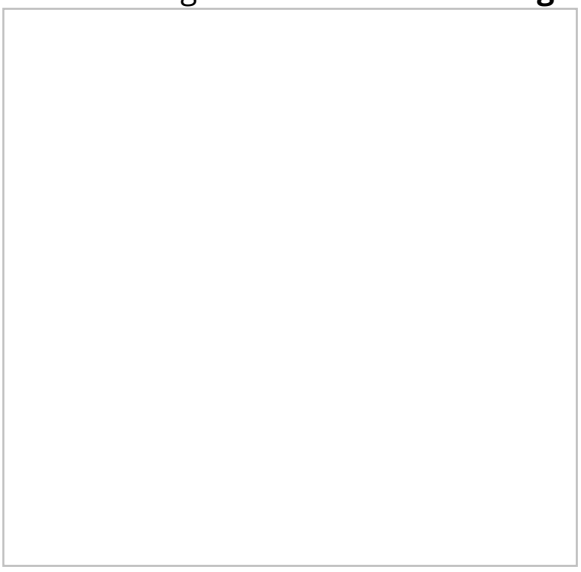
News Analysis (07 Mar, 2019)

Agreement on Maritime Security

Recently the **Indian Space Research Organisation (ISRO)** and its **French counterpart National Centre for Space Studies (CNES)** signed an agreement to set up a **joint maritime surveillance system in India by May 2019.**

- The two nations will explore putting up a constellation of **low-Earth orbiting satellites** that will identify and track movement of ships globally – and in particular those moving in the **Indian Ocean region where France has its Reunion Islands.**



- It provides for a **maritime surveillance centre** to be set up in **India by May 2019.**
- For the next phase of the programme, studies for an orbital infrastructure to be operated jointly by the two countries are ongoing. CNES is working with its industry partners and with ISRO to devise the most appropriate technical solution.
- Earlier the two agencies have already put up **two climate and ocean weather monitoring** satellites **Megha-Tropiques (of 2011)** and **SARAL-AltiKa (2013).**
- This fleet will be augmented with the launch of **Oceansat-3-Argos mission in 2020** and a future **joint infrared Earth-observation satellite.**

National Centre for Space Studies (CNES)

- CNES is the **French government space agency.**
- Its **headquarters** are located in central **Paris** and it is under the supervision of the **French Ministries of Defence and Research.**
- It was **founded in 1961.**

Nine Science and Technology Missions

Prime Minister's Science, Technology & Innovation Advisory Council (PM-STIAC) has identified nine national science missions aim to address major scientific challenges to ensure India's sustainable development.

> Each mission will be led by a lead Ministry and will engage international and national institutional partners, young scientists and industry.

The Nine Missions

- **Mission 1: Natural Language Translation**
  - The Mission aims to make opportunities and progress science and technology accessible to all by removing the barrier that the requirement of high-level of facility in English poses today.
  - Using a combination of machine and human translation, the mission will eventually enable access to teaching and research material bilingually i.e. in English and one's native Indian language.
  - **Lead Agencies:**
    - Ministry of Electronics and Information Technology
    - Ministry of Human Resource Development
    - Department of Science and Technology
- **Mission 2: Quantum Frontier**
  - It aims to initiate work in control of the quantum mechanical systems, with a large number of degrees of freedom, as one of the great contemporary challenges in fundamental science and technology.
  - Building excellence in the quantum frontier will also be essential for national security and in the development of quantum computers, quantum chemistry, quantum communication, new materials, quantum sensors and quantum cryptography.
  - **Lead Agencies:**
    - Department of Science and Technology
    - Department of Space
    - Department of Atomic Energy

        - Defence Research and Development Organisation
        - Ministry of Electronics and Information Technology
- **Mission 3: Artificial Intelligence (AI)**
    - It will focus on addressing societal needs in areas such as healthcare, education, agriculture, smart cities and infrastructure, including smart mobility and transportation.
    - **Lead Agencies:**
        - NITI Aayog
        - Department of Science and Technology
        - Ministry of Electronics and Information Technology
        - Department of Biotechnology
- **Mission 4: National Biodiversity Mission**
    - It will include
        - a comprehensive documentation of India's biodiversity with the potential for cataloguing and mapping all lifeforms in India including associated cultural and traditional practices,
        - assessment of the distribution and conservation status of India's biodiversity,
        - development of a cadre of professionals adept at handling large sets of environmental data for management and monitoring of biodiversity
        - establishment of a vibrant biodiversity based economy on a solid foundation of reliable information
        - engagement with the public
        - enhanced options for agricultural production and livelihood security and the general well-being of society.
    - **Lead Partners:**
        - Ministry of Environment, Forests and Climate Change
        - Department of Biotechnology
- **Mission 5: Electric Vehicles (EVs)**
    - It will develop vehicle subs-systems and components for Indian requirements including rare earth based 4 electric motors, Li-ion batteries, power electronics etc. using academia industry collaboration.
    - This mission is critical for India to reduce fossil fuel consumption and mitigate emissions. For EVs to become economically viable and scalable, focused research, development and innovation are needed to build indigenous capability. Vehicles need to be energy efficient, use light and efficient batteries that function well in India specific conditions with materials that are recyclable.
    - **Lead Agencies:**
        - Department of Science and Technology
        - Department of Heavy Industries
        - Ministry of New and Renewable Energy

        - Ministry of Power
        - NITI Aayog
- **Mission 6: BioScience for Human Health**
    - It aims to construct comprehensive reference maps of genomes and to understand the dynamics of how exposure to different environments have impact on our bodies.
    - The mission will focus on the genomic study of populations of humans to identify and unravel the genetic basis and prevalence of rare and inherited diseases.
    - The outcome will help stimulate better diagnosis and treatment that can feed into the health care system of the country.
    - The diversity of Indians and of its environment requires a large-scale study of human genomes specific to our lifestyle and how this impact health and disease patterns.
    - Lead Partners:
        - Department of Biotechnology
        - Department of Health Research
        - Department of Health
        - Department of Science and Technology
        - Department of Atomic Energy
- **Mission 7: Waste to Wealth**
    - It aims to identify, develop and deploy technologies to treat waste to generate energy, recycle materials and extract worth.
    - The mission will also work to identify and support development of new technologies that hold promise in creating a clean and green environment.
    - The mission will assist and augment the Swachh Bharat and Smart Cities project by leveraging science, technology and innovation to create circular economic models that are financially viable for waste management to streamline waste handling in India.
    - **Lead Agencies:**
        - Department of Biotechnology
        - Department of Science and Technology
        - Ministry of Environment, Forest and Climate Change
        - Ministry of Urban Development
        - Swachh Bharat Abhiyan
- **Mission 8: Deep Ocean Exploration**
    - It aims to scientifically explore the deep oceans towards improving India's understanding of the blue frontier.
    - It will address issues arising from long term changes in the ocean due to climate change.
    - The focus areas cover:

        - the development of technologies for deep sea exploration and exploitation of living (biodiversity) and non-living (minerals) resources
        - development of underwater vehicles and underwater robotics
        - development of ocean climate change advisory services
        - technological innovations and conservational methods for sustainable utilisation of marine bio-resources
        - offshore based desalination techniques and renewable energy generation

Lead Agencies:

- Ministry of Earth Sciences
- Department of Biotechnology
- Department of Space
- Ministry of New and Renewable Energy
- Oil and Natural Gas Corporation
- Defence Research and Development Organisation
- Geological Survey of India
- National Hydrographic Office
- National Biodiversity Authority

Mission 9: AGNIi (Accelerating Growth of New India's Innovations)

- The mission aims to support the national efforts to boost the innovation ecosystem in the country by connecting innovators across industry, individuals and the grassroots to the market and helping commercialise innovative solutions.
- It will provide a platform for innovators to bring their technology ready products and solutions to industry and the market thereby helping propel techno-entrepreneurship which can usher a new era of inclusive socio-economic growth.
- The mission includes services across the techno-commercialization chain required to support and upscale market-ready indigenous innovations.
- The initiative includes
    - working with government R&D laboratories and academia to help commercialise their innovations;
    - collaborate and value add to existing innovation programs;
    - training and capacity building of scientists, innovators, technology transfer offices and technology license offices
    - Linking specific needs of industry to research laboratories to enable development of cost-effective marketable solutions
    - **Lead Partner: Invest India**

Other major projects of the Office of the Principal Scientific Adviser

- **Earth Museum:** A state-of-the-art museum which will serve as a national repository for specimen fossil preservation and conservation.
    - It will be also designed as a major centre for research in geological and other natural sciences.
    - This will help to educate students and citizens about the exploration, conservation and preservation of India's natural heritage.
- **I-STEM-** Indian Science Technology, and Engineering Facilities Map: A regularly updated national portal of publicly funded R&D facilities and equipment, installed and working in R&D and academic institutions across the country.
- **Energy Security:** An expert Committee for exploration and procurement of critical minerals required for the National Mission of Electric Mobility has been set up in consultation with Ministry of Mining to examine the reserves of Lithium, Cobalt, etc. in the country as well as possible tie-up with mining sector of other countries for sourcing these.
    - KABIL, a joint venture of MECL, NALCO and HCL has initiated preliminary discussions for possible agreement on sourcing Lithium and Cobalt from countries like Australia, Argentina and Bolivia.
    - In February 2019, KABIL team visited Argentina to conduct a primary survey of different mines in Argentina.

NOTE

- The Prime Minister's Science, Technology and Innovation Council is an overarching body which assesses the status of specific S&T domains, comprehends challenges, formulates immediate, mid and long term interventions and presents a roadmap to the Prime Minister.
- The Principal Scientific Adviser coordinates to facilitate and ensure implementation of major interventions by concerned Government Departments, Agencies and Ministries.
- Amongst the terms of reference of the Council are to formulate, converge, collaborate, coordinate and implement multi-stakeholder policy initiatives, mechanisms, reforms and programmes aimed at:
    - Synergizing S&T covering fundamental to applied research in collaboration with multiple stakeholders both in central and state governments
    - Enabling future preparedness in emerging domains of science and technology
    - Formulating and coordinating major inter-ministerial S&T missions
    - Providing an enabling ecosystem for technology led innovations and techno entrepreneurship
    - Driving innovation and technology delivery towards solving socio-economic challenges for sustainable growth
    - Fostering effective public-private linkages for driving research and innovation
    - Developing science, technology and innovation clusters with multiple stakeholders including academia, industry and government

- Skilling in current and futuristic technologies

Important Fact For Prelims (7th March 2019)

Janaushadhi Diwas

- The **Ministry of Chemicals and Fertilizers** has decided to **celebrate 7th March 2019 as 'Janaushadhi Diwas'** across India to provide further impetus & create awareness about use of generic medicines.
- To provide quality healthcare affordable for all, the Government has taken important steps to make affordable and quality generic medicines popular among the people through **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP).**
- Apart from providing affordable quality health products, the PMBJP is also providing a **good source of self-employment** with self-**sustainable and regular earnings.** E.g.:
    - Average sales per store per month has grown to Rs 1.50 lakhs as per a survey conducted by the Bureau of Pharma PSUs of India (BPPI).

Swachh Survekshan Awards 2019

- **New Delhi Municipal Council** area was given the **'Cleanest Small City'** award.
- **Uttarakhand's Gauchar** was adjudged the **'Best Ganga Town'** in the central government survey.
- The **'Cleanest Big City'** award has been bagged by **Ahmedabad.**
- **Raipur** is the '**Fastest Moving Big City'.**
- **Ujjain** has been the adjudged the **'Cleanest Medium City'.**
- **Mathura-Vrindavan** bagged the tag of the **'Fastest Moving Medium Cities'.**

Swachh Survekshan awards(Urban)

- The **Union Ministry of Housing and Urban Affairs (MoHUA)** started **'Swachh Survekshan-2016'** survey for the rating of 73 cities in January 2016.
    - It was followed by 'Swachh Survekshan-2017' conducted in January ranking 434 cities.
    - Swachh Survekshan 2018 for ranking 4,203 Cities.
- In a bid to scale up the coverage of the ranking exercise and encourage towns and cities to actively implement mission initiatives in a timely and innovative manner, **the 2019 survey included all cities, making it the largest such cleanliness survey in the world.**
- The **Quality Council of India (QCI)** has been commissioned the responsibility of carrying out the assessment.
- Top-ranked cities received a **statue of Mahatma Gandhi** as a memento for their work

towards cleanliness.

- Google has recently launched a **new app called Bolo.** It will help students in India read in Hindi and English and work as a tutor of sorts.
- The Bolo app comes after a pilot project that Google ran in Uttar Pradesh with ASER centre.
- The **annual ASER 2018 report** showed that of all students enrolled in grade 5 in rural India, only about half of them can confidently read a grade 2 level textbook.
    The Google Bolo app will hope to **plug that gap with its tutor-based approach** in **helping children read.**
- The app includes an **Assistant called Diya** as well, which encourages children with their reading, understanding skills.
- The app relies on Google's speech recognition and text-to-speech technology and currently limited to **two languages, Hindi and English.**
