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EX-Indra 2020

- Move comes amid ongoing standoff with China in Ladakh, tensions in Indian Ocean
- Amid high operational alert by the Indian Navy in the Indian Ocean Region (IOR) due to the ongoing standoff with China in Ladakh,
- India and Russia are scheduled to hold the bilateral naval exercise, Indra 2020, in the Andaman Sea.
- The exercise will be carried out close to the strategic Strait of Malacca.
- Three Russian navy ships will take part in the exercise with an equal number from the Indian Navy, along with some aircraft.
- This is also the first bilateral naval exercise since all such engagements were suspended due to COVID-19.
- The timing of the exercise comes just after India withdrew from the Kavkaz-2020 multinational exercise in Russia scheduled for later this month.

Oruç Reis Vessel

- Oruç Reis is an energy exploration vessel of turkey.
- The vessel has been deployed in seismic research in the East Mediterranean sea.
- The Turkish vessel is accompanied by two Turkish naval ships, this had created standoff between Greece, Egypt and Turkey in Mediterranean Sea.
- Recently Turkey resumed energy exploration in the region after Greece and Egypt signed a controversial maritime delimitation deal.
- The agreement came only a day after Ankara said it would postpone its oil and gas exploration as a goodwill gesture.
- But, after declaring the Greek-Egyptian deal "null and void," Turkey authorized the Oruç Reis to continue its activities in an area within the country's continental shelf.
- Turkey has consistently opposed Greece's efforts to declare an exclusive economic zone (EEZ) based on small islands near Turkish shores, violating the interests of Turkey, the country with the longest coastline in the

Mediterranean.

Coal Gasification

- Coal gasification is the process of producing syngas from coal and water, air and/or oxygen, a mixture consisting primarily of

1. Carbon monoxide (CO),
2. Hydrogen (H_2),
3. Carbon dioxide (CO_2),
4. Natural gas (CH_4),
5. Water vapor (H_2O)

- Historically, coal was gasified to produce coal gas, also known as "town gas".
- Coal gas is combustible and was used for heating and municipal lighting, before the advent of large-scale production of natural gas from oil wells.
- In current practice, large-scale coal gasification installations are primarily for electricity generation, or for production of chemical feedstock.
- The hydrogen obtained from coal gasification can be used for various purposes such as making ammonia, powering a hydrogen economy, or upgrading fossil fuels.
- Natural gas from coal gasification can be cooled until it liquifies for use as a fuel in the transport sector.
- Union Coal Ministry organized a webinar on Coal Gasification and Liquefaction, in which it has announced the plans for 100 million tons (MT) coal gasification by 2030.
- Significant plans discussed in the webinar are

1. For encouraging use of clean sources of fuel, government has provided for a concession of 20% on revenue share of coal used for gasification.
2. This will boost production of synthetic natural gas, energy fuel, urea for fertilizers and production of other chemicals.
3. For development of Surface Coal Gasification in India, a Steering Committee has been constituted under the chairmanship of Dr. V.K. Saraswat, Member, NITI Aayog comprising of members from the Ministry of Coal.
4. CIL has also planned to set up at least 3 gasification plants (besides Dankuni).

Renati Cholas

- The Telugu Cholas of Renadu are also called as Renati Cholas.

- They ruled over Renadu region, the present day Cuddapah district.
- They were originally independent, later forced to the suzerainty of the Eastern Chalukyas.
- They had the unique honour of using the Telugu language in their inscriptions belonging to the 6th and 8th centuries.
- The inscriptions at Gandikota at Jammulamadugu and Proddatur are proof of this fact.
- The earliest of this family was Nandivarman (500 AD) who claimed descent from the family of Karikala and the Kasyapa gotra.
- Recently a rare inscription dating back to the Renati Chola era has been unearthed in a remote village of Kadapa district.
- The inscription has been found engraved on a dolomite slab and shale.
- The inscription was written in archaic Telugu which was readable in 25 lines.
- It was assigned to the 8th Century A.D., when the region was under the rule of Chola Maharaja of Renadu.

World's Largest Solar Tree

- CSIR- Central Mechanical Engineering Research Institute (CMERI) has developed the World's Largest Solar Tree and installed it at Durgapur, West Bengal.
- The installed capacity of the Solar Tree is above 11.5 kWp.
- There are a total of 35 Solar PV Panels in each tree with a capacity of 330 wp each.
- It has the annual capacity to generate 12,000-14,000 units of Clean and Green Power, West Bengal.
- The inclination of the arms holding the Solar PV Panels are flexible and can be adjusted as per requirement, this feature is not available in Roof-Mounted Solar facilities.
- MSMEs who are interested in the solar tree can align their Business Model with PM KUSUM Scheme for farmers, for developing a Renewable Energy based Energy Grid.

PM-KUSUM

- Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) is a scheme of Ministry of New and Renewable Energy (MNRE).
- PM-KUSUMscheme has a target to set up 25,750 megawatts (MW) solar capacity by 2022 to power irrigation pumps.
- The approved scheme comprises of three components:

1. Setting up of 10,000 MW of decentralized ground / stilt-mounted grid-connected solar or other renewable energy based power plants
2. Installation of 17.5 lakh standalone solar agriculture pumps
3. Solarisation of 10 lakh grid-connected solar agriculture pumps

- It comes with central financial support of close to Rs 34,000 crore.

'Project NETRA'

- Project NETRA - Network for space object Tracking and Analysis is an early warning system of ISRO, launched in 2019.
- It aims for early waring in space to detect debris and other hazards to Indian satellites.
- Under the project, the ISRO plans to put up many observational facilities such as

1. Connected radars,
2. Telescopes,
3. Data processing units
4. Control center.

- The project will give India its own capability in Space Situational Awareness (SSA) like the other space powers which is used to 'predict' threats from debris to Indian satellites.
- NETRA's eventual goal is to capture the GEO, or geostationary orbit, scene at 36,000 km where communication satellites operate.
- The effort would make India a part of international efforts towards tracking, warning about and mitigating space debris.

Space Junk

- Space junk is an ever-growing problem with more than 7,500 tonnes of redundant hardware now thought to be circling the Earth.
- Ranging from old rocket bodies and defunct spacecraft through to screws and even flecks of paint, this material poses a collision hazard to operational missions.
- The rising population of space debris increases the potential danger to all space vehicles, but especially to the International Space Station (ISS), space shuttles, satellites and other spacecraft.

Source: The Hindu, Times of India



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