

My Notes....

NATIONAL

NATIONAL LOGISTICS INDEX 2021

Gujarat has been ranked the highest in the **third edition** of the **Logistics Ease Across Different States (LEADS) index** which is based on indicators such as **infrastructure, services, timelines, traceability, competitiveness, security, operating environment** and efficiency of regulatory processes. The report released on 8 November 2021 by the **commerce and industry minister Piyush Goyal**.

According to the LEADS Index

- Gujarat has one again topped a national index of mobility of goods** and efficiency of logistics chain, closely followed by **Haryana and Punjab**.
- Tamil Nadu came fourth** in 2021 against **fifth position in 2019**, while Maharashtra slipped a place to figure in the fifth ranking against fourth released by commerce and industry ministry.
- Uttar Pradesh leapfrogged seven notches** up to rank six in 2021 compared to 13 in 2019, the highest among all states, driven by policy initiatives and higher infra spending in logistics.
- The report said that logistics costs can be **brought down to 5%** over the next five years from almost 14% now.
- Assam stood last on the chart** among states while **Jammu Kashmir was ranked first** among North Eastern States and Himalayan Union Territories.
- The **Western coastal cluster** (Gujarat, Maharashtra, and Goa) with the availability of adequate logistics infrastructure leads the Cluster score table, according to the report.
- The **LEADS survey 2021** was conducted from May-August 2021 amid the Covid pandemic.
- For each state/UT**, ranking was formulated based on a **revised methodology** that has granular details such as **multimodal transport, availability of mobile/internet connectivity, safety and security during transportation**, consistency in delivery without damage.

Flashback

- The index is **developed** by the **commerce and industry ministry** along with **Ernst & Young**.
- Since **its inception in 2018**, each year LEADS report has followed a progressive methodology to provide a granular insight on the logistics performance at State/UTs level.
- LEADS 2021** has gone 2-step ahead in analysis of domestic and **EXIM logistics ecosystem** of the state.
- The report is structured along the **three dimensions** which collectively influence logistics ease- **Infrastructure, Services, and Operating and Regulatory Environment** which are further categorised into **17 parameters**.

SRINAGAR ADDED TO UCCN

Srinagar, the summer capital of Jammu and Kashmir, was **among 49 cities worldwide** to join the **UNESCO creative cities network (UCCN)** on 8 November 2021. The **49 cities were added to the network of 246 cities** following their designation by UNESCO Director-General Audrey Azoulay, in recognition of “their commitment to placing culture and creativity at the heart of their development and to sharing **knowledge and good practices**”.

What

1. The **network now numbers 295 cities** reaching **90 countries** that invest in culture and creativity – **crafts and folk art**, design, film, gastronomy, literature, media arts, and music – to advance sustainable urban development.
2. A **new urban model** needs to be developed in every city, with its architects, town planners, landscapers and citizens, UNESCO said.
3. **Indian National Commission for Cooperation with UNESCO (INCCU)** had recommended **Srinagar and Gwalior** for inclusion in the coveted list, only Jammu and Kashmir's summer capital made it.
4. However, **Mumbai and Hyderabad** are already in the network, having made it to the list in October 2019.

GLOBAL METHANE PLEDGE

The **Global Methane Pledge** was launched on 2 November 2021 at the **ongoing UN COP26 climate conference** in Glasgow. So far, over 90 countries have signed this pledge, which is an effort led jointly by the United States and the European Union. **Methane** is the **second-most abundant greenhouse gas** in the atmosphere, after carbon dioxide, and, therefore, pledges related to cutting down its emissions are significant.

What is the Global Methane Pledge?

1. **Nearly 90 countries** have joined a **U.S.- and EU-led effort** to slash emissions of the potent greenhouse gas **methane 30% by 2030 from 2020 levels**, a pact aimed at tackling one of the main causes of climate change.
2. **China, Russia and India**, also **top-five methane emitters**, have not signed on to the pledge.
3. The **30% methane** cut would be jointly achieved by the signatories, and cover all sectors. Key sources of **methane emissions** include leaky **oil and gas infrastructure**, old coal mines, agriculture and landfill sites.
4. The pledge was **first announced in September** by the US and EU, and is essentially an agreement **to reduce global methane emissions**.
5. According to the latest **Intergovernmental Panel on Climate Change report**, methane accounts for about half of the **1.0 degrees Celsius** net rise in global average temperature since the pre-industrial era.

What is methane?

1. According to the UN, **25 per cent of the warming** that the world is experiencing today is because of methane, a greenhouse gas, which is also a **component of natural gas**.
2. There are various sources of methane including **human and natural sources**. Human sources of methane include **landfills, oil and natural gas systems, agricultural activities, coal mining, wastewater treatment**, and certain industrial processes, the US Environmental Protection Agency notes.
3. **In India**, for instance, in 2019, the Ministry of Coal asked state-run coal miner **Coal India Limited (CIL)** to produce **2 MMSCB (million metric standard cubic metres) per day of coalbed methane (CBM) gas** in the next 2 to 3 years.

GRII LAUNCHED AT COP26

Ten global organisations with **partial funding** and **in-kind contributions** from the insurance sector and partner institutions have launched a **Global Resilience Index Initiative (GRII)** at COP26. **GRII** will provide a **globally consistent model** for the assessment of resilience across all sectors and geographies.

About GRII

1. The **GRII** will be using **cross-sector risk modelling experience**, including **public-private partnerships** between governments, academia, insurance and engineering.
2. Among the organisations that have come together to launch GRII are **United Nations office for Disaster Risk Reduction (UNDRR)**, **Insurance Development Forum (IDF)**, **University of Oxford**, **Coalition for Disaster Resilient Infrastructure (CDRI)**, **Coalition for Climate Resilient Investment (CCRI)** and UK Centre for Greening Finance and Investment (CGFI) and British risk and insurance advisory company Willis Towers Watson.
3. GRII will be a curated, open-source resource offering **high level metrics** across the built environment, infrastructure, agriculture and societal exposures with many potential applications in aggregated risk management worldwide.
4. The **mission of the GRII** is to address the data emergency that is contributing to the climate crisis by helping sectors across the global economy quantify the value of building **climate resilience** and the costs of doing nothing.
5. **GRII** could enable asset owners to compare portfolio risks across geographies and hazards, as well as helping countries to prioritise **national adaptation investments**.
6. The coalition behind the GRII is **seeking to achieve two initial goals** offer global open reference risk data using metrics built on insurance risk modelling principles; provide shared standards and facilities applicable to a wide range of uses, including **corporate climate risk disclosure**, national adaptation planning and reporting, and the planning of **pre-arranged humanitarian finance**.

FIRST EVER GLOBAL DRUG INDEX 2021

A **first of its kind global drug policy index 2021** that ranks **30 countries** drawn from across regions on how humane and health-driven their drug laws and policies are, gives **India a score of 46 out of 100** with **Norway at the top** with 74 and **Brazil at the bottom** scoring 26. In terms of ranking **India is at 18**.

What

1. The index highlights that the **global dominance of drug policies** based on repression and punishment has led to low scores overall, with a median score of just **48 out of 100 for all 30 countries** which is assessed as a “**drug policy failure**” and a sign for urgent measures to deal with the situation.
2. This index highlights the **huge room for improvement** across the board; the **International Drug Policy Consortium** said which led the development of the index with the partners in the Harm Reduction Consortium.
3. Reflecting a long-standing global trend towards the **abolition of the death penalty**, the report highlights that **only three out of these 30 countries - India, Indonesia and Thailand** retain capital punishment for certain drug offences.
4. The **death penalty for drug offences** is contrary to international human rights standards, which ban capital punishment for all but the ‘**most serious**’ offences, that is crimes of extreme gravity involving intentional killing.
5. This index comes at a time when the Indian government is reviewing the provisions of the **Narcotic Drugs and Psychotropic Substances Act 1985**.

6. The report in its analysis of policy and its **implementation in 2020** brings to fore that there is a huge gap between government policies and their implementation on ensuring access to controlled medicines (for relief of pain and suffering).
7. The countries like **India, Indonesia, Mexico, and Senegal** which score **high on policy**, but **score zero out of 100 for actual availability of these controlled medicines** for those in need.

PLEDGE TO END DEFORESTATION

More than 100 countries pledge on 2 November 2021 **to end deforestation**, which scientists say is a **major driver of climate change**. Britain hailed the commitment as the **first big achievement of the UN climate conference** in Glasgow. It has received commitments from leaders representing **more than 85% of the world's forests** to halt and reverse deforestation by 2030.

What

1. **More than \$19 billion in public and private funds** have been pledged towards the plan, which is backed by countries including Brazil, China, Colombia, Congo, Indonesia, Russia and the United States.
2. **Forests are considered important ecosystems** and an **important way of absorbing carbon dioxide** - the main greenhouse gas - from the atmosphere.
3. But the value of wood as a commodity and the growing demand for agricultural and pastoral land are leading to widespread and often **illegal felling of forests**, particularly in developing countries.
4. This **new pledge** recognizes the range of actions needed to protect our forests, including finance, **support for rural livelihoods**, and strong trade policies.
5. **About 130 world leaders** are in Glasgow for the COP26 summit, which host Britain says is the last realistic chance **to keep global warming to 1.5 degrees celsius** above pre-industrial levels - the goal the world set in Paris six years ago.

ISA, UNFCCC INK PACT TO FIGHT CLIMATE CHANGE

The **International Solar Alliance (ISA)** and the **United Nations Framework Convention on Climate Change (UNFCCC)** signed a Memorandum of Understanding (MoU) on 12 November 2021 at **COP26** to collaborate and support the Parties in the implementation of **ambitious national action** in line with global efforts.

According to the Agreement

1. The **two institutions** will jointly organise a set of activities with the **UN Climate Change** secretariat to facilitate the implementation of **mitigation action in the energy sector**, facilitate the implementation of **Nationally Determined Contributions** and **Long-term Low Emission Development Strategies**.
2. This will also lend support to developing country stakeholders, including **SIDs and LDCs**, in accelerating the adoption of policy options and approaches for **decarbonisation technologies**.
3. To act against the climate change and achieving **Nationally Determined Contributions (NDCs)** relating emission reduction before the target date, can be made possible by deploying **solar and clean energy**.

Flashback

1. The **ISA** is an **inter-governmental treaty-based international organisation** with a global mandate to catalyse **global solar growth** by helping to reduce the cost of financing and technology for solar.
2. The alliance is committed to **establishing solar as a shared solution** that simultaneously addresses **climate, energy and economic priorities** across geographies, **facilitating Energy Transition** at a global level, **Energy Security at national levels**, while also ensuring Energy Access at the local level.
3. The launch of the **International Solar Alliance** was announced by Prime Minister Narendra Modi and Francois Hollande, former President of France, in **November 2015** at the **21st session of United Nations Climate Change Conference of the Parties (COP-21)** in Paris, France.

MPLAD SCHEME RESTORED

The Union Cabinet on 10 November 2021 approved **restoration and continuation** of the **Member of Parliament Local Area Development Scheme (MPLADS)**, which was suspended in view of the COVID-19 pandemic. The scheme has been restored for the **remaining part of financial year 2021-22**. The scheme will **continue till 2025-26**.

What

1. **Funds** will be released **at the rate of Rs 2 crore per MP** for the remaining period of 2021-22 in one instalment.
2. **From 2022-23 to 2025-26**, funds will be released under the scheme at **the rate of Rs 5 crore per annum** to each of the MPs in two instalments of Rs 2.5 crore each.
3. In April last year, the government had **suspended MPLADS during 2020-21 and 2021-22**, and said that the funds would be used for **managing health services** and the adverse impact of the COVID-19 pandemic in the country.
4. **Under MPLADS**, every Member of Parliament can recommend development programmes worth **Rs 5 crore every year** in their constituencies.
5. Members from both **Lok Sabha and Rajya Sabha** including nominated ones, can recommend the developmental works.

USA JOINS INTERNATIONAL SOLAR ALLIANCE

The **United States of America** has become the **101st member country** to join the **International Solar Alliance (ISA)** as US Special Presidential Envoy for Climate, announced at the **UNFCCC COP26** on 10 November 2021 that the **United States of America (USA)** has joined the **International Solar Alliance (ISA)** as a member country.

What

1. The **US becomes the 101st country** to sign the **framework agreement of the ISA** to catalyse global energy transition through a **solar-led approach**.
2. The **framework was first circulated** for the support of countries **in 2016**.
3. It emphasises delivering global relevance and **local benefit to all countries** through collaborations, with the ISA's key interventions **focusing on readiness** and enabling activities, **risk mitigation and innovative financing instruments** to facilitate the promotion and deployment of **solar technologies in target markets**.
4. The approach and methods detailed in the framework have already delivered results, with ISA building a solar project pipeline of nearly **5-gigawatt installed capacity**.

- The approach detailed in this framework will culminate in a vision for interconnected global grids, which was formalised and jointly launched as the **'Green Grids Initiative: One Sun One World One Grid'** during the **World Leaders Summit** of the COP26 in Glasgow on 2 November 2021.

INTERNATIONAL

INDIA GREEN GUARANTEE LAUNCHED

The **UK** will provide an **"India Green Guarantee"** to the **World Bank**, to unlock an additional 750 million pounds for **green projects across India**; it was announced at the **COP26 summit** in Glasgow on 1 November 2021. The **green guarantee financing** will support **clean and resilient infrastructure** in sectors such as **clean energy, transport** and **urban development**.

What

- Further, in an aid-backed **Private Infrastructure Development Group (PIDG)**, the UK has committed more than 210 million pounds in new investment at the **UN climate summit** to back transformational green projects in developing countries, including **electric vehicles (EVs)** in India.
- The **U.K.'s PIDG financing** will go to schemes including electric vehicle manufacturing in India, **green bonds in Vietnam** and **solar power in Burkina Faso**, Pakistan, Nepal and Chad – projects which are expected to mobilise more than 470 million pounds in additional private sector finance.
- The **"Clean Green Initiative"** was also launched at **COP26** to help developing countries take **advantage of green technology** and grow their economies sustainably.
- The funding kick starts the **U.K.'s new Clean Green Initiative (CGI)**, which will help to scale up public and private investment in quality, sustainable infrastructure globally.
- The UK also announced a package of guarantees to **multilateral development banks** that will provide a major boost to investments in **climate-related projects in India** and across Africa.

G20 SUMMIT DECLARATION

Meeting in person for the **first time in two years**, **G20 leaders** had a full agenda including **climate change**, the **Covid pandemic**, a **landmark tax deal** and **global economy worries**.

Summary of what they agreed

- Leaders committed to the key **Paris Agreement goal** of limiting global warming to **1.5 degrees Celsius above pre-industrial levels**, pledged **action against dirty coal plants** but fell short on a target of zero emissions.
- They also pledged to reach a **target of net-zero carbon emissions** "by or around **mid-century**", instead of setting a clear 2050 date, as campaigners and **summit host Italy** were hoping for.
- Leaders put their seal of approval on an agreement that will subject multinationals to a **minimum 15 per cent tax**, as part of an effort to build "**a more stable and fairer international tax system**".
- The reform, **brokered by the OECD** and backed by **some 136 countries** representing **more than 90 per cent of world GDP**, has long been in the making and is supposed to come into effect in 2023, but the deadline is at risk of slipping.
- Leaders vowed to support the **WHO's goal of vaccinating at least 40 per cent** of the world's population by 2021 and **70 per cent by the middle of next year**, by boosting

- the supply of vaccines in developing countries and removing supply and financing constraints.
6. Meeting as **rising inflation**, pushed by **spiking energy prices**, and **supply chain bottlenecks** are weighing on a world economy still reeling from Covid-related disruptions, G20 leaders ruled out a **hasty removal of national stimulus measures**.
 7. Leaders set a **new target of channelling \$100 billion** towards poorest nations, coming from the \$650 billion pot made available by the **International Monetary Fund (IMF)** via a fresh issuance of its **Special Drawing Rights (SDR)**.
 8. **SDRs are not a currency**, but can be used by developing countries either as a reserve currency that **stabilises the value of their domestic currency**, or converted into stronger currencies to finance investments.
 9. For poorer countries, the **interest is also to obtain hard currencies** without having to pay substantial interest rates.

NHAI LAUNCHES INVIT

As part of **National Monetisation Pipeline**, **National Highways Authority of India (NHAI)** has launched its **Infrastructure Investment Trust (NHAI InvIT)**. In view of the long-term nature of the assets, the units of NHAI InvIT were offered to international and domestic institutional investors. The total enterprise value of the 5 roads was pegged at Rs.8011.52 crore.

What

1. **NHAI InvIT** is funding that through **debt of Rs.2000 crore** from **State Bank of India, Axis Bank** and **Bank of Maharashtra**.
2. The balance is being funded by issuing units of Rs.6011.52 crore to **international and domestic institutional investors**.
3. **NHAI InvIT** was able to attract **international pension funds** and a diversified group of domestic institutional investors comprising pension funds, insurance companies, mutual funds, banks and financial institutions, which have submitted their bids for Rs.6203 crore.
4. **NHAI InvIT** has been set up to **monetize its road projects**, with an initial portfolio of five operating toll roads with an aggregate length of **390 kilometers**.
5. These roads are located across the states of **Gujarat, Karnataka, Rajasthan and Telangana**. NHAI has granted new concessions of 30-years for these roads.
6. This is the **second InvIT in the country** to be floated by a public sector company after **PowerGrid Corporation of India (PGC)** rose about Rs 3,480 crore in April.
7. As part of the **monetisation programme** announced by the government, NHAI plans to sell about 32 more operational road assets spanning 1,500 km as well as upcoming ToT (toll operate transfer) projects.

AFGHAN SITUATION IN SECURITY SUMMIT

A **regional security conference** hosted by **India** on 10 November 2021 agreed on the need to ensure that **Afghanistan never becomes a safe haven for terrorism** and on the necessity of having an inclusive government in the country. The **National Security Advisors** of Iran, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Uzbekistan besides **India** expressed "concern over the **deteriorating socio-economic and humanitarian situation in Afghanistan**."

What the Delhi Declaration said

1. The Conference underlined the need to provide **urgent humanitarian assistance** to the people of Afghanistan.
2. The security officials of the **eight countries** also underlined that “**humanitarian assistance** should be provided in an unimpeded, direct and assured manner to Afghanistan and that the assistance is distributed within the country in a **non-discriminatory manner across all sections of the Afghan society**, the Delhi Declaration said.
3. The meeting in New Delhi called to coordinate a **common position and strategy on Afghanistan** following the takeover of Kabul by the Pakistan backed Taliban on 15 August, was the **first of its kind to be hosted by India**. The previous two such meetings were **hosted by Iran** in 2018 and 2019.
4. **Pakistan** and **China**, who were invited, did not attend. While Pakistan refused the invite, Islamabad’s close ally China cited scheduling problems to stay away.
5. According to the **Delhi Declaration**, a representative government in Kabul “is imperative for the successful national reconciliation process in the country.”

ECONOMY

TWO INITIATIVES OF THE RBI LAUNCHED

Prime Minister on 12 November 2021 launched **two customer-centric initiatives** of the Reserve Bank of India (RBI) — the **RBI Retail Direct Scheme** and the **Integrated Ombudsman Scheme**. With this, India has **opened up the government bond market** for retail investors.

About RBI Retail Direct Scheme

1. The scheme **allows retail investors to buy and sell government securities** (G-Sec) online, both in the **primary and secondary markets**.
2. These small investors **can now invest in G-Secs** by opening a gilt securities account with the RBI. The account opened will be called **Retail Direct Gilt (RDG) Account**.
3. **Participation and allotment of securities** will be as per the non-competitive scheme. Only one bid per security is permitted.
4. **Registered investors** can access the **secondary market transaction link** on the online portal to buy or sell government securities through NDS-OM.

Importance of the schemes

1. The move comes at a time when rising inflation adds pressure on the RBI to lift rates.
2. **Tighter monetary policy** is likely to weaken the demand for bonds, making it challenging for the government to execute its **near-record borrowing program**.
3. Other emerging-market nations in Asia, like the Philippines, have also sought to raise funds from citizens to battle the pandemic.

About RBI Integrated Ombudsman Scheme

1. This will help in **improving the grievance redress mechanism** for resolving customer complaints against **RBI’s regulated entities**.
2. According to the PMO, the scheme is based on “**One Nation-One Ombudsman**” with one portal, one email, and one address for the customers to lodge their complaints.

- Customers will be able to **file complaints, submit documents**, track status, and give feedback through a single email address. There will also be a **multilingual toll-free number** that will provide all relevant information on grievance redress.

BANDHAN BANK NOW AN AGENCY BANK

The **Reserve Bank of India (RBI)** has authorised **Bandhan Bank** as an **Agency Bank** of the RBI for **undertaking Government business**. The appointment would allow Bandhan Bank to **undertake Government business on behalf of the RBI**.

What

- With this, **Bandhan Bank** joins ranks with a few other scheduled private sector banks to be **empanelled as Agency Banks** of the RBI.
- As an **Agency Bank of the RBI**, authorised to undertake government business, Bandhan Bank will be able to handle transactions related to the collection of **state taxes and revenue receipts such as GST and VAT**; a **collection of stamp duty and pension payments** on behalf of central and state governments.
- The **Bank's extensive branch network**, especially in **rural and semi-urban areas**; state-of-the-art products and services; and digital banking capabilities, will help it discharge its duties effectively by bringing governments and citizens closer to each other.

Flashback

- Bandhan Bank** was started in **2001** as a **not-for-profit enterprise** aimed at financial inclusion and women empowerment.
- The company **turned into an NBFC later** and then into an incorporated bank in 2015, the **first microfinance entity** to be transformed into a full-fledged bank.
- The bank now has an extensive network of branches especially in rural and semi-urban areas where it is bringing the latest products and services and digital banking capabilities.

CLIMATE-RELATED RISKS INTO FINANCIAL STABILITY

RBI on 3 November 2021 said it is **committed to integrating climate-related risks** into **financial stability monitoring** as well as exploring use of climate scenario exercises to identify vulnerabilities in the **central bank-supervised entities**. On 1 November 2021, the Reserve Bank of India (RBI) published its **Statement of Commitment to Support Greening India's Financial System - NGFS**, coinciding with the **2021 United Nations Climate Change Conference (COP26)**.

What

- The apex bank joined the Central Banks and Supervisors **Network for Greening the Financial System (NGFS)** as a Member on 23 April 2021, and aims to learn from as well as **contribute to global efforts on green finance**.
- NGFS** has reiterated its willingness to contribute to the global response required to meet the **objectives of the Paris Agreement**, and, to that end, NGFS will expand and strengthen the collective efforts towards **greening the financial system**.
- Specifically, RBI, keeping in view the national commitments, priorities and complexity of the country's financial system, is committed to **integrating climate-related risks into financial stability** monitoring.
- Further, the central bank said it was committed to "**exploring how climate scenario exercises can be used to identify vulnerabilities** in RBI supervised entities' balance

sheets, business models and gaps in their capabilities for measuring and managing climate-related financial risks".

5. Launched at the **Paris One Planet Summit on 12 December 2017**, NGFS is a group of central banks and supervisors willing to share best practices and contribute to the development of environment and climate risk management in the financial sector while mobilising mainstream finance to support the transition towards a sustainable economy.

SPACE X SETS UP SUBSIDIARY IN INDIA

World's richest person **Elon Musk-owned SpaceX** on 1 November 2021 incorporated its **wholly-owned subsidiary in India** to start **local broadband operations**. SpaceX's satellite broadband arm **Starlink** aims to start broadband services in India from **December 2022**, with 2 lakh active terminals subject to permission from the government.

What

1. **SpaceX** now has a **100 per cent owned subsidiary** in India. The name is **SSCPL - Starlink Satellite Communications Private Limited** and the incorporation date is 1 Nov 2021.
2. The company is charging a deposit of \$ 99 or Rs 7,350 per customer and claims to deliver data speeds in the **range of 50 to 150 megabit per second** in beta stage.
3. The services of the company will compete with that of **Reliance Jio, Bharti Airtel, Vodafone Idea** in broadband and it will be a direct competitor to **Bharti Group-backed OneWeb**.
4. **Starlink** is one of a growing number of companies launching **small satellites** as part of a **low-Earth orbiting network** to provide **low-latency broadband internet services** around the world with a **particular focus on remote areas** that terrestrial internet infrastructure struggles to reach.
5. Its competitors include **Amazon's Kuiper** and **OneWeb** which is co-owned by the British government and **India's Bharti Enterprises**.
6. In India, Starlink plans to "carry on the business of telecommunication services" including **satellite broadband internet services, content storage and streaming, multi-media communication**, among others.

SCIENCE AND TECHNOLOGY

SPACE X CREW LEAVES ISS, BOUND FOR EARTH

A **SpaceX capsule** carrying **four astronauts** left the **International Space Station** bound for Earth on 8 November 2021 after **spending six busy months** aboard the orbital outpost. Since arriving on 24 April 2021, the crew of two Americans, a Frenchman and one Japanese astronaut conducted **hundreds of experiments** and helped **upgrade the station's solar panels**.

What

1. They boarded their **SpaceX Dragon** dubbed "**Endeavour**" and undocked from the ISS.
2. **Endeavour** will now loop around the ISS for around an hour-and-a-half to take photographs, the first such mission since a **Russian Soyuz spaceship** performed a similar maneuver in 2018.
3. The Dragon, which is flying mostly autonomously, has a small circular window at the top of its forward hatch through which the astronauts can point their cameras.
4. SpaceX began providing astronauts a **taxi service to the ISS** in 2020, ending nine years of US reliance on Russian rockets for the journey following the end of the **Space Shuttle program**.

- The crew will face a final challenge on their journey home – they will have to wear diapers after a problem was detected with the **capsule's waste management system**, forcing it to remain offline.

CREW-3 MISSION LAUNCHED TO ISS

Elon Musk's private company **SpaceX** launched four astronauts to the **International Space Station** on 10 November 2021 night on the "**Crew-3**" mission. The orbital outpost is currently operating with just one NASA astronaut in the US segment to welcome the incoming crew.

What

- Crew-3's Raja Chari, Kayla Barron and Tom Marshburn** of the United States and Matthias Maurer of Germany blasted off aboard a **Crew Dragon capsule** fixed to a **Falcon 9 rocket** from the Kennedy Space Center in Florida.
- The spaceship, called **Endurance**, will dock with the ISS on 12 November 2021.
- The flight was initially postponed from 31 October 2021 first for weather, then a "**minor medical issue**" affecting one of the crew.
- Crew-3** is part of NASA's multibillion-dollar partnership with **SpaceX** that it signed after ending the **Space Shuttle program** in 2011 and aims to restore US capacity to carry out **human spaceflight**.
- The **quartet will spend six months on the orbital outpost** and conduct research to help inform future **deep space exploration** and benefit life on Earth.
- Scientific highlights of the mission include an **experiment to grow plants** in space **without soil or other growth media**, and another **to build optical fibers in microgravity**, which prior research has suggested will be superior in quality to those made on Earth.
- The Crew-3 astronauts will also conduct **spacewalks to complete an upgrade of the station's solar panels** and will be present for two tourism missions, including Japanese visitors aboard a **Russian Soyuz spacecraft** at the end of the year and the **Space-X Axiom crew**, set for launch in February 2022.

ISRO ENTERS X-BAND TELEMETRY & COMMAND REGIME

The **Indian Space Research Organisation (Isro)** has commissioned a **new 18m antenna**, which for the **first time**, allows the space agency to conduct **telemetry and command operations** on the **much faster X band (frequency)**. So far, **Isro only used X band** for payload data downloading and used the **S band** for telemetry and command. **Compared to S band**, which operates with **2GHz to 4GHz**, X band functions in **8GHz to 10GHz**.

Advantages of this antenna

- First, it increases the speed of commands and second, reduces possibility of any interference** given that the S band is now also used by **telecom companies for 5G**.
- The antenna was developed from the funds meant for **Aditya-L1** — **India's first solar missions** expected to be launched in late 2022 —

Flashback

- Aditya-L1** is India's first dedicated **space-based solar observatory of India** and will be around the **Earth-Sun Lagrange point L1**.
- With the inclusion of multiple payloads, this project also provides an opportunity to solar scientists from multiple institutions within the country to participate in **space-based instrumentation and observations**.
- Thus the **enhanced Aditya-L1 project** will enable a comprehensive understanding of the **dynamical processes of the sun** and address some of the outstanding problems in **solar physics**.

- and will be used for other **deep space missions** in the future too aside from being available for international customers.
3. The indigenous antenna and station is capable of **performing transmit** and receive operations in **both S and X bands**.
 4. It is equipped with **auto-tracking features in both the bands** and is remotely operable from the **Isro Telemetry, Tracking and Command Network (Istrac) network control centre** and is CCSDS (Consultative Committee for Space Data Systems) compliant facilitating interoperability and cross-support among different space agencies.

PARKER SOLAR PROBE FACES SPACE DUST, DEBRIS

NASA's ambitious **Parker Solar Probe spacecraft**, studying the Sun at close proximity, is being **bombarded with space dust and debris** on its way to the Sun, according to a study. Scientists at the **Laboratory for Atmospheric and Space Physics (LASP)** at the University of Colorado, Boulder and the Johns Hopkins University **Applied Physics Laboratory (APL)** have examined collisions between the Parker Solar Probe spacecraft and dust.

What

1. **Traversing near-sun space at up to 180 kilometres per second**, Parker Solar Probe ploughs through the densest region of the **zodiacal cloud**.
2. The **zodiacal cloud is a thick**, pancake-shaped dust cloud that extends throughout the solar system and is made up of **tiny dust grains shed** from **asteroids and comets**.
3. As **Parker Solar Probe barrels** through this region, the study found that thousands of tiny (about 2 to 20 microns in diameter, or less than a quarter of the width of a human hair) dust grains strike the spacecraft at hypervelocity (faster than 6,700 miles per hour).
4. Upon impact, the material that makes up the dust grains and the **spacecraft surface is heated so much** that it first vapourises, then ionizes.
5. **Ionization is a process** where **atoms in the vaporised material are separated into their constituent ions** and electrons, producing a state of matter called **plasma**.
6. The **rapid vapourisation and ionization** creates a plasma explosion lasting less than one thousandth of a second. The largest of these impacts also generate clouds of debris that slowly expand away from the spacecraft.
7. The findings could lead to **new insights into space weather around the sun** as well as have major implications for the safety of future spacecraft.
8. **Parker Solar Probe was launched in 2018** and has completed **nine full orbits of the sun**. Before its prime mission ends in 2025, it will complete **another 15 orbits**.

WEB-BASED 'GREEN' MONITORING SYSTEM FOR GANGA

An **Indo-US project** has spurred **Indian Institute of Technology (IIT) Kanpur** to develop a **web-based system** to monitor the **"health" of the Ganga**. The project has been jointly sponsored by the **Department of Science and Technology**, Government of India, and **Indo-US Science and Technology Forum (IUSSTF)**.

What

1. The low-cost, multi-parameter, water quality monitor named **Niracara Svayamsasita Vedh Shala (NSVS)** consists an **array of sensors** and auto sampler on a stationary platform, which is **semi-submersible**, all-weather, robust and perfectly stable.
2. The **"Aquatic Autono-mous Observatory"** would enable **in situ monitoring**, real-time data transmission and **web-based visualisation of Ganga**, IIT Kanpur said on 12 November 2021.

3. The new system has now been installed at the **Laxman Ghat** on the banks of the Ganga in **Bithoor**, a town in Kanpur.
4. With its large **riverine network**, India battles frequent floods, **foam-filled toxic water bodies, unexpected rise in water levels**, polluted rivers and so on, impacted by global warming and human activity.

How it will work?

1. The **NSVS system** can sense **three parameters** namely, **pH** (a scale to measure acidity/alkalinity), **conductivity and dissolved oxygen capacity** of water.
2. This can be further utilised to estimate **total dissolved solid, specific gravity** and presence of **metallic ions** in water.
3. It also autonomously collects data **every 15 minutes** and reports it through a wireless network to the institute.
4. **For self-sustenance**, the platform is equipped with **energy harvesting systems** comprising **solar cells** and a **Vortex Induced Vibration system** that can extract energy from the flow of river.

IIA DEVELOP ALGORITHM FOR EXOPLANETS

Astronomers from the **Indian Institute of Astrophysics (IIA)** have developed an **algorithm** that can increase the **accuracy of data from exoplanets** by reducing the contamination by **Earth's atmosphere** and disturbances due to instrumental effects and other factors.

What

1. Called the "**critical noise treatment algorithm**", astronomers from IIA, an autonomous institute of the **Department of Science and Technology**, say it can help study the **environment of exoplanets** with better precision.
2. The **understanding of physical properties of exoplanets** with extreme accuracy can help to explore the ones that could be similar to **planet Earth** and hence might be habitable.
3. The team has been using **ground-based optical telescopes** available in India and the data obtained by the **space telescope "Transiting Exoplanet Survey Satellite"** or TESS.
4. They have been using the **Himalayan Chandra Telescope** at the Indian Astronomical Observatory, Hanle and the **Jagadish Chandra Bhattacharyya Telescope** at Vainu Bappu Observatory, Kavalur in order to obtain signals of Exoplanets.
5. The astronomers point out that **transit signals** are heavily affected by the noise due to various sources that pose a challenge to estimate the physical parameters of the planets accurately.
6. Hence, the team has developed this **new algorithm** that can **treat the transit signals** detected by both ground- and space-based telescopes with much better precision than ever before.
7. Recently, they demonstrated the effectiveness of the algorithm by **critically analysing the data of TESS space telescope**, reduced the instrumental noise and the disturbances arising from **variability and pulsation of the host stars** and estimated the physical parameters of a **few Exoplanets accurately**.

MISCELLANEOUS

INDJETS GETS DOT LICENCE FOR IFMC

The government has allowed **IndJets India Pvt Ltd (IndJets)**, a strategic partner of **Bharat Sanchar Nigam Limited (BSNL)** and global mobile satellite provider **Inmarsat**, to provide **in-flight connectivity (IFMC)**.

What

1. The Union communications ministry has given **approval certificate for IFMC** to Delhi-based **IndJets** that offers a variety of services, including **in-flight broadband connectivity**.
2. **IndJets** will provide Indian registered airlines with access to Inmarsat's GX Aviation satellite service that will be supported by BSNL.
3. **GX Aviation services**, which operates in the **Ka-band**, is a high-speed broadband network that works globally.
4. The service delivers the **high bandwidth, reliability** and **security** that commercial and government- grade mobility customer's demand... Over the following three years.
5. **Inmarsat** will launch **seven more GX satellites**, including its **next-generation GX7/8/9 satellites**, each of which will add more capacity to a single region than the first four satellites combined.
6. **Ghaziabad is home to the GX gateway** for India. Real-time, seamless internet access would allow airlines to refine their on-board services as passengers email and browse.

Flashback

1. **Indjet** joins companies like **Vodafone, Airtel, Jio** and **Nelco** that have already received approvals to offer internet services on-board.
2. Among the Indian carriers, full-service carriers like **Vistara** and **Air India** (now owned by Tatas) would like to offer in-flight connectivity to its flying passengers.

INDIA IN CLIMATE PERFORMANCE INDEX 2022

India has retained its **top 10 spot in the best performing countries** for the third year in a row in the **global Climate Change Performance Index (CCPI)** released by **Germanwatch** on the side-lines of the COP26 on 9 November 2021. **No country performed well enough in all index categories** to achieve an overall very high rating in CCPI, the report noted. As a result, the **top three places** in the overall ranking remain **empty once again**.

What the Index said

1. **Denmark placed 4th** and is the **highest ranked country** in CCPI 2022. However, it does not perform well enough to achieve an overall very high rating.
2. **India at the 10th slot** is the seventh best performing country. India maintained its 10th position despite pandemic-hit operational difficulties which saw some regulatory flexibility to put the country's economy back on track.
3. Performance of **G20 countries**, responsible for about 75% of the world's GHG emissions, shows the **UK (7th); India (10th), Germany (13th), and France (17th)** are four G20 countries among the high-performers.
4. **China is the current biggest polluter** and figured at **37th position**, falling down three spots since last year, while the second highest current emitter -- US -- was at the 55th spot in the CCPI 2022.
5. The performance of these countries, which together account for **92% of global greenhouse gas emissions**, is assessed in four categories — **GHG emissions, renewable energy, energy use** and **climate policy**.

FOURTH SUBMARINE OF THE PROJECT – 75

The **Indian Navy** took delivery of the **fourth ‘Scorpene’ class submarine** under **Project-75** from Mazagon Dock Shipbuilders Limited (MDL) on 9 November 2021. Once the new submarine is commissioned into the Indian Navy, it would help in enhancing its capability.

What

1. With delivery **India has joined the exclusive group** of submarine building nations. So far the shipyard has delivered three submarines of “Scorpene” class namely: **Kalvari, Khanderi, and Karanj**. And the fourth one was delivered today which will be later commissioned in the Indian Navy as **INS Vela**.
2. The **fifth submarine Vagir**, which was launched last November, has already commenced her harbour trials and next month is expected to go for maiden surface sortie.
3. The sixth submarine under **Project 75** is in the advanced stage of outfitting.
4. The shipyard has achieved expertise in submarine refits by successfully executing the Medium Refit-cum-Upgradation of all the four SSK class submarines.

INDIAN PROFESSOR ELECTED TO ILC

Professor Bimal Patel, Vice-Chancellor, Rashtriya Raksha University and Member of National Security Advisory Board of India, has been elected to the **International Law Commission (ILC)** for a **five-year term** starting 1 January 2023 in a hard-fought election at the **United Nations**.

What

1. Patel garnered **163 votes in the UN General Assembly** out of 192 members present and voting, **topping the Asia-Pacific group** that included candidates from **China, South Korea and Japan**.
2. The **International Law Commission** was established by the General Assembly **in 1947** to undertake the mandate of the Assembly to “initiate studies and make recommendations for the purpose of “encouraging the **progressive development of international law and its codification.**”
3. The **Statute of the International Law Commission** provides that the Commission shall consist of **34 members** “who shall be persons of recognised competence in international law.”
4. The members of the Commission are to be elected by the General Assembly from a list of candidates nominated by the **Governments of States Members of the United Nations**.

MEGA NAVAL EXERCISE IN ANDAMAN SEA

The **navies of India, Singapore and Thailand** on 15 November 2021 carried out a **series of complex military drills** in the **Andaman Sea** on the first day of a two-day mega naval exercise. The Indian Navy said the exercise highlights the **growing synergy, coordination and cooperation** in the maritime domain between the **three friendly navies**.

What

1. The exercise is being **conducted annually since 2019** with an aim to enhance **mutual inter-operability, imbining best practices** among the three navies.
2. The maiden edition of SITMEX was hosted by the Indian Navy off **Port Blair in September 2019** while it was organised in 2020 by the Republic of Singapore Navy.

- The **2021 edition of the exercise** is being hosted by **Royal Thai Navy**. 'The exercise is being conducted as a **'non-contact, at sea only'** exercise in view of COVID-19 restrictions and highlights growing synergy, coordination and cooperation in the maritime domain between the three friendly navies.

Flashback

- The **Indian Navy** participated in **maritime exercises** in the last few months with a number of countries.
- Last month, **India held the Malabar exercise** that was also participated by the navies of the **US, Japan and Australia**.
- India invited Australia for the exercise last year as well as this year effectively making it a drill by all the **Quad member nations**.
- The Quad**, comprising **India, the US, Australia and Japan**, is aimed at ensuring a free and open Indo-Pacific, a region that witnessed increasing Chinese military assertiveness in recent years.

RUSSIA STARTS DELIVERY OF S-400 TO INDIA

Russia has begun the delivery of **S-400 Triumf surface-to-air missile systems** to India. The development comes as both sides prepare for a visit to India by Russian President Vladimir Putin on 6 December for a **bilateral summit** with Prime Minister Narendra Modi. It is learnt that deliveries of some components of the **missile systems** have started and all key parts are yet to reach India.

What

- In October 2018**, India had signed a **USD 5 billion deal with Russia** to buy five units of the **S-400 air defence missile systems**, despite a warning from the Trump administration that going ahead with the contract may invite US sanctions.
- The Biden administration has not yet clarified whether it will impose sanctions on India under the provisions of the **Countering America's Adversaries Through Sanctions Act (CAATSA)** for procuring the S-400 missile systems.
- The **CAATSA**, which was **brought in 2017**, provides for punitive actions against any country engaged in transactions with Russian defence and intelligence sectors.
- The US has already **imposed sanctions on Turkey under the CAATSA** for the purchase of a batch of S-400 missile defence systems from Russia.

Flashback

- The **S-400** is among the **most advanced air-defence systems** in the world, with a **range of around 400 km**.
- It is capable of protecting its **air defence bubble** against rockets, missiles, cruise missiles and even aircraft.
- The system is already available with **China**, which has deployed it along the **Line of Actual Control (LAC)** in eastern Ladakh amid the 18-month military standoff.

EX-SHAKTI 2021 COMMENCES AT FREJUS

The **sixth-edition** of **India-France joint military exercise 'EX-SHAKTI2021'** commenced on 15 November 2021 at the **southeastern French port town of Frejus**. The **joint exercise** would focus on **Counter-Terrorism operations** in **semi-urban terrain** under the **United Nations Mandate**. The joint exercise is being conducted from 15 to 26 November 2021.

What

1. A platoon strength of a **Gorkha Rifles Infantry Battalion** is representing the Indian Army in this bilateral exercise and the French side is being represented by **troops of 21st Marine Infantry Regiment** of 6th Light Armoured Brigade.
2. The last edition of **Exercise SHAKTI** was conducted at Foreign Training Node in Mahajan Field Firing Ranges, Rajasthan from 31 October to 13 November 2019.
3. India and France carry out **three biennial training exercises** namely, **Exercise GARUDA** with Indian Airforce, **Exercise VARUNA with Indian Navy** and **Exercise SHAKTI with the Indian Army**.
4. **Exercise Desert Knight-21**, between the **Air Forces of the two nations**, was held in January at the **Jodhpur Air Force Station**, with fighter jets from nations, mid-air refuellers and **airborne warning and control system (AWACS) platforms** participating.