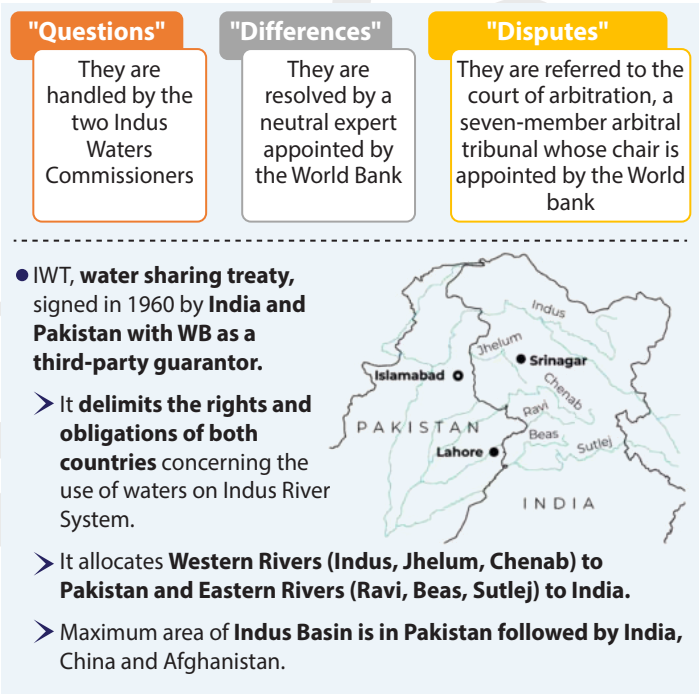
NEWS TODAY

INDIA ISSUES NOTICE TO PAKISTAN SEEKING MODIFICATION TO INDUS WATERS TREATY (IWT)

- India issued the notice in view of Pakistan's **non compliance in resolving disputes over Kishenganga** (on Kishenganga River, tributary of Jhelum) **and Ratle hydropower projects** (on Chenab River), both in Jammu and Kashmir.
  - India is allowed to construct hydroelectric power facilities on tributaries of Jhelum and Chenab rivers with certain restrictions under IWT, 1960.
- **Dispute redressal mechanism** provided **under Article IX of IWT** is a graded mechanism. It's a **3-level mechanism.** (See infographic)
  - **World Bank's (WB) role is largely procedural** and limited to **designating neutral experts (NE) or chair of court of arbitration (CoA).**
- India has **invoked Article XII (3) of treaty i.e.,** a provision to amend Treaty.
  - Treaty can be amended or terminated **only with duly ratified treaty between two countries.**
- **Development of dispute**
  - **2015:** Pakistan sought **appointment of NE** to examine technical objections to Kishanganga and Ratle HEPs.
  - **2016:** Pakistan **approached WB for CoA constitution.**
  - Whereas, **India asked for appointment of NE** and argued that **Pakistan's request for CoA violated graded mechanism of dispute resolution** in Treaty.
  - **2022:** WB resume process of appointing NE and Chairman for CoA.



IEEFA PROJECTS EXPONENTIAL GROWTH OF BATTERY STORAGE ASSETS IN INDIA

- Study by Institute for Energy Economics and Financial Analysis (IEEFA), US-based think tank, has projected exponential **growth in India's Battery Energy Storage System (BESS).**
- BESS are **rechargeable batteries that can store energy from different sources** and discharge it when needed.
  - It consists of **one or more batteries** and can be used to **balance the electric grid,** provide backup power, and **improve grid stability.**
  - **Lithium-ion batteries,** which are **used in mobile phones and electric cars,** are currently **dominant storage technology for large scale plants** to help electricity grids ensure a reliable supply of renewable energy.
- **Significance of BESS**
  - Ensures peak-time power supply.
  - **Round-the-clock power to overcome intermittent nature** of renewable energy.
  - **Less requirement of expensive transmission** and distribution network upgrades.
  - **Faster responses for balancing grid** (voltage and frequency regulation) than coal-fired power plants.
- **Issues with BESS**
  - **Absence of Time-of-Day (ToD) pricing structure** in India hampering investment. Under ToD, **cost of electricity depends on time of day** (expensive power during peak demand and less expensive during off-peak).
  - Low mineral reserve of Lithium cobalt.

INITIATIVES TO PROMOTE BESS

- **National Mission on Transformative Mobility and Battery Storage** promote clean, connected, shared, sustainable and holistic mobility initiatives.
- **Production Linked Incentive scheme** for domestic battery storage production.
- **India's draft national electricity plan** projects 51.5 GW of BESS installations by 2031-2032.

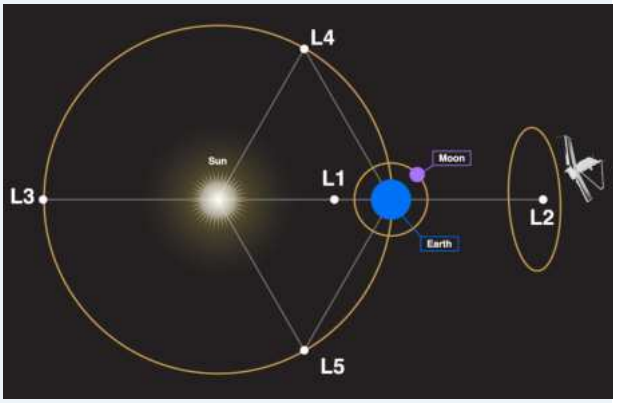
INDIA'S FIRST SOLAR MISSION LIKELY TO BE LAUNCHED BY MID- 2023: ISRO CHAIRMAN

- Indian Institute of Astrophysics, Bengaluru handed over the **primary payload i.e., Visible Emission Line Coronograph (VELC) of Aditya L1 to ISRO** for integration with other payloads. (refer image)
- Aditya-L1 is **first Indian space mission to observe Sun and solar corona.**
  - It'll be inserted in a **halo orbit around Lagrangian point 1 (L1) of Sun-Earth system,** which is about 1.5 million km from Earth.
  - It'll be **propelled by Polar Satellite Launch Vehicle (PSLV) XL.**
- **Significance of Aditya L1**
  - Provide information to **understand the problem of coronal heating, coronal mass ejection,** etc.
  - Observe in-situ particle and plasma environment providing data for **study of particle dynamics from Sun.**
  - Aid in studies on drivers of space weather, and measure magnetic field of corona.

Type	Sl. No.	Payload	Capability
Remote Sensing Payloads	1	Visible Emission Line Coronagraph(VELC)	Corona/Imaging & Spectroscopy
	2	Solar Ultraviolet Imaging Telescope (SUIT)	Photosphere and Chromosphere Imaging- Narrow & Broadband
	3	Solar Low Energy X-ray Spectrometer (SoLEXS)	Soft X-ray spectrometer: Sun-as-a-star observation
	4	High Energy L1 Orbiting X-ray Spectrometer(HEL1OS)	Hard X-ray spectrometer: Sun-as-a-star observation
In-situ Payloads	5	Aditya Solar wind Particle Experiment(ASPEX)	Solar wind/Particle Analyzer Protons & Heavier Ions with directions
	6	Plasma Analyser Package For Aditya (PAPA)	Solar wind/Particle Analyzer Electrons & Heavier Ions with directions
	7	Advanced Tri-axial High Resolution Digital Magnetometers	In-situ magnetic field (Bx, By and Bz).

About Lagrange point (L1)

- At Lagrange points, **gravitational pull of two large masses (like Sun and Earth) precisely equals centripetal force** required for a small object to move with them.
- L1 has advantage of continuously viewing Sun without any occultation/ eclipses.
- There are **five Lagrange points, three are unstable** (L1, L2, L3- lie along the line connecting two large masses) and **two are stable (L4, L5).** (See image)



- **Other solar missions:** NASA's **Parker Solar Probe,** European Space Agency's **Solar and Heliospheric Observatory,** China's **Kuafu-1 solar probe** etc.

MINISTRY OF TEXTILES CLEARED 15 R&D PROJECTS UNDER NATIONAL TECHNICAL TEXTILE MISSIONS (NTTM)

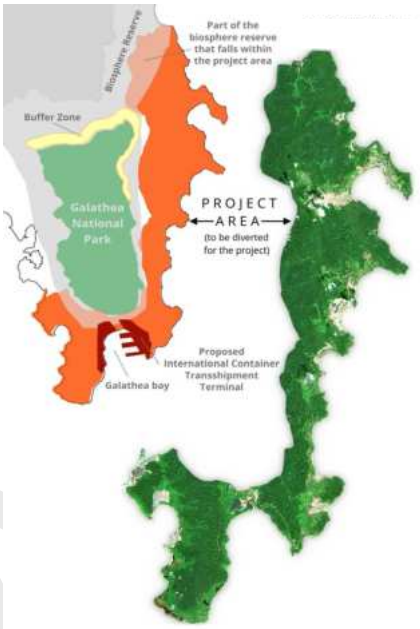
- These **15 research &development projects include key strategic areas** such as Speciality fibre, Protective textiles, High-Performance Textiles, Geotextiles, Medical Textiles, Sustainable Textiles, and Textiles for Building Materials.
- NTTM is being implemented over a period of **four years** (FY 2020-21 to 2023-24). It has **four components namely**
  - **Research, Innovation and Development** for development of protective fibre, application-based research in different Technical Textiles (TT) such as geotextiles, etc.
  - **Promotion and Market Development** aim at taking domestic market size to $40-50 billion by 2024.
  - **Export Promotion** ensures 10% average growth in exports upto 2024.
  - **Education, Training, Skill Development for Technical education related to TT at higher levels.**

	Agrotech Horticulture + landscape gardening, agriculture + forestry, animal keeping		**Meditech** Hygiene, medicine
	Buildtech Membrane, lightweight + massive construction, engineering + industrial building.		**Mobiltech** Cars, ships, aircraft, trains, space travel
	Clothtech Garments, shoes		**Oekotech** Environmental protection, recycling, waste disposal
	Geotech Road infrastructure, Railways, Irrigation and Hydraulic structures, Waste Landfills, Dams etc.		**Packtech** Packaging, protective-cover systems, sacks, big bags, container systems
	Hometech Furniture, upholstery + interior furnishing, rugs, floor coverings		**Protech** Person and property protection
	Indutech Filtration, cleaning, mechanical engineering, chemical industry		**Sporttech** Sport and leisure, active wear, outdoor, sport articles.

- TT are textiles materials and products manufactured **primarily for technical performance and functional properties** rather than aesthetic characteristics.
  - They are used **individually or as a component/part of another** product to enhance its functional properties.
  - TT is a **knowledge-based research-oriented industry.**
  - TT are broadly classified into **12 different categories. (refer image)**

CENTRE PREPARES RS. 41,000 CRORE INTERNATIONAL CONTAINER TRANSHIPMENT PORT (ICTT) IN GREAT NICOBAR ISLAND (GNI)

- As part of holistic development of GNI, **Ministry of Ports, Shipping, and Waterways (MoPSW)** has invited Expression of Interest for **building ICTT** at **Galathea Bay.**
  - **In 2021, entire Galathea Bay Wildlife Sanctuary was denotified** to make way for ICTT. It is India's **nesting site for giant leatherback turtles.**
  - Kolkata-based **Syama Prasad Mookerjee Port is nodal agency** for implementation.
- Transhipment port is a hub that **handles voluminous cargo between multiple vessels.** Cargo at these ports is transported away to another port, rather than being shipped inland via rail, road or waterway.
- **Salient features of ICTT**
  - **Strategic location** in terms of proximity (40 nautical miles from Malacca Strait) to International Trade Route (Singapore, Colombo).
  - Availability of **natural water depth** of more than 20 meters.
  - **Potential to capture transhipment cargo** from all ports in proximity including domestic ones.
- **Significance of ICTT**
  - **Reduce logistics inefficiencies and push to allied businesses** such as ship supplies and repair, warehousing etc.
  - **Save US $200-220 million a year** on transhipment cargo.
  - Create an opportunity to become a **large hub for Asia-Africa, Asia-US/Europe container traffic trade.**
- **GNI is southernmost of Andaman and Nicobar Islands. Indira Point on southern tip** of this Island is India's southernmost point.



- Additionally, **MoPSW** has inaugurated **National Logistics Portal-Marine,** Single Window Logistics Portal, **to improve efficiency and transparency by reducing logistics costs.**
  - It was envisaged by **MoPSW and Ministry of Commerce & Industry.**
  - NLP covers **all modes of transport** in waterways, roadways, and airways along with an E-marketplace.

COAL INDIA LTD (CIL) TO LAUNCH MANUFACTURED SAND (M-SAND) PROJECTS

- CIL facilitates processing of **waste overburden at its open cast mines under overburden (OB) rocks-to- M-Sand initiative.**
  - During opencast mining, **overlying soil and rocks are removed as waste to extract coal** and OB is layered in dumps.
  - OB rocks are used in **levelling up land for the construction of roads and railway tracks.**
- M sand is **produced by crushing rocks,** and quarry stones to a stipulated size of **150 microns.** It is different from River Sand. (refer image)
  - **Sand Mining Framework (2018)** prepared by Ministry of Mine **envisages M-Sand from crushed rock fines (crusher dust),** sand from OB of coal mines.
- **Benefits of M- Sand**
  - **More cost-effective** than using natural sand.
  - **Reduce the need for mining natural sand,** which can have negative environmental impacts.
  - **Reduce the amount of water required for construction projects,** as it does not require washing before use.
  - Help maintaining water table.
- Sand is classified as a **'minor mineral' under Mines and Minerals (Development and Regulations) Act, 1957,** and administrative control vests with State Governments.

M Sand (Manufactured Sand)	River Sand
High concrete strength compared to river sand	Low concrete strength compared to M sand
The sand particles of M sand are in cubic form. This makes the bond stronger.	Bonding is weak because of its Excessive presence of flaky, sharp and angular grains
zero slit content	3-20% silt content
Better quality control from being manufactured in a controlled environment	There is no restriction on quality as it occurs naturally. There may be differences in silt contents in the same river bed sand.

ALSO IN NEWS

 **Vibrant Village Programme (VVP)**	• It is reported that India proposes to **develop 130 model villages along Line of Actual Control.** • In the backdrop of Chinese setting up model villages along India and Bhutan borders, VVP is developed. • VVP has been announced in Union Budget 2022. ➢ It envisages **coverage of border villages on Northern border having sparse population,** limited connectivity and infrastructure, which often get left out from development gains.
 **Exercise Veer Guardian 2023**	• It is bilateral **Air exercise** between **Indian Air Force (IAF) and Japan Air Self Defence Force (JASDF).**
 **Green comet**	• Green comet is approaching close to Earth after 50,000 years. ➢ Comets are **frozen remnants of solar system's origin** made of ice, rock, and dust. • **Termed as C/2022 E3 (ZTF),** Green Comet could be visible with telescopes and binoculars. • The green colour of the comet is thought to arise from **presence of diatomic carbon – pairs of carbon atoms that are bound together –** in head of comet. ➢ Molecule emits green light when excited by ultraviolet rays in solar radiation. ➢ It could be at a **distance of 2.5 light minutes from Earth,** meaning a **"mere" 27 million miles.** ➢ Comet's orbit indicates that it comes from **edge of Oort cloud-** theoretical spherical cloud of predominantly icy planetesimals.
 **XR (Extended Reality) Startup Program**	• **MeitY Startup Hub,** an initiative of Ministry of Electronics & Information Technology (MeitY), and Meta have announced the list of **120 startups and innovators for XR Startup Program.** • XR Startup Program includes an **Accelerator and a Grand Challenge.** ➢ **Accelerator Program** is supporting **40 early-stage start-ups** Working in Extended Reality. ➢ **Grand Challenge** will encourage early-stage innovators in sectors like Education, Learning and Skills, Healthcare, Gaming and Entertainment, etc. • XR refers to all **real-and-virtual combined environments** generated by **computer technology and wearables.** ➢ It includes representative forms such as **augmented reality, mixed reality, virtual reality etc.**
 **Hypersonic Technology Demonstrator Vehicle (HTDV)**	• **DRDO** tested the HSTDV, powered by a **scramjet engine.** • HSTDV will serve as a critical building block for **hypersonic weapons (Speed > 5 mach** or 5 times speed of sound). ➢ Scramjet engine (supersonic-combustion ramjet) is one which can **operate at hypersonic speeds.** ➢ Like ramjet engine, scramjet **uses atmospheric air for oxidiser** and compresses incoming air before it enters combustion chamber.
 **Biologicals**	• Ministry of Health and Family Welfare inaugurated National Summit on Quality of Biologicals. • Biologicals are those classes of medicines which are **produced through biotechnology in a living system such as microorganism, plant cell, or animal cells.** ➢ These include vaccines, growth factors, immune modulators, monoclonal antibodies, as well as products derived from human blood and plasma. • Biologicals are **generally proteins purified from living culture systems** or from blood, whereas **other medicines are considered as 'small molecules'** and are either **made synthetically or purified from plants.**
 **Kashmir's Pashmina**	• Kashmir's Pashmina (Cashmere) Shawl was used as canvas for contemporary art at a French exhibition. ➢ French connection goes back to **gifting of Kashmiri Kani shawl by French Emperor Napoleon Bonaparte** to his wife Josephine in the 18th century • Pashmina Shawl is known for their signature **intricate buta or paisley patterns.** • Pashmina Shawls is made from **Pashm - fleece of Changthangi Goat,** native to Jammu & Kashmir and Ladakh. • Pashmina Shawls has been **assigned Geographical indication (GI) tag.**