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1 | Urban Mobility India Conference

CONTEXT:

- 3ᵗʰ Urban Mobility India Conference on "Emerging Trends in Urban Mobility" Inaugurated

ABOUT:

- In the aftermath of the ongoing Covid-19 pandemic, India is likely to experience a behavioral change in urban mobility. This crisis also presents an opportunity to guide the recovery of urban transport towards long-term development goals.

- India is witnessing the arrival of a new generation of mobility discourses, which are nuanced enough to provide sustainable urban mobility.

- The Ministry has issued a detailed advisory, as to how the nation needs to move ahead in these testing times.

- It rests on three key pillars, namely,

  ◎ promotion of public transport system

  ◎ leveraging technological advancements

  ◎ penetration of NMT systems in the urban transport paradigm

- Various studies show that about 16-57% of urban commuters are pedestrians and about 30-40% of commuters use bicycles in the country depending on the size of the city.

- Considering this as an opportunity, elevating the priority of these modes gives travelers another private vehicle alternative, which is clean, safe, secured particularly if it is integrated with other modes and affordable for all.

- Non-motorized transport will occupy the prime, non-negotiable, position in every form of urban mobility discourse, and intervention.

2 | The 15ᵗʰ Finance Commission

CONTEXT:

- The 15th Finance Commission led by Chairman Sh N K Singh submits its Report for 2021-22 to 2025-26 to the President of India.

ABOUT:

- The Commission was asked to give its recommendations on many unique and wide-ranging issues in its terms of reference.

- Apart from the vertical and horizontal tax devolution, local government grants, disaster management grant, the Commission was also asked to examine and recommend performance incentives for States in many areas like power sector, adoption of DBT, solid waste management etc.

- The Commission was also asked to examine whether a separate mechanism for funding of defence and internal security ought to be set up and if so how such a mechanism could be operationalised.

The Finance Commission:

➤ The Finance Commission is a Constitutionally mandated body that is at the centre of fiscal federalism. Set up under Article 280 of the Constitution, its core responsibility is to evaluate the state of finances of the Union and State Governments, recommend the sharing of taxes between them, lay down the principles determining the distribution of these taxes among States.

➤ Its working is characterised by extensive and intensive consultations with all levels of governments, thus strengthening the principle of cooperative federalism.

➤ Its recommendations are also geared towards improving the quality of public spending and promoting fiscal stability.

➤ The first Finance Commission was set up in 1951 and there have been fifteen so far. Each of them has faced its own unique set of challenges.

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3 | Guidelines on Television Rating Agencies in India

CONTEXT:

● Ministry of I&B constitutes committee to review Guidelines on Television Rating Agencies in India.

ABOUT:

● Ministry of Information and Broadcasting has constituted a committee to review "Guidelines on Television Rating Agencies in India" notified by the Ministry in 2014.

● The present guidelines issued by the Ministry of Information and Broadcasting (MIB) on Television Rating Agencies in India were notified after detailed deliberations by the Parliamentary Committee, Committee on Television Rating Points (TRP) constituted by the MIB and recommendations of Telecom Regulatory Authority, etc.

● It has been found, based on the operation of the guidelines for a few years, that there is a need to have a fresh look at the guidelines particularly keeping in view the recent recommendations of Telecom Regulatory Authority of India (TRAI), technological advancements/interventions to address the system and further strengthening of the procedures for a credible and transparent rating system.

● A committee has been hereby constituted to study different aspects of the television rating system in India as they have evolved over a period of time.

● The Committee shall carry out an appraisal of the existing system; examine TRAI recommendations notified from time to time, overall industry scenario and addressing the needs of the stakeholders and make recommendations for robust, transparent, and accountable rating system through changes, if any, in the existing guidelines.

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4 | e-Sanjeevani

CONTEXT:

● Health Ministry's telemedicine service eSanjeevani completes 7 lakh consultations.

ABOUT:

- An innovative intervention to deliver health services, eSanjeevani has started making an impact in smaller towns and rural areas.

- While telemedicine is beneficial for the patients, it also is favorable for the doctors practicing telemedicine as it limits the contact with patients who are present virtually.

- eSanjeevani has removed the requirement of doctors to be at a specific location to provide services, it enables States especially the ones with a large geographical area, to better management of their human resources.

- Through eSanjeevani, patients desirous of seeking medical consultations are placed in a virtual queue and upon their turn can see a doctor who is available virtually but present in another city.

- Each online OPD consultation generates an ePrescription which can be used to buy medicines or go for diagnostic investigations.

- eSanjeevani supports two types of online consultation with general physicians and medical specialists, these are Doctor-to-Doctor (eSanjeevani AB-HWC) and Patient-to-Doctor (eSanjeevani OPD) Tele-consultations. The former variant was rolled out in November 2019 and it is an important pillar of the Ayushman Bharat Health and Wellness Centre (AB-HWCs) programme.

- eSanjeevani (AB-HWC) is to be implemented in all the 1.5 lakh Health and Wellness Centres in a 'Hub and Spoke' model, by December 2022.

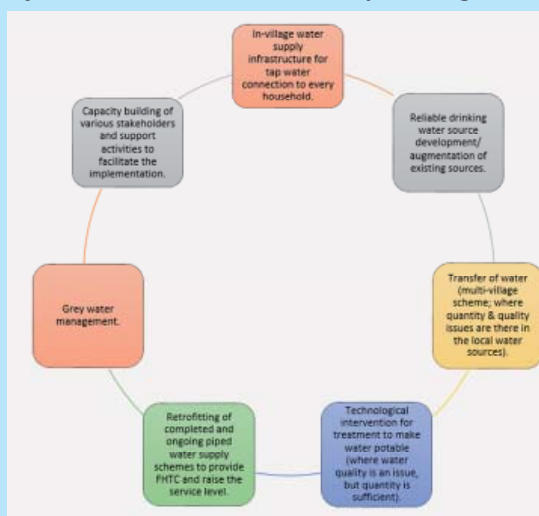| 5	Grand Challenge for development of "Smart Water Supply Measurement and Monitoring System"

CONTEXT:

- In order to harness the power of technology in water management, the Ministry of Electronics & Information Technology in partnership with National Jal Jeevan Mission, Department of Drinking Water and Sanitation, Ministry of Jal Shakti had announced an ICT Grand Challenge to develop a 'Smart water supply measurement and monitoring system'.

ABOUT:

- The Jal Jeevan Mission would be the user agent of the Grand Challenge and C-DAC, Bangalore is the implementing agency and would provide technical support for the challenge.
- C-DAC will also provide technical support for Proof of Concept (PoC) development to the shortlisted candidates. It would also provide mentoring support, technical guidance to them.
- The challenge witnessed enthusiastic participation from all over India . These applications were received from various sectors like LLP Companies, Indian Tech start-ups, Individuals etc.
- This Grand Challenge will harness the vibrant IoT eco-systems of India for creating smart rural water supply eco-system to measure and monitor the service delivery of the water supply in rural areas.
- This Challenge will provide an opportunity to work for Jal Jeevan Mission and to assure potable water supply through Functional Household Tap Connections to every rural household.

The Jal Jeevan Mission (JJM):

➤ Jal Jeevan Mission is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India.

➤ The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through greywater management, water conservation, rainwater harvesting.

➤ The Jal Jeevan Mission will be based on a community approach to water and will include extensive Information, Education and communication as a key component of the mission.

➤ JJM looks to create a jan andolan for water, thereby making it everyone's priority.

6	AYUSH

CONTEXT:

- Ministry of AYUSH and M/s Invest India will form a collaboration to set up a strategic policy unit called "**Strategic Policy & Facilitation Bureau (SPFB)**" to facilitate planned and systematic growth of the Ayush Sector.

ABOUT:

- Setting up of the SPFB is a forward-looking step which will make the Ayush systems future-ready. This Bureau will support the Ministry in strategic and policy-making initiatives that shall help pave the way to reach the full potential of the Sector and stimulate growth and investment.

- At a time when the Covid-19 pandemic is leaving indelible imprints in the health-seeking behaviors of people around the world, such a strategy unit can be of immense support to the stake-holding groups of the Ayush Sector.

- As a partner in the project, M/S Invest India would collaborate extensively with the Ministry to frame the work plan of the Bureau and define its short-and long-term targets. Invest India would deploy highly trained and expert resources to implement and execute the plans of the Ministry of AYUSH.

The activities to be undertaken by the SPFB would include:

- Knowledge Creation and Management,
- Strategic & Policy-Making Support,
- **State Policy Bench marking:** Undertaking State Policy bench marking to formulate uniform guidelines/regulations regarding AYUSH sector in India,
- **Investment Facilitation:** Follow up and facilitation of investment cases and MoUs, and coordination among different Department, organisations and States.
- **Issue Resolution**: Invest India would work with companies and other institutions on issue resolution across States and among various sub-sectors.

  - Some of the Specific Deliverables of Bureau would include project monitoring for Inter-Ministerial Groups, Skill Development Initiatives, setting up Strategic Intelligence Research Unit and initiating an Innovation Program.

  - The Ministry of AYUSH would assist the Bureau in responding to investment proposal, issue and queries and fund Invest India for undertaking activities assigned. The Ministry will also support the Bureau in building links with various stakeholders such as industry associations, affiliate bodies of Ministry and Industry representation.

  - The SPFB is the latest in a series of steps – like setting up the comprehensive IT backbone called Ayush Grid for the entire Sector, streamlining of Ayush Education on modern lines, evolving global standards for Ayush systems for diagnostics and terminologies in the ICD framework and setting up a vertical for Ayush Drugs Control – initiated by the Ministry to enable the Ayush systems to move into the centre-stage of healthcare activities in the 21ˢᵗ century, many of which have already progressed into the implementation phase.

AYUSH:

➤ AYUSH is the acronym of the medical systems that are being practiced in India such as Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy.

➤ These systems are based on definite medical philosophies and represent a way of healthy living with established concepts on prevention of diseases and promotion of health.

➤ The basic approach of all these systems on health, disease and treatment are holistic. Because of this, there is a resurgence of interest on AYUSH systems.

➤ Yoga has now become the icon of global health and many countries have started integrating it in their health care delivery system.

➤ Similarly there is great curiosity to understand the principles and practice of Ayurveda, Homeopathy, Siddha and Unani especially due to growing challenges in medicine in Non Communicable Diseases (NCDs), Life style disorders, long term diseases, multi drug resistant diseases, emergence of new diseases etc.

7   Mission Sagar – II

CONTEXT:

- As part of 'Mission Sagar-II', Indian Naval Ship Airavat entered Port Sudan in November 2020.

ABOUT:

- The Government of India is providing assistance to Friendly Foreign Countries to overcome natural calamities and COVID-19 pandemic, and towards the same INS Airavat is carrying a consignment of 100 Tonnes of food aid for the people of Sudan.

- Mission Sagar-II, follows the first 'Mission Sagar' undertaken in May-June 2020, wherein India reached out to Maldives, Mauritius, Seychelles, Madagascar and Comoros, and provided food aid and medicines.

- As part of Mission Sagar-II, Indian Naval Ship Airavat will deliver food aid to Sudan, South Sudan, Djibouti and Eritrea.

- Mission Sagar-II, is in line with the Prime Minister's vision of Security and Growth for All in the Region 'SAGAR' and highlights the importance accorded by India to relations with her maritime neighbors and further strengthens the existing bond.

- The Indian Navy is progressing this mission in close coordination with the Ministries of Defence and External Affairs, and other agencies of the Government of India.

Mission SAGAR (Security and Growth for All in the Region):

➤ Looking at such economic and strategic importance of Indian Ocean islands as also recognized by other nations, SAGAR (Security and Growth for All in the Region) was launched by India in 2015.

➤ The main purpose of SAGAR was tackling regional issues like providing humanitarian help to maritime neighbors and counter non-state actors like pirates in the Indian Ocean. 2004 tsunami, repeated earthquakes, the threat of rising seawater, water crisis of Maldives, and Indian help that followed shows the importance of this initiative.

➤ The overall objective for India is to gain legitimacy as the sole regional power in the Indian Ocean with the capability of providing humanitarian relief and security to the entire region. The Sagar Initiative, launched in 2015, works in tandem with Act East Policy, Project Sagarmala, and Project Mausam.

8 | 1st BRICS Finance Ministers and Central Bank Governors Meeting

CONTEXT:

- Finance Minister attends 1st BRICS Finance Ministers and Central Bank Governors Meeting

ABOUT:

- The agenda of the meeting included discussions on the outcomes of the G20 Saudi Presidency in 2020, a digital platform to encourage infrastructure investments and expansion of the membership of the New Development Bank.

- The G20, of which all BRICS countries are members, has delivered some very significant initiatives this year including the G20 Action Plan in response to COVID-19 which has provided broad guidance to navigate a collective global response to the crisis.

- Additionally, the G20 Debt Service Suspension Initiative ensured immediate support to address the liquidity needs of low-income countries.

- BRICS members have played an important role in ensuring that concerns of emerging economies are appropriately reflected in these initiatives.

- The BRICS Finance Ministers and Central Bank Governors also discussed expansion of the membership of the New Development Bank (NDB).

- The Finance Minister supported the expansion of the membership of NDB and emphasised the importance of regional balance.

BRICS:

➤ BRICS is the acronym coined to associate five major emerging national economies: Brazil, Russia, India, China, and South Africa.

➤ The BRICS members are known for their significant influence on regional affairs. Since 2009, the BRICS nations have met annually at formal summits. Brazil hosted the most recent 11th BRICS summit on 13–14 November 2019.

➤ Originally the first four were grouped as "BRIC" (or "the BRICs") before the induction of South Africa in 2010.

➤ Members of G20, as of 2018, these five nations had a combined nominal GDP of US$18.6 trillion, about 23.2% of the gross world product.

The G20:

➤ The G20 is an international forum for the governments and central bank governors from 19 countries and the European Union (EU).

➤ Founded in 1999 with the aim to discuss policy pertaining to the promotion of international financial stability, the G20 has expanded its agenda since 2008 and heads of government or heads of state, as well as finance ministers, foreign ministers and think tanks, have periodically conferred at summits ever since.

➤ It seeks to address issues that go beyond the responsibilities of any one organization.

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9 | 20th Summit of SCO Council of Heads of State

CONTEXT:

- 20th Summit of SCO Council of Heads of State was held recently in Video Conference Format.

ABOUT:

- The Meeting was chaired by the President of the Russian Federation Mr. Vladimir Putin. Prime Minister Shri Narendra Modi led the Indian delegation.

- This was the first SCO Summit held in Virtual Format and third meeting that India participated after becoming a full member in 2017.

- Prime Minister underlined India's strong cultural and historical connect with the SCO region and reiterated India's firm commitment towards strengthening connectivity in the region with initiatives like International North-South Transport Corridor, Chabahar Port and Ashgabat Agreement.

- India extended full support to observing the 20th anniversary of SCO in 2021 as the "SCO Year of Culture" and spoke of India's own initiatives to hold the first SCO exhibition on Shared Buddhist Heritage to be organized by National Museum of India, SCO Food Festival in India next year and the translation of Ten regional language literary works into Russian and Chinese.

> **The Shanghai Cooperation Organisation:**
>
> ➤ The Shanghai Cooperation Organisation (SCO) is a permanent intergovernmental international organisation, the creation of which was announced on 15 June 2001 in Shanghai (China) by the Republic of Kazakhstan, the People's Republic of China, the Kyrgyz Republic, the Russian Federation, the Republic of Tajikistan, and the Republic of Uzbekistan. It was preceded by the Shanghai Five mechanism.
>
> ➤ The SCO comprises eight member states, namely India, Kazakhstan, China, the Kyrgyz Republic, Pakistan, Russia, Tajikistan and Uzbekistan.

10 | 17th ASEAN India Summit

CONTEXT:

- Prime Minister participated in the 17thASEAN-India Summit at the invitation of H.E. Nguyen Xuan Phuc, Prime Minister of Vietnam, the current Chair of ASEAN.

ABOUT:

- Responsive and prosperous ASEAN is central to India's Indo-Pacific Vision and contributes to Security And Growth for All in the Region (SAGAR).

- The Prime Minister underscored the importance of strengthening convergence between India's Indo-Pacific Oceans Initiative and the ASEAN Outlook on Indo-Pacific, to ensure a free, open, inclusive and rules-based Indo-Pacific region.

- The ASEAN leaders acknowledged India's contribution towards promoting peace and stability in the region and welcomed India's support to ASEAN centrality. The Leaders also welcomed the adoption of the new ASEAN-India Plan of Action for 2021-2025.

- The discussions also covered regional and international issues of common interest and concern, including South China Sea and terrorism.

- Both sides noted the importance of promoting a rules-based order in the region including through upholding adherence to international law, especially the UNCLOS.

- The leaders affirmed the importance of maintaining and promoting peace, stability, safety and security in the South China Sea, and ensuring freedom of navigation and over flight.

ASEAN:

➤ The Association of Southeast Asian Nations (ASEAN) created on 8 August 1967, is a regional grouping that promotes economic, political, and security cooperation among its ten members: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

11 Public Private Partnerships in Infrastructure Viability Gap Funding VGF Scheme

CONTEXT:

● Cabinet approves Continuation and Revamping of the Scheme for Financial Support to Public Private Partnerships in Infrastructure Viability Gap Funding VGF Scheme.

● **The revamped Scheme is mainly related to introduction of following two sub-schemes for mainstreaming private participation in social infrastructure:**

● **Sub scheme -1**

◎ This would cater to Social Sectors such as Waste Water Treatment, Water Supply, Solid Waste Management, Health and Education sectors etc. These projects face bankability issues and poor revenue streams to cater fully to capital costs.

● **Sub scheme -2**

◎ This Sub scheme will support demonstration/pilot social sectors projects. The projects may be from Health and Education sectors where there is at least 50% Operational Cost recovery.

◎ In such projects, the Central Government and the State Governments together will provide up to 80% of capital expenditure and upto 50% of Operation & Maintenance (O&M) costs for the first five years.

Benefits:

● The scheme aims to promote PPPs in social and Economic Infrastructure leading to efficient creation of assets and ensuring their proper Operation and Maintenance and make the economically/socially essential projects commercially viable.

● The scheme would be beneficial to public at large as it would help in creation of the Infrastructure for the country.
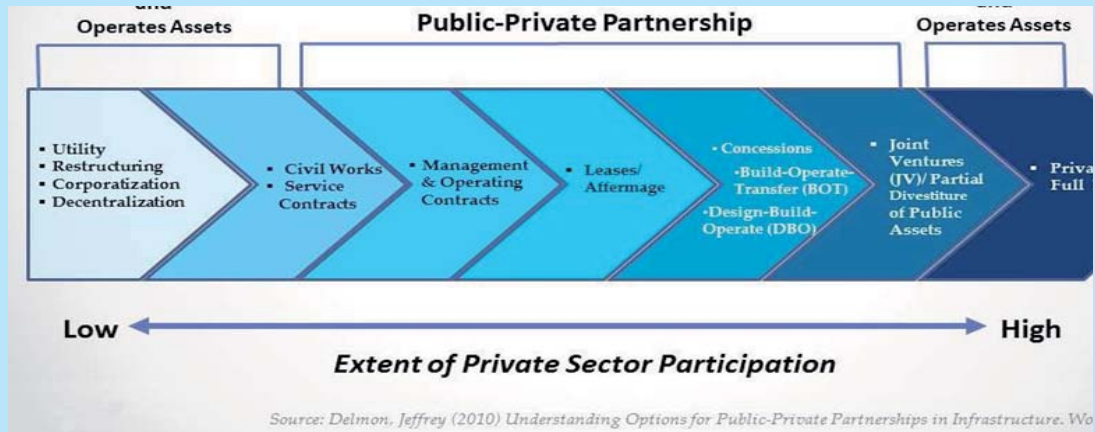
Impact:

● Revamping of the proposed VGF Scheme will attract more PPP projects and facilitate the private investment in the social sectors (Health, Education, Waste Water, Solid Waste Management, Water Supply etc.). Creation of new hospitals, schools will create many opportunities to boost employment generation.

Public–private partnership (PPP):

➤ A public–private partnership (PPP, 3P, or P3) is a cooperative arrangement between two or more public and private sectors, typically of a long-term nature.

➤ In other words, it involves government(s) and business (es) that work together to complete a project and/or to provide services to the population.

➤ Public–private partnerships have been implemented in multiple countries, are primarily used for infrastructure projects, such as the building and equipping of schools, hospitals, transport systems, and water and sewerage systems.

Public-Private Partnership

Source: Delmon, Jeffrey (2010) Understanding Options for Public-Private Partnerships in Infrastructure. Wo

Viability Gap Funding (VGF):

➤ Viability Gap Finance means a grant to support projects that are economically justified but not financially viable.

➤ The scheme is designed as a Plan Scheme to be administered by the Ministry of Finance and amount in the budget are made on a year-to-year basis.

➤ Such a grant under VGF is provided as a capital subsidy to attract the private sector players to participate in PPP projects that are otherwise financially unviable. Projects may not be commercially viable because of long gestation period and small revenue flows in future.

➤ The VGF scheme was launched in 2004 to support projects that comes under Public Private Partnerships.

➤ VGF grants will be available only for infrastructure projects where private sector sponsors are selected through a process of competitive bidding.

12 DISCOMs

CONTEXT:

● Ministry of Power mandates all DISCOMs to comply Energy Conservation (EC) Act , 2001

ABOUT:

● After this notification, all the DISCOMs will be governed under the various provisions of EC Act, such as Appointment of Energy Manager, Energy Accounting & Auditing, identification of Energy Losses Category wise, Implementation of energy conservation & efficiency measures etc.

● Earlier, the DISCOMs whose annual energy losses were equal to or above 1000 MU were only covered as DCs. Now with this notification, the number of DISCOMs covered under the EC Act will increase from 44 to 102.

- This decision will facilitate Energy Accounting & Auditing as mandatory activity for all the DISCOMs, leading to the actions towards reducing losses and increase profitability of DISCOMs.
- The amendment is expected to help DISCOMs to monitor their performance parameters and bring in transparency in the Distribution sector through professional inputs.
- It will also assist in developing projects for reducing the electricity losses by DISCOMs and implementing effective solutions.
- The amendment is expected to improve the financial state of the DISCOMs. This move is expected to gradually become more effective if extended upto the level of end consumers.

> **Bureau of Energy Efficiency:**
>
> ➤ Bureau of Energy Efficiency (BEE) is a statutory body under the Ministry of Power, Government of India.
>
> ➤ It assists in developing policies and strategies with the primary objective of reducing the energy intensity of the Indian economy.
>
> ➤ BEE coordinates with designated consumers, designated agencies, and other organization to identify and utilize the existing resources and infrastructure, in performing the functions assigned to it under the EC Act.

13 Thirty Meter Telescope(TMT)

CONTEXT:

- Indian astronomers collaborated with Nobel laureate on Thirty Meter Telescope Project
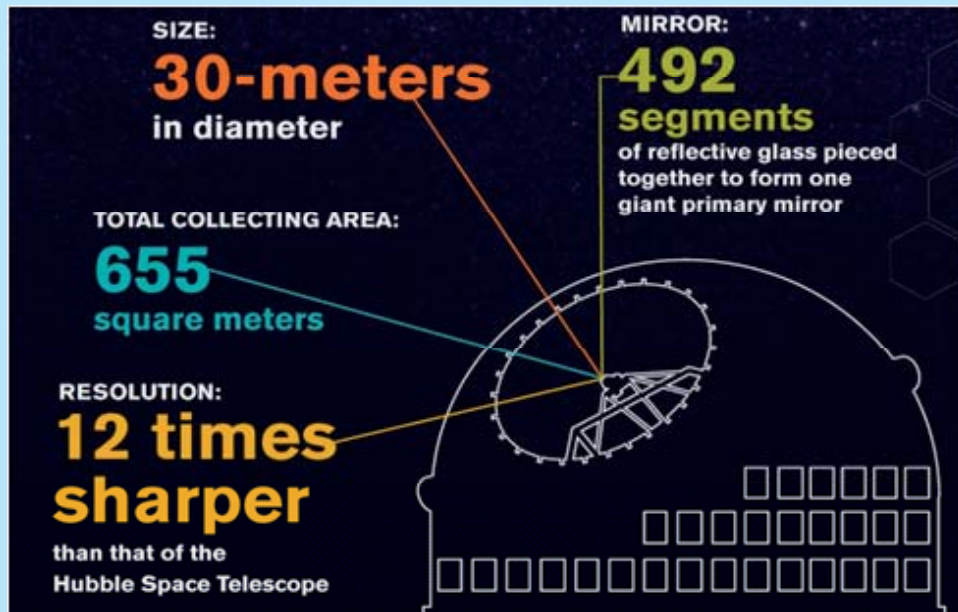
ABOUT:

- The Thirty-meter telescope (TMT) project is an international partnership between CalTech, Universities of California, Canada, Japan, China, and India; through the Department of Science and Technology (DST) and Department of Atomic Energy (DAE).
- The scientific prospects and simulations by the first generation instrument for the TMT called the Infrared Imaging Spectrograph (IRIS), were described in one of the SPIE proceedings in 2016.
- The latest end-to-end data simulator on Solar System bodies, the Galactic center, energetic transient objects, active galactic nuclei, and distant gravitationally-lensed galaxies were used.
- It showed the capabilities of IRIS/TMT to continue front-line scientific research shortly to understand the nature of the supermassive compact object at the centre of our Galaxy and many more new aspects to discover "***unknown-unknowns***".
- The scientists highlighted the necessity of an advanced data management system and data reduction pipeline.

> **The Thirty Meter Telescope (TMT):**
>
> ➤ The Thirty Meter Telescope (TMT) is a unique project to build one of the most advanced large telescopes in the world.
>
> ➤ When operational, it will help uncover hitherto unknown and even unexpected details of our vast Universe.

➤ TMT is a proposed extremely large telescope (ELT) that has become controversial due to its planned location on Mauna Kea, on the island of Hawaii, the most sacred mountain in Native Hawaiian culture.

Unknown-Unknowns:

➤ Many of our telescopes are built to discover the known unknowns: the things we know we don't know, such as identifying the stuff that makes up dark matter.

➤ But the real breakthroughs are the unknown unknowns. These are the things we don't even suspect are out there until we accidentally find them.

➤ For example, of the ten greatest discoveries by the Hubble space telescope, only one featured in the proposal used to justify its construction and launch. That one, measuring the rate of expansion of the universe, is a known unknown.

➤ In other words, we had a question about something that we knew about, and we thought Hubble could answer the question. Most of the other discoveries are unknown unknowns: we didn't know what they were until we stumbled across them.

➤ They include the discovery of dark energy, the only Hubble discovery (so far) to win a Nobel prize, in 2011.

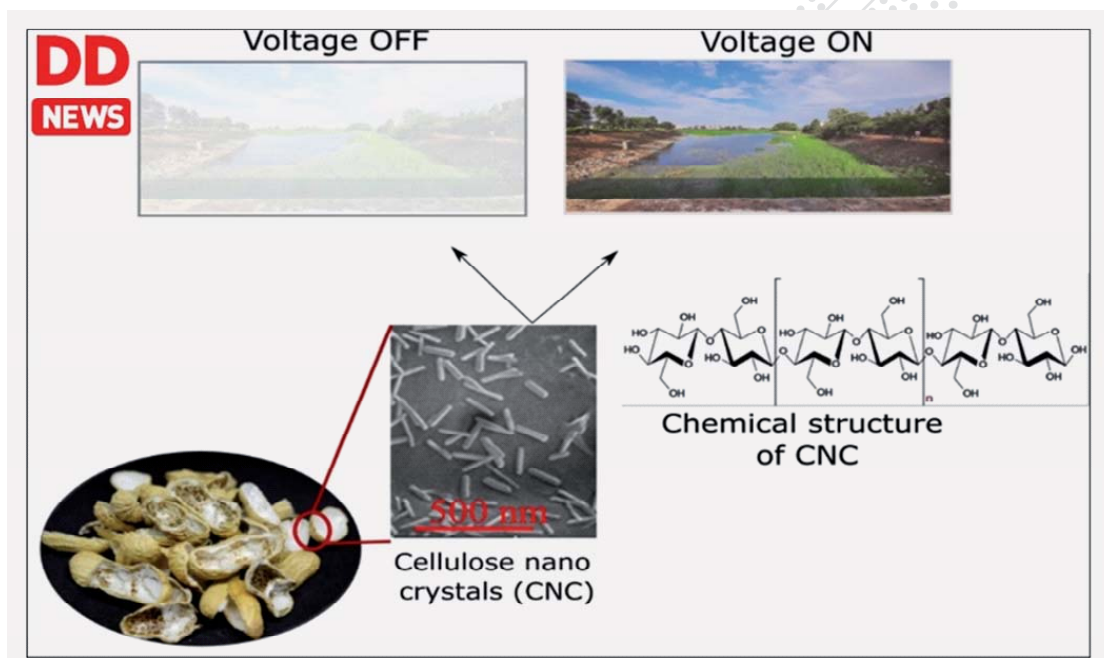## 14 | Smart screens from discarded groundnut shells

CONTEXT:

• Indian scientists develop energy-efficient smart screens from discarded groundnut shells.

ABOUT:

• Indian scientists have developed an eco-friendly smart screen from groundnut shells that could help not only in preserving privacy but also in energy conservation by controlling light and heat passing through it and reducing air conditioning load.

- In the smart screen application, liquid crystal molecules were confined in a polymer matrix.
- The refractive index of the liquid crystal molecules along a particular direction was altered by the application of an electric field.
- In the absence of the electric field, there was a mismatch between refractive indices between those of the polymer and the liquid crystal, leading to the scattering of light.
- Upon application of a few volts of an electric field, the liquid crystal molecules underwent a direction change resulting in the matching of refractive indices, and the device became transparent almost instantaneously.
- When the field was turned off, the system quickly recovered the scattering state.
- This reversible change between the two states available at the flip of a switch occurred over thousands of cycles, with essentially no change in contrast or switching speed.
- The scientists said that while, in principle, the device could be developed from any cellulose or agricultural waste, due to certain properties of groundnut waste, the smart screen developed from groundnut waste has been found to be most efficient.

15 QRSAM Missile System

CONTEXT:

- Quick Reaction Surface to Air Missile (QRSAM) System has achieved a major milestone by a direct hit on to a Banshee Pilotless target aircraft at the medium range & medium altitude.

ABOUT:

- The missile launch took place from ITR Chandipur off the Odisha Coast. The missile is propelled by a single stage solid propellant rocket motor and uses all indigenous subsystems.
- The Missile is canisterised for transportation and launch using a mobile launcher capable of carrying 6 canisterised missiles.
- All QRSAM weapon system elements like Battery Multifunction Radar, Battery Surveillance Radar, Battery Command Post Vehicle and Mobile Launcher were deployed in the flight test.

- The system is capable of detecting and tracking targets on the move and engaging target with short halts.
- The system is designed to give air defence coverage against strike columns of Indian Army.
- The radar tracked the Banshee target from farthest range and missile was launched when target was within kill zone and achieved the direct hit with terminal active homing by RF Seeker guidance.
- The missile system is fully indigenous with active RF Seekers, Electro Mechanical Actuation (EMA) systems sourced from various industries.

16 Geo-polymer aggregate

CONTEXT:

- NTPC Ltd, India's largest power producer and a PSU under Ministry of Power, has successfully developed Geo-polymer coarse aggregate from fly ash.

ABOUT:

- India's demand for these aggregate touches close to 2000 million metric tons mark every year.
- The aggregate developed by NTPC from fly ash will help in meeting the demand to a great extent and also will reduce the impact on environment caused by Natural aggregates which require quarrying of natural stone.
- The Geo-polymer aggregates
- The Geo-polymer aggregates finds its extensive usage in construction industry turning the ash eco-friendly.
- These aggregates are extremely environment friendly and does not require any cement for application in concrete where the fly ash based Geopolymer mortar acts as the binding agent.
- The Geo-polymer aggregates will help in reducing carbon emission and has great potential for reduction of water consumption.

17 PINAKA Rocket System

CONTEXT:

- Enhanced PINAKA rocket, developed by Defence Research and Development Organisation (DRDO) has been successfully flight tested from Integrated Test Range, Chandipur off the coast of Odisha .

ABOUT:

- Development of Enhanced Pinaka system was taken up to achieve longer range performance compared to earlier design with reduced length.
- A total of six rockets were launched in quick succession and the tests met complete mission objectives.
- All the flight articles were tracked by Range instruments such as telemetry, radar and Electro Optical Tracking Systems which confirmed the flight performance.
- Enhanced version of the Pinaka rocket would replace the existing Pinaka Mk-I rockets which are currently under production.

Pinaka rocket system

➤ Pinaka is a multiple rocket launcher produced in India and developed by the Defence Research and Development Organisation (DRDO) for the Indian Army.

➤ The system has a maximum range of 40 km for Mark-I and 75 km for Mark-II, and can fire a salvo of 12 HE rockets in 44 seconds.

➤ The system is mounted on a Tatra truck for mobility. Pinaka saw service during the Kargil War, where it was successful in neutralising enemy positions on the mountain tops. It has since been inducted into the Indian Army in large numbers.
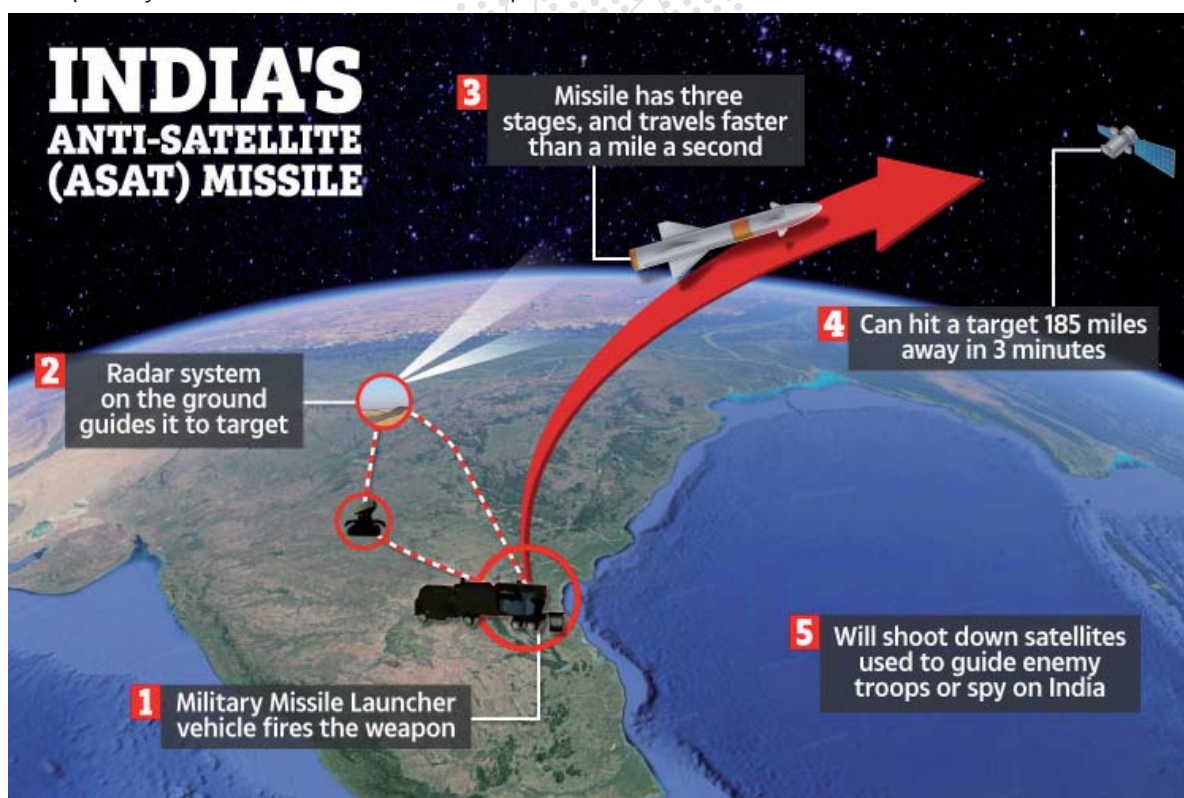
18 A-Sat Missile Model

CONTEXT:

● Raksha Mantri Unveils A-Sat Missile Model in DRDO Bhawan

ABOUT:

● Mission Shakti' was country's first ever Anti-Satellite (ASAT) Missile Test successfully conducted on 27th March 2019 from Dr AP J Abdul Kalam Island in Odisha, where a fast-moving Indian orbiting target satellite in Low Earth Orbit (LEO) was neutralised with pinpoint accuracy.

● This was a highly complex mission, conducted at extremely high speed with remarkable precision.

● The successful conduct of Mission Shakti made India the fourth nation in the world with the capability to defend its assets in outer space.
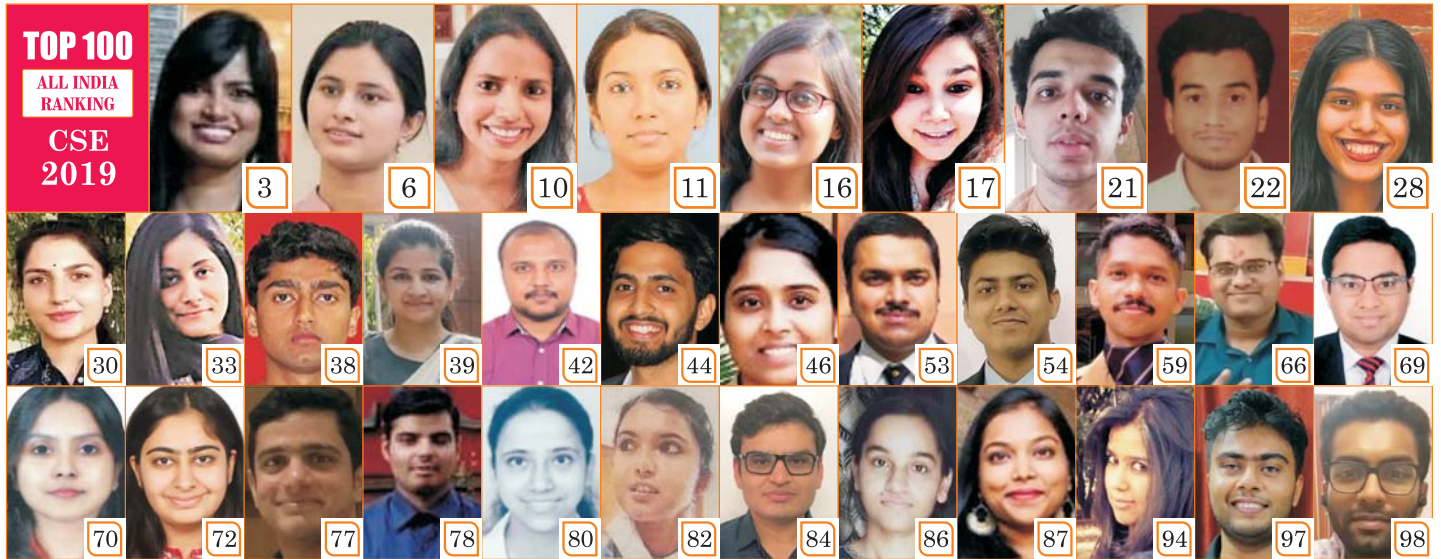

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