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General Studies- 1

Geography

Holistic Development of Islands

Context:

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

Objective of Conference:

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

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

About the Holistic Development of Islands & Investors' Conference

- Sustainable development of islands and overall maritime development has been accorded high priority by the Government.
- Island Development Agency (IDA) an apex body, under the chairmanship of Hon'ble Home Minister, was constituted in June 2017, while NITI Aayog has been mandated to steer the Holistic Development of Islands program, along with the respective UT administration/ State Governments.
- Under the said program in the first phase 10 Islands in Andaman & Nicobar and Lakshadweep have been taken up for holistic development.

About IDA:

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

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Institutional Structure of IDA:

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

Progress Made so far:

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

General Studies-3

Infrastructure & Environment

Green corridor in Railways

Why in News?

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

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

- The 114-km-long Manamadurai– Rameswaram stretch of Southern Railway became India's ***first 'Green corridor'***.

About Bio-Toilets:

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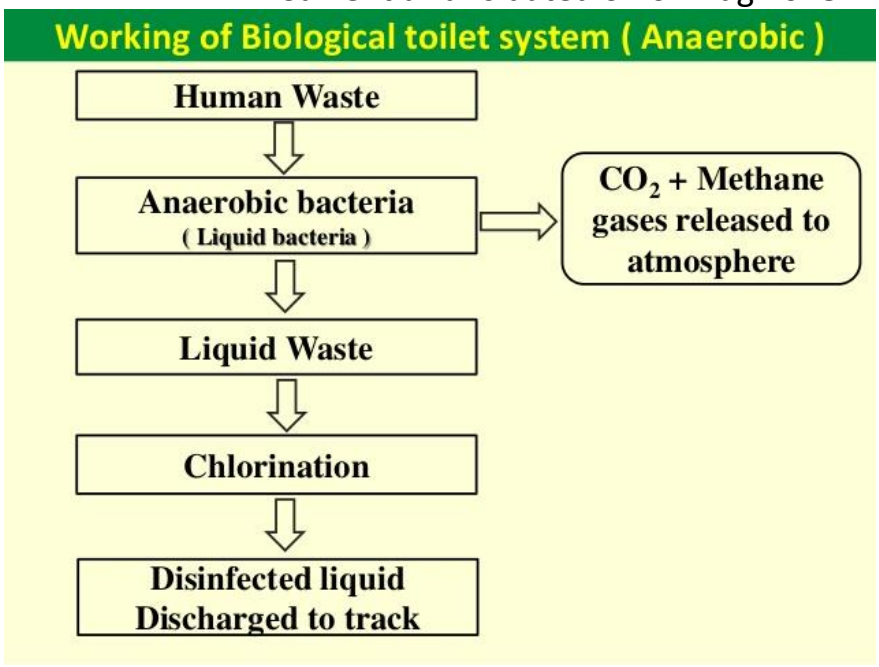

Energy Related Issues:

Unconventional Hydrocarbons:

Context:

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

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

About Shale gas:

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

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

Shale Reserve in India:

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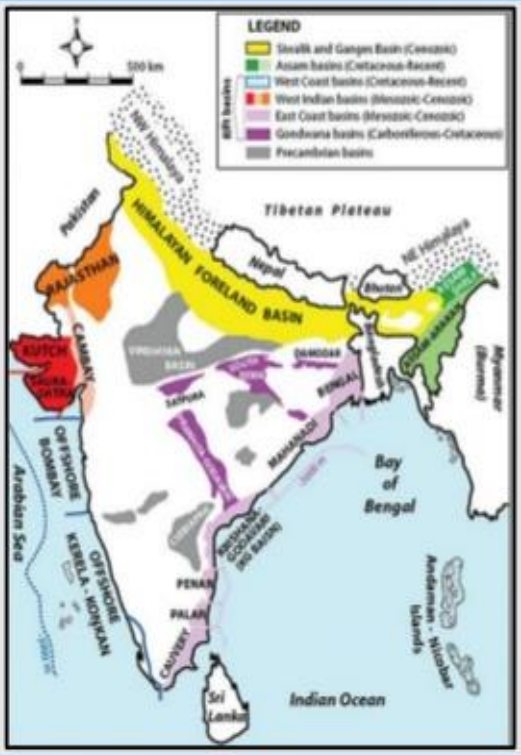
In preliminary studies, 'in place' probable Shale gas resources in the range of 100-200 TCF in 5 Indian sedimentary basins have been assessed by various international agencies.

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

Potential Shale Gas Basins

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



Current Status of Shale gas:

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

Benefits:

- This policy will enable the realization of prospective hydrocarbon reserves in the existing Contract Areas which otherwise would remain unexplored and unexploited.

- With this policy dispensation, new investment in Exploration and Production (E&P) activities and chances of finding new hydrocarbon discoveries and resultant increased domestic production thereof is expected.

- Exploration and exploitation of additional hydrocarbon resources is expected to spur new investment, impetus to economic activities, additional employment generation and thus benefitting various sections of society.

- This will lead to induction of new, innovative and cutting-edge technology and forging new technological collaboration to exploit unconventional hydrocarbons.

Background:

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

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

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

Space Science related Issues:

Navigation Satellites:

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Why in News?

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

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

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

About IRNSS

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

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

Services Provided by IRNSS:

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

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

Some applications of IRNSS are:

- Terrestrial, Aerial and Marine Navigation
- Disaster Management
- Vehicle tracking and fleet management
- Integration with mobile phones
- Precise Timing
- Mapping and Geodetic data capture
- Terrestrial navigation aid for hikers and travellers
- Visual and voice navigation for drivers

How does it Work?

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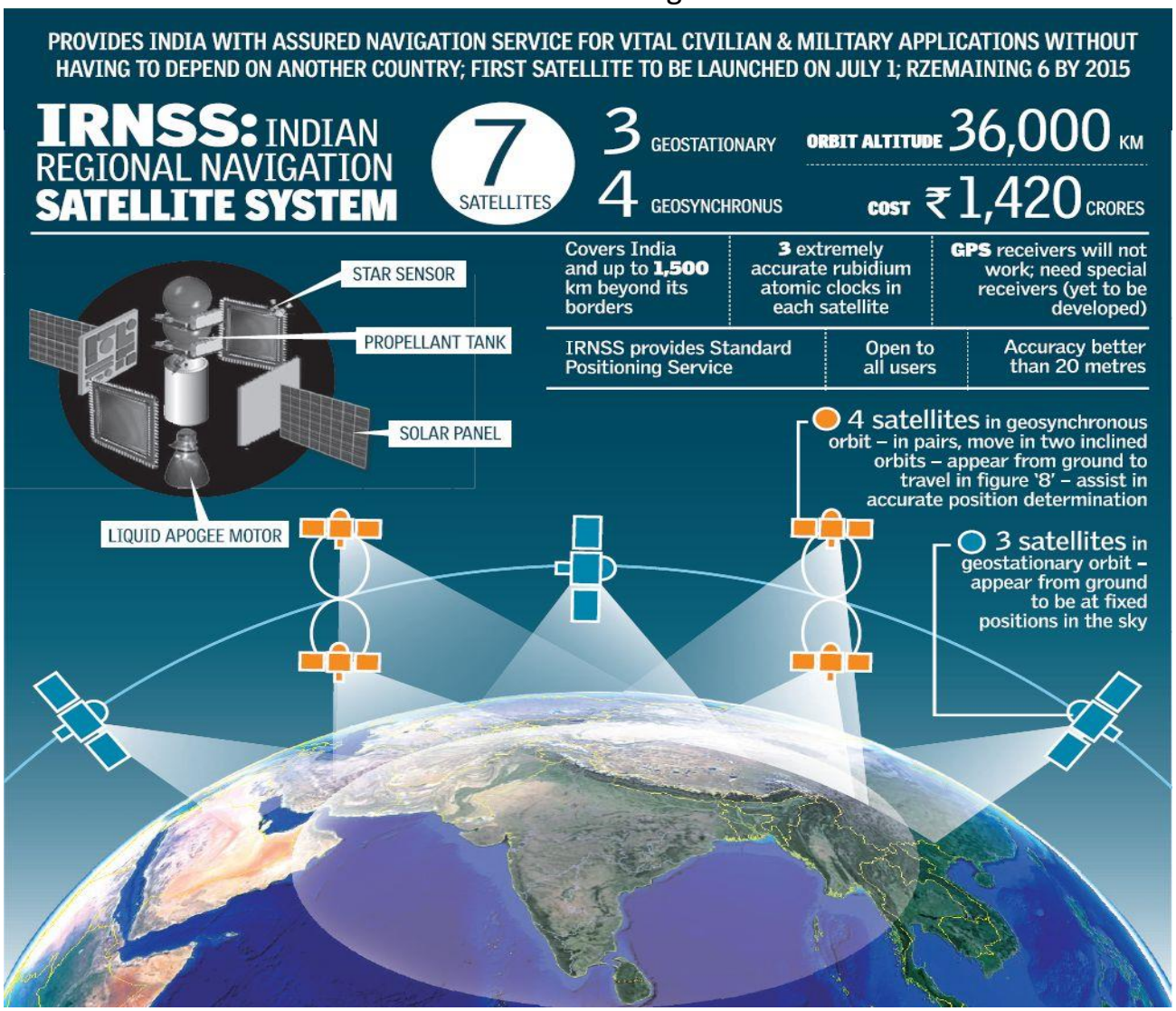

Viability of Nuclear Power Projects:

Context:

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

- Kakrapar Atomic Power Project (KAPP) 3&4 (2X700 MW) at Kakrapar, Gujarat,
- Rajasthan Atomic Power Project RAPP 7&8 (2 X 700 MW) at Rawatbhata, Rajasthan and

- Prototype Fast Breeder Reactor (PFBR) (500 MW) at Kalpakkam, Tamil Nadu.

Issue with Viability::

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

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

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

India's Nuclear Energy Spread:

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