18 Mar 2021: PIB Summary & Analysis

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1. Indian Naval Landing Craft Utility (LCU) L58

Context:

Indigenously built Indian Naval Landing Craft Utility L58 commissioned at Port Blair.

About L58:

- LCU L58 is the eighth and last ship of the Landing Craft Utility (LCU) Mark IV Class.
- The ship was indigenously designed and built by GRSE, Kolkata.
- The LCU 58 is an amphibious ship which can carry 160 troops, in addition to its crew.
- With a displacement of 900 tons, the ship is capable of carrying various types of combat vehicles such as Main Battle Tanks (MBTs), BMPs, Armoured Vehicles, trucks, etc.
- The ship measures 63 meters in length and is fitted with two MTA 4,000 series engines, which are capable of propelling the ship at speeds of up to 15 knots (28 kmph).
- The ship is also fitted with an advanced Electronic Support Measure (ESM) suite to intercept enemy radar transmissions, an advanced Integrated Bridge System (IBS) and a sophisticated Integrated Platform Management System (IPMS), which allow single station monitoring of the ship's navigational and machinery equipment respectively.
- The main armament of the ship includes two indigenously manufactured 30 mm CRN 91 guns which are controlled by a Stabilised Optronic Pedestal (SOP), an electronic day-night director sight manufactured by Bharat Electronics Limited (BEL).
- In addition, the ship is fitted with six Machine Gun Posts to neutralise air, surface and sub-conventional threats.
- The LCU 58 would be based at Port Blair and will be deployed in a variety of roles such as Beaching, Search and Rescue, Disaster Relief, Coastal Patrol and Surveillance operations along the Andaman and Nicobar Group of Islands, Bay of Bengal and in the Indian Ocean.

2. Water Quality Information Management System (WQMIS)

Context:

The Ministry of Jal Shakti launched the Water Quality Information Management System (WQMIS).

About Water Quality Information Management System (WQMIS):

- The Ministry (as part of the Jal Jeevan Mission), along with launching a framework and guidelines for testing, monitoring and surveillance of drinking water quality, had also launched the WQMIS.
- WQMIS is an online portal that provides detailed information on laboratories for this purpose. It also gives people access to data on water quality.
- The guidelines specify work to be done in terms of surveillance and monitoring at the state, district, block/tehsil and village levels.
- The guidelines have been prepared in consultation with the Indian Council of Medical Research (ICMR).
- The basic water quality parameters prescribed under the guidelines are pH value, total dissolved solids, turbidity, chloride, total alkalinity, total hardness, sulphate, iron, total arsenic, fluoride, nitrate, total coliform bacteria, e. *coli* or thermo-tolerant coliform bacteria.

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3. Jal Shakti Abhiyan

Context:

The Minister of State for Jal Shakti gave information about the Jal Shakti Abhiyan in the Lok Sabha.

Read more about the Jal Shakti Abhiyan in PIB dated 28 April, 2020.

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4. Vehicle Scrapping Policy

Context:

The Minister for Road Transport & Highways made a Suo Moto Statement in the Parliament on proposed “Vehicle Scrapping Policy”.

Background:

- India has 51 lakh Light Motor Vehicles which are older than 20 years and 34 lakh Light Motor Vehicles which are older than 15 years.
- Around 17 lakh Medium and Heavy Commercial Vehicles are older than 15 years without valid fitness certificate.
- Older vehicles pollute the environment 10 to 12 times more than fit vehicles and pose a risk to road safety.

Vehicle Scrapping Policy:

- In the interest of a clean environment and rider and pedestrian safety, the Ministry of Road Transport and Highways is introducing the **Voluntary Vehicle-Fleet Modernization Program or "Vehicle Scrapping Policy"** which is aimed at creating an ecosystem for phasing out unfit and polluting vehicles.
- The objectives of the policy are to:
    - Reduce population of old and defective vehicles.
    - Achieve reduction in vehicular air pollutants to fulfil India's climate commitments.
    - Improve road and vehicular safety.
    - Achieve better fuel efficiency.
    - Formalize the currently informal vehicle scrapping industry.
    - Boost availability of low-cost raw materials for automotive, steel and electronics industry.
- The ecosystem is expected to attract additional investments of around Rs. 10,000 Crore and 35,000 job opportunities.
- **How it works?**
    - The criteria for a vehicle to be scrapped is primarily based on the fitness of vehicles through Automated Fitness Centres in case of commercial vehicles and Non-Renewal of Registration in case of private vehicles.
    - The criteria has been adapted from international best practices after a comparative study of standards from various countries like Germany, UK, USA and Japan.
    - A vehicle failing the fitness test or failing to get a renewal of its registration certificate may be declared as End of Life Vehicle.
    - Criteria to determine vehicle fitness will be primarily emission tests, braking, safety equipment among many other tests which are as per the Central Motor Vehicle Rules, 1989.
- It is proposed that commercial vehicles be de-registered after 15 years in case of failure to get the fitness certificate.
- It is proposed that Private Vehicles be de-registered after 20 years if found unfit or in case of a failure to renew registration certificate.
    - As a disincentive measure, increased fees for fitness certificate and fitness test may be applicable for commercial vehicles and private vehicles 15 year onwards from the date of initial registration.
- The scheme shall provide strong incentives to owners of old vehicles to scrap old and unfit vehicles through registered scrapping centres, which shall provide the owners with a scrapping certificate. Some of these incentives include:
    - Scrap value for the old vehicle given by the scrapping centre, which is approximately 4-6% of ex-showroom price of a new vehicle.
    - The state governments may be advised to offer a road tax rebate of up to 25% for personal vehicles and up to 15% for commercial vehicles.

- The vehicle manufacturers are also advised to provide a discount of 5% on purchase of new vehicle against the scrapping certificate.
- In addition, the registration fees may also be waived for purchase of new vehicle against the scrapping certificate.

- The Ministry of Road Transport and Highways will promote setting up of Registered Vehicle Scrapping Facilities (RVSF) across India and will encourage public and private participation for opening up of such centres.

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5. US India Artificial Intelligence (USIAI)

Context:

US India Artificial Intelligence (USIAI) Initiative launched.

About USIAI:

- USIAI is an initiative of IUSSTF.
  - The Indo-U.S. Science and Technology Forum (IUSSTF), established under an agreement between the Governments of India and the USA in 2000, is an autonomous bilateral organization jointly funded by both the Governments that promotes Science, Technology, Engineering and Innovation through substantive interaction among government, academia and industry.
  - The nodal agency for the GOI is the Department of Science & Technology.
- USIAI Initiative focuses on AI cooperation in critical areas that are priorities for both countries.
- USIAI will serve as a platform to discuss opportunities, challenges, and barriers for bilateral AI R&D collaboration, enable AI innovation, help share ideas for developing an AI workforce, and recommend modes and mechanisms for catalyzing partnerships.

Also read: **Artificial Intelligence (AI)**

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6. High Electron Mobility Transistors (HEMTs)

Context:

New technology for High Electron Mobility Transistor will make India self-reliant in power transistor technology.

What are HEMTs?

- High Electron Mobility Transistor (HEMT) is a normally OFF device and can switch currents up to 4A and operates at 600 V.
- HEMTs are used in integrated circuits as digital on-off switches.

- HEMT transistors are able to operate at higher frequencies than ordinary transistors, up to millimeter wave frequencies, and are used in high-frequency products such as cell phones, satellite television receivers, voltage converters, and radar equipment.
- They are widely used in satellite receivers, in low power amplifiers and in the defense industry.

What's in News?

- Indian scientists have developed a highly reliable HEMT from gallium nitride (GaN).
- This is the first-ever indigenous HEMT device and is useful in electric cars, locomotives, power transmission and other areas requiring high voltage and high-frequency switching.
- This would reduce the cost of importing such stable and efficient transistors required in power electronics.
- The developed technology is a first of its kind, which uses a type of chemical called ternary oxide (composed of two different metal ions combined in an oxide matrix or Al, Ti and O), which behaves like material having larger positive charge concentration (p-type material).
- It does away with the intrinsic reliability and performance issues of the in-use industrial techniques for e-mode HEMTs, allowing the development of efficient power switching systems.
- The scientists are from the Department of Electrical Engineering, and Centre for Nanoscience & Engineering from the Indian Institute of Science, Bangalore.

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7. Artificial photosynthesis

Context:

Artificial photosynthesis to provide solutions for carbon capture and conversion.

Details:

- Scientists have found a method to mimic nature's own process of reducing carbon dioxide in the atmosphere, namely photosynthesis, to capture excess carbon dioxide in the atmosphere.
- **This artificial photosynthesis (AP) harnesses solar energy and converts the captured carbon dioxide to carbon monoxide (CO), which can be used as a fuel for internal combustion engines.**
- In artificial photosynthesis (AP), scientists are essentially conducting the same fundamental process in natural photosynthesis but with simpler nanostructures. However, there are plenty of hurdles to overcome as a successful catalyst to carry out AP.
- A team of scientists from JNCASR has designed and fabricated an integrated catalytic system based on a metal-organic framework (MOF-808) comprising a photosensitizer (molecules which absorb light and transfer the electron from the incident light into another nearby molecule) that can harness solar power and a catalytic centre that can eventually reduce CO2.
- The developed catalyst exhibited excellent visible-light-driven CO2 reduction to CO with more than 99% selectivity.

- The catalyst also oxidizes water to produce oxygen (O2).
- The photocatalytic assembly, when assessed for CO2 reduction under direct sunlight in a water medium without any additives, showed superior performance of CO production.
- Being heterogeneous, the integrated catalytic assembly can be reused for several catalytic cycles without losing its activity.

Note:- JNCASR or Jawaharlal Nehru Centre for Advanced Scientific Research is an autonomous institute under the Dept. of Science and Technology, GOI, located in Bangalore.