedo will start moving towards its target** to take out the submarine.

RUDRAM

New generation **Anti Radiation Missile (RUDRAM)** was successfully Flight tested onto a radiation target located on Wheeler Island off the coast of Odisha. The missile was l**aunched from SU-30 MKI fighter aircraft**.

About RUDRAM -
- The RUDRAM is **first indigenous anti-radiation missile** of the country for Indian Air Force (IAF), being developed by Defence Research and Development Organisation (DRDO).
- The missile is **integrated on SU-30 MKI fighter aircraft** as the launch platform, having capability of varying ranges based on launch conditions.
- It has **INS-GPS navigation with Passive Homing Head** for the final attack. The RUDRAM hit the radiation target with pin-point accuracy.
- The missile is **a potent weapon for IAF for Suppression of Enemy Air Defence** effectively from large stand-off ranges.
- This first-of-its-kind missile in the IAF arsenal and can also be integrated with Mirage 2000, Jaguar, HAL Tejas and HAL Tejas Mark 2 in future. Currently, its primary test platform is Sukhoi Su-30MKI.

- This new-generation anti-radiation missile (NGARM) with **a strike range of around 100 to 150 km** is the first indigenous air-to-ground missile developed by the DRDO, after the supersonic BrahMos, which has been developed jointly with Russia.

Anti-Tank Guided Missile

The indigenously developed **laser-guided version of the Anti-Tank Guided Missile (ATGM) (Named 3rd Generation ATGM NAG Missile)** was successfully test fired by the Defence Research and Development Organisation (DRDO) recently and will undergo more validation tests in coming days before it is ready for the user trials.

Background -

- The development of **ammunition that can pierce the armours of tanks** and the material that can withstand such ammo has been an ongoing race **since World War I.** But it wasn't until the **next World War** that armies across the world began to use the ATGMs, **missile systems that can strike and neutralise armoured vehicles such as tanks**.
- While Indian Army mainly uses various **imported anti-tank guided missiles, the DRDO has been working on ATGMs** that can be launched from different platforms as part of the **Integrated Guided Missile Development Programme**.
- The indigenously developed low weight, fire and forget **Man Portable Anti Tank Guided Missile (MPATGM)** was successfully tested in September 2019. In February 2018, **ATGM Nag** was successfully tested in desert conditions. In the meantime, the government said in December 2019 that it has procured **Anti-Tank Spike Missiles from Israel** along with the allied systems to meet operational requirements of the Indian Army.

How are laser-guided ATGMs different?

- The laser-guided ATGM, which was successfully tested recently, mainly differs in one aspect from other ATGMS developed till date. This ATGM is **designed to be fired from tanks**.
- With its **range limited to 1.5 to 5 kilometres**, **it locks and tracks the targets with the help of laser designation to ensure precision in striking the target.**
- The missile uses a '***tandem***' High Explosive Anti Tank (HEAT) warhead. The term tandem **refers to the missiles using more than one detonation** in order to effectively penetrate the protective armours. This missile has the **capacity of piercing armoured vehicles** which use specially designed armour plates to counter the impact of such projectiles.
- This missile is currently undergoing tests to be integrated with **India's Main Battle Tank (MBT), Arjun**.

Importance in armoured warfare -

- The role of armoured and mechanised vehicles has remained decisive even in modern day warfare **because of their ability to go past conventional defences**.
- Tank battles are generally fought in a close range of under five kilometres. The objective is to **hit the enemy tank before they can take a clear shot**. Development of missile systems that can defeat tanks built using modern armour act as a deterrent against enemy tanks from advancing.
- The operability of the missile from a tank is a key feature in armoured warfare. The missile has the capability of engaging with the target even if it is not in the line of sight, thus further enhancing its capability.

INS Kavaratti

INS Kavaratti, the last of the four indigenously built Anti-Submarine Warfare (ASW) stealth corvettes built under Project 28 (Kamorta class), by Garden Reach Shipbuilders & Engineers (GRSE), Kolkata, was formally inducted into the Navy recently at the Naval Dockyard in Eastern Naval Command.

About INS Kavaratti -

- Kavaratti takes her name from erstwhile INS Kavaratti which was an Arnala class missile corvette.
- The older *Kavaratti* distinguished herself by operating in support of was **Bangladesh's liberation in 1971**.
- **INS *Kavaratti* (P31)** is an **anti-submarine warfare corvette** of the Indian Navy built under **Project 28**.
- It is the **last of four Kamorta-class corvettes** under various stages of induction with the Indian Navy.
- The ship has up to **90% indigenous content** using **carbon composites** for the superstructure is a commendable feat achieved in Indian shipbuilding.
- The ship, named after the capital of the Lakshadweep group of islands, has been constructed using high-grade DMR 249A steel produced in India.
- Kavaratti is **capable of fighting under nuclear, biological and chemical environments**. It will be **a frontline warship of the Indian Navy** with advanced stealth features and a low radar signature.

Project 28 -

- **P 28** is a project under which four Anti Submarine Warships have to be built indigenously in India by **Garden Reach Shipbuilders And Engineers (GRSE)** , **Kolkata**.
- *Project 28* was approved in 2003, with construction of the lead ship, INS Kamorta commencing on 12 August 2005.
- Three of the four corvettes, **INS Kamorta** , **INS Kadmatt** and **INS Kiltan** were commissioned in 2014, 2016 and 2017 respectively.
- *Project 28's* objective was to enhance localisation and development of warship construction industry in India.