

My Notes....

NATIONAL

FIRST GREEN HYDROGEN POLICY NOTIFIED

The Ministry of Power on 17 February 2022 notified **green hydrogen policy**, which will help in meeting the target of production of **5 million tonnes of Green hydrogen by 2030** and the related development of **renewable energy capacity. Hydrogen and Ammonia** are envisaged to be the **future fuels** to replace fossil fuels. Production of these fuels by using **power from renewable energy**, termed as **green hydrogen and green ammonia**, is one of the major requirements towards environmentally sustainable energy security of the nation.

The policy provides as follows:

1. **Green Hydrogen / Ammonia** manufacturers may **purchase renewable power** from the power exchange or set up renewable energy capacity themselves or through any other, developer, anywhere.

Open access will be granted within 15 days of receipt of application.

2. The **Green Hydrogen / Ammonia manufacturer** can bank his unconsumed renewable power, up to 30 days, with **Distribution Company** and take it back when required.

3. Distribution licensees can also procure and supply Renewable Energy to the manufacturers of

Green Hydrogen / Green Ammonia in their States at concessional prices which will only include the cost of procurement, wheeling charges and a small margin as determined by the State Commission.

4. **Waiver of inter-state transmission charges** for a **period of 25 years** will be allowed to the manufacturers of **Green Hydrogen and Green Ammonia** for the projects commissioned before **30th June 2025**.
5. The manufacturers of Green Hydrogen / Ammonia and the renewable energy plant shall be given **connectivity to the grid** on priority basis to avoid any procedural delays.
6. The benefit of **Renewable Purchase Obligation (RPO)** will be granted incentive to the hydrogen/Ammonia manufacturer and the Distribution licensee for consumption of renewable power.
7. The policy promotes Renewable Energy (RE) generation as **RE will be the basic ingredient in making green hydrogen**. This in turn will help in meeting the international commitments for clean energy.

1	Can source renewable power from power exchange, other routes, own plants	5	Waiver of inter-state transmission charges for 25 years
2	Manufacturers to get open access to transmission within 15 days of application	6	Connectivity to power grid on priority basis
3	Manufacturer can bank unconsumed renewable power with power distribution companies (discom) for 30 days	7	Renewable Purchase Obligation incentive to manufacturer & distribution licensee
4	Discoms can buy and sell renewable power to manufacturers at concessional rates	8	Single portal for clearances
		9	Connectivity on priority
		10	Manufacturers will be allowed to set up bunkers near ports for storage

NATIONAL STRATEGY ON ADDITIVE MANUFACTURING

The government aims to capture **five per cent of the global market share** in **additive manufacturing or 3D printing** with expectations to add nearly USD 2-3 billion to the GDP in the next 2-3 years, Union Minister Ashwini Vaishnaw said on 24 February 2022.

What

- Under the **National Strategy on Additive Manufacturing**, the government plans to create **50 India-specific technologies** for material, machine, process and software to make **India a 3D-printed design and manufacturing hub**.
- The value of precision electronics is high. It is estimated to contribute **USD 2-3 billion in GDP coming 2-3 years**.
- The strategy aims to create **100 new start-up**, 500 additive manufacturing products and **50 Indian additive manufacturing technologies** on material, machine, process and software.
- The **3D printing** has a lot of scope in making **artificial limbs, stents, dental crowns**, parts of automobile and consumer goods, among others.
- In December 2020, the IT ministry was readying a **national policy on promoting 3D printing** on an industrial scale and helping domestic companies “**overcome technical and economic barriers**” so that they can build supportive and ancillary facilities for world leaders in the technology, such as the **US and China**.

Flashback

- Additive manufacturing (AM) or additive layer manufacturing (ALM)** is the industrial production name for **3D printing**, a **computer controlled process** that creates **three dimensional objects** by depositing materials, usually in layers.
- Using **computer aided design (CAD) or 3D object scanners**, additive manufacturing allows for the creation of objects with precise geometric shapes.
- These are built **layer by layer**, as with a 3D printing process, which is in contrast to traditional manufacturing that often requires machining or other techniques to remove surplus material.

ASIA'S BIGGEST BIO-CNG PLANT INAUGURATED

Prime Minister on 19 February 2022 inaugurated **Asia's biggest Bio-CNG plant** in Madhya Pradesh's Indore via video conferencing. PM said that the work is on to set up similar **gobar dhan Bio-CNG plants** in 75 big municipal bodies across the country in next two years. The campaign will help a lot in making **India's cities clean, pollution free, clean energy**.

Facts about the plant:

- The plant has been made on **PPP model**, and the company that made the plant will pay **Indore Municipal Corporation** Rs 2.5 crore per annum for 20 years.
- The technology will help **purify the air quality** of densely populated cities by mitigating 1, 30, 000 tonnes of carbon dioxide annually.
- Situated on the **Devguradia trenching ground**, the plant has the capacity to treat 550 tonnes per day of segregated wet organic waste. It is expected to produce around **17,000 kg per day of CNG** and 100 tonnes per day of organic compost.
- The plant is based on **zero-landfill models**, whereby no rejects would be generated. Additionally, the project is expected to yield multiple environmental benefits- **reduction in greenhouse gas emissions**, providing green energy along with organic compost as fertilizer.
- Gobar Dhan plant** will enable operation for 400 city buses and 1,500 small vehicles on CNG.
- The government is working on introducing **75 more Bio-CNG plants** in 75 other districts and villages to benefit farmers in the animal husbandry sector.

INDIA GETS ITS FIRST NMSC

In a **long-pending reform** almost 14 years after the deadly **Mumbai terror attacks**, the government has now appointed the **country's first national maritime security coordinator (NMSC)** to ensure effective coordination and cooperation among multiple central and state authorities dealing with the domain from **the coast to the high seas**.

What

1. Vice Admiral **G Ashok Kumar**, who retired as the Navy vice chief in July last year after over 39 years of service, will be the **NMSC in the National Security Council Secretariat** under **national security advisor** Ajit Doval.
2. The **Cabinet Committee on Security (CCS)** in November last year had approved the NMSC post with the mandate **to bridge the gap** among the disparate authorities to strengthen the **country's maritime and energy security** as well as expanding "blue economy" and technology requirements.
3. An **apex maritime mechanism or coordination** is crucial for India, which has a long **7,516-km coastline** including island territories and a **two million sq km Exclusive Economic Zone**, apart from **90% of its trade by volume** and **70% by value** transiting through the seas.
4. A **maritime security advisory board (MSAB)** headed by a maritime security advisor was on the CCS agenda after the 26/11 Mumbai terror attacks in 2008, which had exposed the lack of "**critical connectivity**" among different authorities, including the intelligence agencies and the security forces.

WORLD SUSTAINABLE DEVELOPMENT SUMMIT

Prime Minister on 16 February 2022 inaugurated **The Energy and Resources Institute's (TERI)** latest edition of the **World Sustainable Development Summit (WSDS)** that deliberate on the planetary resilience in wake of the multitude of extreme weather events across the globe in the recent years.

About the Summit

1. The theme of the summit was '**Towards a Resilient Planet: Ensuring a Sustainable and Equitable Future**', the experts at the Summit conferred on a range of pressing issues from **climate change, sustainable production and energy transitions** to global commons and resource security, among others.
2. The Summit also participated by the Ministers of Environment from about a dozen countries, representatives from the United Nations, heads of inter-governmental organizations, and delegates from 126 countries.
3. **TERI** is a pioneer in these areas and **WSDS 2022** play a crucial part in accentuating our role in providing technological, policy as well as knowledge solutions as India works towards realising the commitments made at COP26.

NEW INDIA LITERACY PROGRAMME APPROVED

The **Ministry of Education (MoE)** on 16 February 2022 approved a new scheme "**New India Literacy Programme**" for the **next five years** to cover all the aspects of adult education **to align with the new National Education Policy (NEP)**. The ministry has also decided to use "**Education For All**" instead of "**Adult Education**" as the previous term did not appropriately represent **all non-literates in the 15 years and above age group**.

About the Scheme

1. The **objectives of the scheme** is to impart **not only foundational literacy** and numeracy but also to cover other components which are necessary for a **citizen of 21st century** such as **critical life skills** including **financial literacy, digital literacy, commercial skills, health care and awareness**, child care and education, and family welfare); vocational skills development with a view towards obtaining local employment); **basic education including preparatory**, middle, and secondary stage equivalency.
2. The scheme will be implemented through **volunteerism via online mode**. The training, orientation, workshops of volunteers, maybe organized through face-to-face mode.
3. **All material and resources shall be provided digitally** for easy access to registered volunteers through easily accessible digital modes like **TV, radio**, cell phone-based free, open-source apps and portals.
4. The scheme will cover **non-literates of the age of 15 years and above** in all state and union territories.

- The **target for Foundational Literacy and Numeracy** for financial years 2022-27 is 5 crore learners using **Online Teaching, Learning and Assessment System (OTLAS)** in collaboration with **National Informatics Centre, NCERT** and **NIOS** in which a learner may register him/herself with essential information like name, date of birth, gender, Aadhaar number and mobile number.

'OPERATION GANGA' LAUNCHED

The **Government of India** on 27 February 2022 launched the '**Operation Ganga**' initiative to **bring back Indians from Ukraine**. According to the ministry of external affairs (MEA), a dedicated Twitter account, '**OpGanga**', has been set up to assist '**Operation Ganga**'.

More about Operation Ganga

- Due to the **closing of Ukrainian airspace**, the **Indian evacuation flights** are operating out of **Romanian capital Bucharest** and **Hungarian capital Budapest**.
- India is facilitating the **evacuation of stranded Indians from Ukraine** through its land border crossings with **Romania, Hungary, Poland** and **Slovakia**.
- Under the '**Operational Ganga**' plan, the **first Air India flight** carrying 219 Indian evacuees from Ukraine had landed in the Mumbai airport from Bucharest.
- So far**, a **total of 469 Indian nationals** have been evacuated from war-hit Ukraine, out of which 200 landed in Delhi and 219 landed in Mumbai.
- The third Air India flight with around 240 Indians on board has left for Delhi from the **Hungarian capital Budapest**.
- Amid the ongoing **Russia-Ukraine conflict**, the Government of India on 28 February 2022 decided to send Union ministers **Hardeep Singh Puri, Jyotiraditya Scindia, Kiren Rijiju** and **Gen (Retd) VK Singh** to neighbouring countries of Ukraine to coordinate the evacuation of Indian students stranded in the crisis-hit country.
- This comes following **high-level meetings** chaired by Prime Minister on 28 February 2022. The Prime Minister accorded top priority to the evacuation of Indian students stranded in Ukraine.

INTERNATIONAL

JOINT TASK FORCE ON HYDROPOWER PROJECT

India and Nepal on 24 February 2022 agreed to **form a joint task force** on a proposal to **construct a hydropower project** from investments of the two neighbouring countries. The task force will have maximum three members from both the countries.

What is in agreement?

- The agreement was reached at the **9th meeting of the Nepal-India Energy Secretary-Level** Joint Steering Committee in Kathmandu, according to the Ministry of Energy, Water Resources and Irrigation.
- During the meeting, under-construction and proposed interstate transmission line, the **Arun III hydropower and transmission line** and interstate power trade were discussed.
- Both sides agreed to **increase the capacity of energy** being imported and exported through the interstate **400 KV Dhalkebar-Muzaffarpur transmission line**.
- The **400 KV transmission line** will span 140 kilometers (20 kilometers in Nepali territory and the remaining 120 in Indian Territory).
- The government of Nepal** has to manage budget to construct the project on its side, as per the agreement.
- India has taken a positive note of the proposal floated by **Nepal Electricity Authority (NEA)** to export electricity to India.
- The NEA has requested India to approve the proposal to **export 850 megawatts electricity to India** prior to the coming monsoon.

INDIA ABSTAINS ON UNSC RESOLUTION

India on 26 February 2022 **abstained** on a US-sponsored United Nations Security Council resolution that “**deplores in the strongest terms**” Russia’s “aggression” against Ukraine, with New Delhi saying **dialogue is the only answer to settling differences** and disputes and voicing “regret” that the path of diplomacy was given up.

What

1. **Russia** — which **chaired the meeting of the UNSC** since it holds the presidency for the month of February — **vetoed the resolution**, China too abstained along with United Arab Emirates (UAE).
2. The remaining **11 members of the UNSC**, including the US, UK and France, voted in favour of the resolution, which **did not pass since Russia vetoed it**.
3. Explaining its vote, India’s Permanent Representative at the UN, **T S Tirumurti** said, “**India is deeply disturbed by the recent turn of developments in Ukraine.**”
4. The contemporary global order has been built on the **UN Charter, international law**, and respect for the sovereignty and territorial integrity of states.

What was the resolution about?

1. The **Council’s resolution** reaffirmed its commitment to the **sovereignty, independence**, unity and territorial integrity of Ukraine within its internationally recognised borders.
2. The resolution “**deplores in the strongest terms Russia’s aggression against Ukraine**” and decides that Russia “shall immediately cease its use of force against Ukraine and shall refrain from any further unlawful threat or use of force against any UN member state”.
3. The resolution added that Russia “**shall immediately**, completely, and unconditionally withdraw all of its military forces from the territory of Ukraine within its internationally recognised borders”.
4. It also asked Moscow to “**immediately and unconditionally reverse** the decision related to the status of certain areas of Donetsk and Luhansk regions of Ukraine”.

FIRST COUNTRY TO JOIN CHINA INFRA PROJECTS

France has become the **first country to join China** to jointly build **seven infrastructure projects** worth over USD 1.7 billion in **Africa, South East Asia** and **Eastern Europe**, in a boost for Beijing in the face of its growing hostility with the US. The two countries signed the Fourth Round **China-France Third-Party Market Cooperation Pilot Project List**.

What

1. The list includes **seven projects** in areas like **infrastructure, environmental protection** and new energy with a total value of over USD 1.7 billion.
2. The implementation of key projects in **Africa, Southeast Asia, Central and Eastern Europe** are demonstrative of the cooperation between Beijing and Paris, China's top planning body **National Development and Reform Commission (NDRC)** said.
3. **France is the first country** to establish the **third-party market intergovernmental cooperation mechanism** with China, the NDRC said.
4. The French move to join China, whose **Belt and Road Initiative (BRI)** drew flack for its **debt diplomacy**, is being regarded as an image boost for Beijing in the face of its growing hostility with the US.
5. The US has been **highly critical of the BRI projects**, which has left scores of **lower- and middle-income countries (LMIC)**, saddled with “**hidden debts**”.
6. In 2021, the United States announced plans to invest in **five to 10 large infrastructure projects** around the world as part of a **broader G-7 initiative** to counter China's BRI.

INDIA AND UAE SIGN CEPA

India and the United Arab Emirates (UAE) on 18 February 2022 signed a **Comprehensive Economic Partnership Agreement (CEPA)** that is set to benefit almost **90 per cent of trade** -- both exports and imports-- between the two countries. The trade deal has also provided a **permanent safeguard mechanism**, which will safeguard exporters and businesses from both countries from any unwarranted surge in volumes of any particular product.

More about trade deal

1. Several sectors, such as **gems and jewellery, leather, plastic products, agriculture products, medical devices**, pharmaceutical products, and automobiles will benefit from the agreement.
2. **India has given duty concessions on gold exported** from the UAE, while Indian exporters will attract **zero per cent duty on jewellery**.
3. The trade pact will provide **significant benefits to Indian and UAE businesses**, including enhanced market access and reduced tariffs.
4. It is expected that the CEPA will lead to an **increase in bilateral trade** from the current \$60 billion to \$100 billion in the next five years.
5. On the pharma side, the UAE for the first time has agreed that **medicine or medical products approved by developed countries will get market access** and regulatory approval in a time-bound manner of 90 days for being marketed in the UAE.
6. The **India-UAE CEPA will be the first of the bunch of trade agreements** that India aims to ink with other developed nations over the next few months.
7. The **UAE is currently India's third-largest trading partner** and the second-largest export destination, after the US.
8. The two leaders also released a **Joint Commemorative Stamp** on the occasion of the **75th anniversary of India's independence** and the **50th year of UAE's foundation**.

ECONOMY

FIRST FOREIGN COUNTRY TO DEPLOY UPI

The National Payments Corporation of India's global arm **NPCI International Payments (NIPL)** will help enable the **Unified Payments Interface (UPI)** platform in **Nepal**. NIPL has partnered **Gateway Payments Service (GPS)**, an authorised payment system operator in Nepal, and Bengaluru-based Manam Infotech.

What

1. UPI will be deployed in Nepal as a **digital public benefit** to bolster interoperable real-time **person-to-person (P2P)** and **to-merchant (P2M)** payment transactions.
2. **Nepal will be the first country** outside of India to adopt UPI as a payments platform.
3. Besides enabling an **open interoperable system for real-time payments** and enabling financial inclusion, it will lay the foundation for real-time cross-border P2P remittances between Nepal and India.
4. **In 2021**, UPI enabled **39 billion financial transactions** amounting to commerce worth \$940 billion, which is equivalent to approximately **31% of India's GDP**.
5. **Nepal** has a **population of around three crore** with about 45% banked, a mobile penetration of over 135% with 65% of the population using smartphones.

CABINET APPROVES UP TO 20% FDI IN LIC

The **Union Cabinet** on 26 February 2022 **permitted up to 20 per cent foreign direct investment (FDI)** under **automatic route** in IPO-bound LIC with an aim to facilitate disinvestment of the **country's largest insurer**. The decision in this regard was taken by the Cabinet, chaired by Prime Minister.

What

1. The government has approved **listing of shares of LIC on the stock market** through an IPO by part-sale of its stake in the insurer and raising fresh equity capital.
2. Foreign investors may be desirous of participating in the mega IPO. However, the existing FDI policy did not prescribe any specific provision for foreign investment in LIC, which is a statutory corporation established under the **LIC Act, 1956**.
3. Since as per the present FDI policy, the foreign inflows ceiling for public sector banks is **20 per cent under government approval route**, it has been decided to allow foreign investment of **up to 20 per cent for LIC** and such other corporate bodies.
4. **Increased FDI inflows** will supplement domestic capital, technology transfer, skill development for accelerated economic growth and development across sectors.
5. Setting the stage for the **country's biggest-ever public offering**, Life Insurance Corporation on 13 February 2022 filed draft papers with capital market regulator Sebi for the sale of **5 per cent stake** by the government for an estimated Rs 63,000 crore.
6. The **initial public offering (IPO)** of over 31.6 crore shares or 5 per cent government stake is likely to hit D-street in March. Employees and policyholders of the insurance behemoth would get a discount over the floor price.

WESTERN ALLIES BLOCK SWIFT PAYMENTS SYSTEM

A decision by **Western allies** on 26 February 2022 to block "**selected**" **Russian banks** from the **SWIFT payments system** will inflict a crippling economic blow, but also cause much pain to their own companies and banks. And the allies still have room to do more.

What is SWIFT?

1. The **SWIFT system** stands for the **Society for Worldwide Interbank Financial Telecommunication** and is a **secure platform for financial institutions** to exchange information about **global monetary transactions** such as money transfers.
2. While **SWIFT does not actually move money**, it operates as a middleman to verify information of transactions by providing **secure financial messaging services to more than 11,000 banks in over 200 countries**.
3. **Based in Belgium**, it is overseen by the central banks from eleven industrial countries: Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States, besides Belgium.
4. **Excluding Russian banks** from the SWIFT platform is expected to hit the country's economy hard — and in the words of the White House, it will make the country rely on "**the telephone or a fax machine**" to make payments.

SCIENCE AND TECHNOLOGY

QUANTUM KEY DISTRIBUTION TEST SUCCESSFULLY

In a joint team of scientists from the **Defence Research and Development Organisation (DRDO)** and **Indian Institute of Technology (IIT) Delhi** successfully demonstrated **Quantum Key Distribution (QKD) link** between Prayagraj and Vindhyachal in Uttar Pradesh, a distance of **more than 100 kilometres**.

More about QKD

1. **QKD** is primarily a **mechanism to undertake secure communication** which utilises a **cryptographic protocol** involving various components of **quantum mechanics**.
2. The technology enables **two communicating sides** to come up with **random secret keys** shared by both of them and known exclusively to them, so only they can use it to encrypt and decrypt messages, thus achieving a very **highly-secure communication**.
3. In December 2020, the technology was tested for communication between **two DRDO facilities in Hyderabad**—the Defence Research and Development Laboratory (DRDL) and Research Centre Imarat (RCI)—over a **distance of 12 km**.

4. This technological breakthrough was achieved over a **commercial-grade optical fibre** already available in the field.
5. With this success, the country has **demonstrated indigenous technology** of secure key transfer for bootstrapping **military-grade communication security key hierarchy**.
6. The performance parameters have been measured and have been found to be repetitively within the reported international standards at sifted **key rates of up to 10 kHz**.
7. This technology **will enable security agencies to plan a suitable quantum communication network** with indigenous technology backbone.

MAJOR UN REPORT ON CLIMATE IMPACTS

Nearly 200 nations approved a **major UN climate change report** detailing the accelerating **impacts of global warming** on 27 February 2022, at the end of a sometimes fraught two-week meeting overshadowed by **Russia's invasion of Ukraine**. The **Intergovernmental Panel on Climate Change (IPCC)** confirmed that debates had concluded over the report's crucial "**Summary for Policymakers**", a 40-page overview distilling the thousands of pages of scientific research.

What the report said

1. **Species extinction, ecosystem collapse, mosquito-borne disease**, deadly heat, water shortages, and reduced crop yields are already measurably worse **due to global heating**.
2. Just in the last year, the world has seen a cascade of unprecedented **floods, heatwaves** and **wildfires** across four continents.
3. All these impacts will accelerate in the coming decades even if the **carbon pollution driving climate change** is rapidly brought to heel.
4. It will also underscore the **urgent need for "adaptation"** -- a term that refers to **preparations for devastating consequences** that can no longer be avoided.
5. In some cases this means that adapting to intolerably hot days, flash flooding and storm surges has become a matter of life and death.
6. The **2015 Paris deal** calls for capping global warming at "**well below**" **2C**, and **ideally 1.5 degrees Celsius** (2.7 degrees Fahrenheit).
7. **In August 2021**, another IPCC report on the physical science of **human-caused climate change** found that global heating is virtually certain to pass 1.5C, probably within a decade. **Earth's surface has warmed 1.1 degrees Celsius** since the 19th century.
8. The **backbone of climate action is science** and the science is clear. It's telling us how dire our situation is. What is lacking is action from governments.

BRAHMOS MISSILE SUCCESSFULLY TEST-FIRED

India on 18 February 2022 successfully test-fired a **naval variant** of the **advanced supersonic BrahMos cruise missile** from a stealth guided-missile destroyer of the Indian Navy. The Indian Navy's warship **INS Visakhapatnam** carried out a test firing of BrahMos supersonic cruise missile off the western seaboard. The warship has now reached Visakhapatnam to take part in President's Fleet Review on 21 February 2022.

What

1. The missile was tested from **INS Visakhapatnam** which is the latest warship of the Indian Navy inducted recently.
2. **BrahMos is the main weapon system** of the Indian Navy warships and has been deployed on almost all of its surface platforms.
3. An **underwater version** is also being developed which will not only be used by the submarines of India but will also be offered for export to friendly foreign nations.
4. Earlier, "Advanced sea to sea variant of BrahMos Supersonic Cruise missile was tested from INS Visakhapatnam today. Missile hit the **designated target ship precisely**."
5. **BrahMos Aerospace**, an **India-Russian joint venture**, produces the supersonic cruise missile that can be launched from **submarines, ships, aircraft**, or from **land platforms**.
6. BrahMos missile flies at a **speed of 2.8 Mach** or almost **three times the speed of sound**.

GOVT. NOTIFIES EPR NORMS FOR PLASTIC WASTE

The **Ministry of Environment, Forest and Climate Change** has notified the Guidelines on **Extended Producers Responsibility (EPR)** on plastic packaging under **Plastic Waste Management Rules, 2016**. The guidelines on extended producer responsibility coupled with prohibition of identified **single use plastic items**, which have low utility and high littering potential, with effect from 1st July 2022, are important steps for reducing pollution caused due to **littered plastic waste** in the country.

What

1. The guidelines will promote development of **new alternatives to plastics** and provide a roadmap for businesses to move towards sustainable plastic packaging.
2. The Guidelines provide **framework to strengthen circular economy** of plastic packaging waste, **promote development of new alternatives** to plastics and provide further next steps for moving towards sustainable plastic packaging by businesses.
3. **Reuse of rigid plastic packaging material** has been mandated in the guidelines to reduce the use of fresh plastic material for packaging.
4. The enforceable prescription of minimum level of **recycling of plastic packaging waste** collected under EPR along with use of recycled plastic content will further reduce plastic consumption and support recycling of plastic packaging waste.
5. The **EPR guidelines** will give a boost for formalization and further development of **plastic waste management sector**.
6. In a significant first, the guidelines allow for sale and purchase of surplus extended producer responsibility certificates, thus setting up a **market mechanism for plastic waste management**.
7. The implementation of EPR will be done through a customized online platform which will act as **digital backbone of the system**.
8. The Guidelines prescribe a framework for **levy of environmental compensation** based upon **polluter pays principle**, with respect to non-fulfilment of extended producer responsibility targets by producers, importers & brand owners, for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environment pollution.

INDIA'S FIRST BSL-3 MOBILE LABORATORY

The **first Biosafety level-3 (BSL-3)** containment mobile laboratory of **South Asia** was inaugurated in the Nasik district of Maharashtra on 18 February 2022. The mobile facility investigate newly emerging and re-emerging **viral infections** that are highly infectious and of lethal potential to human beings.

What

1. The **Biosafety level-3 Mobile Laboratory** is a significant value addition to the Government's efforts to strengthen healthcare infrastructure through the **Pradhan Mantri Ayushman Bharat Health Infrastructure Mission**.
2. The mobile Lab will help in **real-time data collection** which will enable us to ensure quick containment and prevent further spread of any emerging viral infections.
3. The laboratory has been designed and built by the **Indian Council of Medical Research (ICMR)** in collaboration with Mumbai based bio-safety equipment maker **Klenzaid**.
4. The laboratory is **airtight, access-controlled, bio-decontaminable**, fitted with safe change **HEPA (High Efficiency Particulate Absorbing)** filtration and biological liquid waste decontamination system.
5. The lab is controlled through an **intelligent control automation system**, which maintains the working environment under negative air pressure maintains equipment parameters and records all necessary data.

CHANDRAYAAN-2 DETECTS SOLAR PROTON EVENTS

A **Large Area Soft X-ray Spectrometer (CLASS)**, a payload on-board **Chandrayaan-2 Orbiter**, has detected **solar proton events** which significantly increase the **radiation exposure to humans in space**. The instrument on 18 January 2022 also recorded **coronal mass ejections (CMEs)** leading to **geomagnetic storms** and lighting up the polar sky with **auroras**, the ISRO said on 23 February 2022.

What

- Such **multi-point observations** help us understand the propagation and its impact on different planetary systems. When the **sun is active**, spectacular eruptions called **solar flares** occur that sometimes also spew out **energetic particles** (called solar proton events or SPEs) into interplanetary space.
- Most of these are **high energy protons** that impact space systems and significantly increase **radiation exposure to humans in space**. They can cause **ionisation on large scales** in the earth's middle atmosphere.
- Many intense solar flares** are accompanied by **CMEs**, a powerful stream of ionised material and magnetic fields, which reach the earth a few days later, leading to geomagnetic storms and lighting up the **polar sky with auroras**.
- The **CLASS instrument** also detected a CME event as it passed through the moon due to an **M1.5 class solar flare** that occurred on 18 January 2022.
- The **CME travels at a speed of about 1,000 km/s** and it takes about two-three days to reach the Earth.
- The **signature of this event is missed by the GOES satellite**, as the earth's magnetic field provides shielding from such events. However, the event was recorded by **Chandrayaan-2**.
- The CLASS payload on **Chandrayaan-2 saw both the SPE and CME events** pass by from two intense flares on the Sun.

About Solar flares

- Solar flares** are classified according to their strength. The **smallest ones are A-class**, followed by **B, C, M and X**.
- Each letter represents a 10-fold increase in energy output**. This means that an M class flare is 10 times more intense than C-class flare and 100 times intense than B-class flare.
- Within each letter class there is a **finer scale from 1 to 9** - a M2 flare is twice the strength of M1 flare.
- Recently, there were **two M-class solar flares**. **One flare (M5.5) spewed out energetic particles** into interplanetary space and the other flare (M1.5) was accompanied by a CME.
- The SPE event was seen by **NASA's Geostationary Operational Environmental Satellite (GOES)** orbiting around the Earth. However, the CME event was not detected by GOES.
- Chandrayaan-2 Large Area Soft X-ray Spectrometer (CLASS)** on-board Chandrayaan-2 Orbiter detected SPE due to an **M5.5 class solar flare** that occurred in 20 January 2022.

MISCELLANEOUS

WORLD BANK INDIA HEAD APPOINTED AT MIGA

The **World Bank's India head, Junaid Kamal Ahmad**, has been appointed as one of the **vice presidents** of the global lending institution. Ahmad -- who as Vice President, Operations would head the **Multilateral Investment Guarantee Agency (MIGA)** -- is the second Bangladeshi national to be appointed to such a high position in the history of the bank. Ahmad, 61, will assume his new role from 16 April, an official release said here on 25 February 2022.

What

1. **Fayez Choudhury** was the **first Bangladeshi national** who became the vice president on the administration side.
2. In his new role, Ahmad will work to advance and **enhance MIGA's brand** partnering across the World Bank Group and with financial institutions, private investors and development actors; originate and pursue meaningful, **impact-driven projects** and lead the Operations team to deliver on MIGA's mandate of mobilising private finance for development projects in **Emerging Market Developing Economies**, the bank said.
3. The most important is, as **India's economic development happens**, the impact on global growth and poverty is very important, Ahmad, who has been the country director for the World Bank in India since September 2016.
4. **MIGA, a member of the World Bank Group**, is headquartered in **Washington**. It offers **political risk insurance** and **credit enhancement guarantees**.
5. These guarantees help investors **protect foreign direct investments** against political and non-commercial risks in developing countries.

NATIONAL SCIENCE DAY 2022

Each year, 28 February is celebrated as **National Science Day** to commemorate the **discovery of the 'Raman Effect'** by Indian physicist CV Raman. This year, **the theme** of the celebrations is **'Integrated Approach in Science and Technology for Sustainable Future'**.

What

1. The day is celebrated **to encourage youth** to understand the aspects of science and develop an interest in it. The goal is **to explain the importance of science** among people.
2. **In 1986, The National Council for Science and Technology Communication (NCSTC)** requested the Center to designate 28 February as **National Science Day**.
3. The day was **first** celebrated on **28 February 1987**. On this day, scientist **Chandrasekhara Venkata Raman** discovered the **Raman Effect**.
4. **Raman won the Nobel Prize in 1930** for his work on **'The scattering of light and the discovery of the Raman effect'**.

What is Raman Effect?

1. **Raman Effect** is a **spectroscopy phenomenon** discovered by **CV Raman** when he was working in the Laboratory of Indian Association for the Cultivation of Science, Kolkata.
2. He **observed the phenomena in 1921** when he noticed the **blue colour of the Mediterranean Sea and icebergs**. He performed various experiments and was the first one to publish the observations in 1928.
3. Raman Effect explains the **change in the wavelength of light** that occurs when a light beam is deflected by molecules.

H5N1 BIRD FLU OUTBREAK REPORTED IN INDIA

India reported an **outbreak** of the highly **contagious H5N1 bird flu virus** on a poultry research farm in the northeastern state of Bihar, the **World Organisation for Animal Health (OIE)** said on 16 February 2022.

What is avian influenza?

1. **Avian Influenza** is a highly **contagious viral disease** that affects both **domestic and wild birds**.
2. **Avian Influenza viruses** have also been isolated, although less frequently, from mammalian species, including **rats, mice, weasels, ferrets, pigs**, cats, tigers, dogs and horses, as well as from humans.

3. **Circulation of avian influenza viruses** is not a new phenomenon. There are many descriptions of historical outbreaks of avian influenza disseminating within domestic poultry flocks in the literature.
4. **AI occurs worldwide** and different strains are more prevalent in certain areas of the world than others.
5. There are **many AI virus strains**, which are usually classified into **two categories, low pathogenic (LPAI) strains**, which typically cause few or no clinical signs in poultry and **highly pathogenic (HPAI) strains**, which can cause severe clinical signs and potentially high mortality rates among poultry.

MOST POLLUTED RIVER IN THE WORLD

River Ravi in Pakistan is the **most polluted river** in the world, followed by **water bodies in Bolivia and Ethiopia**, a US-based research academy has said, warning that local populations in these areas are exposed to serious risks. In its study, the University of York monitored 1,052 sampling sites along **258 rivers in 104 countries** across all continents to quantify the presence of pharmaceutical ingredients - **paracetamol, nicotine, caffeine and epilepsy and diabetes drugs** - in these ecological environments.

What

1. The study concluded that **contaminants in surface water** posed a threat to environmental and/or human health in more than a quarter of the studied locations globally - mainly in **sub-Saharan Africa, South Asia, and South America**.
2. The highest mean cumulative concentration was **observed in Lahore**, capital of Pakistan's Punjab province, at **70.8 µg/L**, with one sampling site on the Ravi River reaching a maximum cumulative concentration of 189 µg/L.
3. This was followed by **La Paz river in Bolivia** (68.9 µg/L mean, 297 µg/L maximum) and the **river system in Addis Ababa, Ethiopia** (51.3 µg/L mean, 74.2 µg/L maximum).
4. The most common contaminants were **paracetamol, nicotine, caffeine and epilepsy and diabetes drugs** in the river, according to the study which was published in the journal of Washington-based National Academy of Sciences.
5. **Rivers in Iceland, Norway** and the **Amazon rainforest** were recorded as the cleanest.

ASTRONAUTS TO GROW PLANTS WITHOUT SOIL

Cygnus spacecraft, which is carrying a fresh supply of 8,300 pounds of scientific investigations and cargo, has reached International Space Station on 21 February 2022, less than two days after it was launched. NASA informed that supplies also carry **ingredients for experiments to grow plants without soil**.

What

1. **Northrop Grumman's Cygnus spacecraft** was launched on 19 February 2022 after on an **Antares rocket** from NASA's Wallops Flight Facility in Virginia.
2. After Cygnus capture, mission control in Houston will send ground commands for the **station's arm to rotate and install it** on the station's Unity module **Earth-facing port**.
3. This is Northrop Grumman's **17th commercial resupply mission** to the International Space Station for NASA.
4. The Cygnus spacecraft is named the **S.S. Piers Sellers** in honor of the late NASA astronaut who spent nearly **35 days across three missions** helping to construct the space station.

EASTERN BRIDGE-VI BEGIN

The **Indian Air Force (IAF)** and the **Royal Air Force of Oman (RAFO)** began a bilateral joint exercise on 21 February 2022. The IAF said that the bilateral exercise named **Eastern Bridge - VI** was held from 21 February to 25 February 2022 at **Air Force Station Jodhpur**. This would be the **sixth edition of the exercise**.

What

1. It will provide an opportunity **to enhance operational capability and interoperability** between the two Air Forces.
2. It also stated that participation by both the air forces in the exercise “**will promote professional interaction**, exchange of experiences and enhancement of operational knowledge, besides strengthening bilateral relations between the two countries.
3. **Oman is one of India’s strongest defence partners** in the Gulf region, and all three services have bilateral exchanges and exercises with Oman’s services.
4. The two navies have been conducting the biennial maritime exercise ‘**Naseem Al Bahr**’ since 1993. This exercise was last conducted **off Goa in 2020** and the next edition is scheduled later this year.
5. India and Oman also held the **Joint Military Cooperation Committee Meeting (JMCC)** on bilateral defence cooperation in New Delhi on 31 January 2022.
6. The JMCC meeting reviewed the progress made in **military-to-military engagements**, including joint exercises, industry cooperation and various ongoing infrastructure projects.

IEA REPORT ON METHANE EMISSIONS

The **International Energy Agency (IEA)** said on 23 February 2022 that **emissions of planet-warming methane** from **oil, gas and coal production** are significantly higher than governments claim. The Paris-based agency said its analysis shows emissions are **70 per cent higher than the official figure** provided by governments worldwide. If all leaks were plugged, the methane captured would be enough to supply **all of Europe's power sector**.

What

1. The findings underline the **urgent need for enhanced monitoring efforts** and stronger policy action to drive down emissions of the **potent greenhouse gas**.
2. Experts say **methane is responsible for almost a third of the temperature increase** that has occurred since the start of the industrial revolution.
3. The **gas remains in the atmosphere** for a **much shorter period of time** than carbon dioxide, however. Bringing down methane emissions is seen as a crucial and quick way to limit further warming over the coming decades.
4. The IEA said its annual **Global Methane Tracker report** shows emissions from the energy sector **grew by almost 5 per cent** last year. It said the volume of methane leaked amounted to about **180 billion cubic meters of natural gas**.
5. That is **equivalent to all the gas used in Europe's power sector** and more than enough to ease today's market tightness.
6. **New satellites** have helped experts **pinpoint the sources of large emissions**, though regions along the equator, the far north and offshore are still poorly covered.

Flashback

1. At last year's **COP26 Climate Change Conference** in Glasgow, participants signed a **Global Methane Pledge** to reduce methane emissions by **30 per cent by 2030**.
2. But of the five countries with the **largest methane emissions** from their energy sectors -- **China, Russia, the United States, Iran and India**, the IEA noted only the **United States is currently a signatory**.

WORLD'S FIRST PLANT-DERIVED COVID VACCINE

The **world's first plant-derived Covid-19 vaccine** was cleared for use in **Canada**, creating a novel immunization to combat the virus from a unit of **Mitsubishi Chemical Holdings Corp.** and **Philip Morris International**. The vaccine named **Covifenz** was jointly developed by Medicago Inc., a biopharma company owned by Mitsubishi Chemical and Philip Morris and based in Quebec City, and GlaxoSmithKline Plc.

More about Covifenz vaccine:

1. This is the **first authorized COVID-19 vaccine** developed by a Canadian-based company, and the first that uses a **plant-based protein technology**.
2. Medicago's Covifenz is authorized as a **two-dose regimen** of 3.75 micrograms per dose, to be administered 21 days apart.
3. In clinical trials, the vaccine was found to be **71 per cent effective against symptomatic infection** and **100% effective against severe disease** caused by COVID-19.
4. The **Covifenz vaccine** data suggest efficacy against multiple variants, **including Delta**.
5. Clinical trials with Covifenz showed efficacy against the **Delta and Gamma variants**, and data also suggested efficacy against **Alpha, Lambda and Mu variants**.
6. **Covifenz** is made from **plant-based proteins** that look like coronavirus and uses **Glaxo's adjuvant** that contains **DL-alpha-tocopherol, squalene, polysorbate 80, phosphate-buffered saline**.
7. The other ingredients include **potassium phosphate monobasic anhydrous, anhydroussodium chloride, sodium phosphate dibasic anhydrous**, and water for injection.
8. Medicago uses living plants as **bioreactors** to produce a particle that mimics the target virus.
9. The **virus-like particles**, or **VLPs**, are developed through a process of synthesis, infiltration, incubation, harvest, and purification.

WORLD'S LARGEST PLANE DESTROYED

The largest plane in the world -- **Ukraine's Antonov-225 cargo plane** -- was destroyed by **Russian strikes** outside Kyiv on the fourth day of Moscow's invasion, Ukraine's state-owned Ukroboronprom group said 27 February 2022. Russian invaders destroyed the flagship of the Ukrainian aviation, the **AN-225** at the Antonov airport in Gostomel near Kyiv.

What

1. The **aircraft was unique to the world**, at 84 meters long (276 feet) it could transport up to **250 tonnes** (551,000 pounds) of cargo at a speed of up to 850 kilometres per hour (528 mph). It had been **named "Mriya"**, which means "**dream**" in Ukrainian.
2. This was the **world's largest aircraft**, **AN-225 'Mriya'** Ukraine' Foreign Minister Dmytro Kuleba said.
3. Weapons manufacturer **Ukroboronprom** estimated that **restoring the "Mriya"** would cost over \$3 billion (2.7 billion euros) and could take over five years.
4. Initially built as **part of the Soviet aeronautical program**, the **An-225** made its first flight in 1988.

5. After years of not flying after the fall of the Soviet Union, the only existing copy made a test flight in 2001 in Gostomel, about 20 kilometres from Kyiv.
6. It has been operated by **Ukraine's Antonov Airlines for cargo flights** and was in high demand during the start of the Covid-19 pandemic.

FACT TO REMEMBER:

1. **FIRST GREEN HYDROGEN POLICY NOTIFIED**
2. **NATIONAL STRATEGY ON ADDITIVE MANUFACTURING**
3. **ASIA'S BIGGEST BIO-CNG PLANT INAUGURATED**
4. **INDIA GETS ITS FIRST NMSC**
5. **'OPERATION GANGA' LAUNCHED**
6. **INDIA ABSTAINS ON UNSC RESOLUTION**
7. **FIRST COUNTRY TO JOIN CHINA INFRA PROJECTS**
8. **FIRST FOREIGN COUNTRY TO DEPLOY UPI**
9. **WESTERN ALLIES BLOCK SWIFT PAYMENTS SYSTEM**
10. **QUANTUM KEY DISTRIBUTION TEST SUCCESSFULLY**

LINK TO FOLLOW:

[HTTPS://WWW.OECD.ORG/ENVIRONMENT/PLASTIC-POLLUTION-IS-GROWING-RELENTLESSLY-AS-WASTE-MANAGEMENT-AND-RECYCLING-FALL-SHORT.HTM](https://www.oecd.org/environment/plastic-pollution-is-growing-relentlessly-as-waste-management-and-recycling-fall-short.htm)

[HTTPS://THECONVERSATION.COM/UKRAINE-THE-HISTORY-BEHIND-RUSSIAS-CLAIM-THAT-NATO-PROMISED-NOT-TO-EXPAND-TO-THE-EAST-177085](https://theconversation.com/ukraine-the-history-behind-russias-claim-that-nato-promised-not-to-expand-to-the-east-177085)

[HTTPS://WWW.ALJAZEERA.COM/OPINIONS/2022/2/21/IT-IS-TIME-FOR-A-NEW-BRETTON-WOODS-MOMENT](https://www.aljazeera.com/opinions/2022/2/21/it-is-time-for-a-new-bretton-woods-moment)

[HTTPS://WWW.THESTATESMAN.COM/OPINION/NOW-TIME-INTENSIFY-DIPLOMACY-1503048074.HTML](https://www.thestatesman.com/opinion/now-time-intensify-diplomacy-1503048074.html)

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