Current Affairs search results for tag: science-and-technology

1. INS Arihant carries out successful launch of Submarine Launched Ballistic Missile (Oct. 14, 2022)

India's submarine **INS Arihant** carried out a successful launch of a **ballistic missile** on 14 October, 2022.

Important facts

- The missile was test fired to a predetermined range and was successful in hitting the target area in the **Bay of Bengal** with high accuracy.

- All operational and technical parameters of the weapon system have been validated.

- The successful user training launch of the SLBM by INS Arihant is critical to proving crew competency and validating the SSBN programme, a key element of India's nuclear deterrence.

About INS Arihant

- It is India's first indigenously-designed, developed and manufactured nuclear-powered ballistic missile submarine.

- It was **designed in the 1990s** and its development project was officially accepted in 1998.

- Its design is based on the **Russian Akula-1 class submarine.**

- It was launched on **26 July 2009**, the anniversary of **Vijay Diwas** (Kargil War Victory Day) by former Prime Minister Manmohan Singh.

- It is a **6,000 ton** submarine with a length of **110 meters** and a width of **11 meters.**

- It is powered by an **83 MW** pressurized light water nuclear reactor with enriched **uranium fuel.**

- It was built under the Advanced Technology Vessel (ATV) project at the Ship Building Centre in the port city of **Visakhapatnam.**

2. President Droupadi Murmu inaugurates 'PARAM KAMRUPA' Supercomputer facility at IIT Guwahati (Oct. 14, 2022)

President of India, Droupadi Murmu, inaugurated '**PARAM KAMRUPA' Supercomputer** facility and a h**igh-power active and passive component laboratory of** at Indian Institute of Technology, **Guwahati** on 13 October, 2022.

Important facts

- The President inaugurated the Dhubri Medical College and Hospital, and laid the foundation stone of regional institutes of the **National Institute of Virology at Dibrugarh in Assam and Jabalpur in Madhya Pradesh.**

- She urged the science and technology institutions to lay emphasis on research and technology.

- The program was also addressed by Assam Governor Professor **Jagdish Mukhi**, Assam Chief Minister **Himanta Biswa Sarma and** Union Minister of State for Health and Family Welfare **Bharati Praveen Pawar.**

About 'PARAM KAMRUPA' Supercomputer

- PARAM Kamrup, a one of its kind supercomputer in the North East region, has been set up under the National Supercomputing Mission.

- **National Supercomputing Mission (NSM)** is a joint initiative of the Ministry of Electronics and Information Technology (MeitY) and the Department of Science and Technology (DST).

- It will provide advanced computing, healthcare techniques along with solutions for many issues to this region.

- Many components of this supercomputer are indigenously developed.

- Such technological development will make India a world leader in super computing and enhance India's capability in solving the challenges of the country as well as the world.

- The National Supercomputing Mission (NSM) has deployed Supercomputer PARAM Ganga at IIT Roorkee in March 2022.

What are supercomputers?

- A supercomputer can perform high-level processing at a faster rate than a normal computer.

- They work together to perform complex operations that are not possible with normal computing systems.

- Fast speed and fast memory are the characteristics of supercomputers.

- The performance of a supercomputer is generally evaluated in petaflops.

National Supercomputing Mission

- The National Supercomputing Mission was launched In **2015.**

- The aim of the mission was to enhance the research capacities in the country to form a Supercomputing grid.

- It supports the government's vision of '**Digital India' and 'Make in India' initiatives.**

- The mission is being jointly operated by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).

- It is implemented by Center for Development of Advanced Computing **(C-DAC), Pune** and IISc, Bengaluru.

Some important facts about supercomputer

- China has the maximum number of supercomputers followed by the **US, Japan, France, Germany, Netherlands, Ireland and the United Kingdom..**

- India's first supercomputer - **PARAM 8000**

- first supercomputer assembled indigenously - **PARAM Shivay,** installed in IIT (BHU)

- **PARAM Shakti, PARAM Brahma, PARAM Yukti, PARAM Sanganak** are some name of india's supercomputers

- India's **PARAM-Siddh**i AI, has been ranked 63rd in the Top 500 list of most powerful supercomputers in the world.

3. Maharatna Coal India to set up 1190 MW Solar Power Project in Rajasthan (Oct. 13, 2022)

The Government of India owned [Maharatna Company](#), Coal India Limited (CIL) signed a Memorandum of Understanding (MoU) with the Rajasthan Vidyut Utpadan Nigam Ltd (RUVNL), for setting up a 1,190-MW solar power plant in the Bikaner district of Rajasthan on 13 October 2022. The plant will be installed in a 2,000-MW solar park being developed by RVUNL in **Poogal, Bikaner.**

RVNUL CMD R K Sharma and Technical Director of Coal India Limited, V Reddy signed the MoU in the presence of Union Minister of Coal **Prahlad Joshi** and Chief Minister of Rajasthan **Ashok Gehlot** in Jaipur.

Recently the e-commerce giant [Amazon](#) announced to set up its first solar plant in Rajasthan.

Rajasthan as an attractive destination for solar power

Rajasthan with Thar Desert is suitable for generation of solar power using the desert's intense heat. Furthermore, in comparison to the rest of the country, the state is thinly populated. Solar power plants in less populated areas enable clean energy to reach isolated communities that do not have access to electricity.

Rajasthan has the **world's largest solar plant** with a capacity of 2,245 MW **in Bhadla of the Jodhpur district** of the state.

In March this year the state government announced two new solar parks of 1,800 MW to be developed in the Jaisalmer and Bikaner districts of the state.

For the 800 MW project in Jaisalmer RNVUL was the developing agency while the 1,000 MW solar power project in Bikaner will be developed by Rajasthan Renewable Energy Corporation in the first phase.

Private solar project developer **Rays Experts** also announced in May this year that they will develop the **world's largest solar park in Rajasthan with a capacity of 3000 MW. T**he project will be set up in Bikaner.

4. First Sanctuary for 'Slender Loris' to be set up in Tamil Nadu (Oct. 12, 2022)

India's first sanctuary for the endangered species, **Slender Loris** was notified by the Tamil Nadu government on 12 October 2022. The first 'Kadavur Slender Loris Sanctuary' in will be set up in the Karur and Dindigul districts of the state, in about 11,806 hectares of land.

Slender Loris

Slender Loris are small nocturnal mammals that are arboreal in nature as they spend most of their life on trees. These look like monkeys and are about 25 cm long and have long, thin arms. They weigh around 275 grams. They are mainly found in **India and Sri Lanka.**

Apart from insects they are also known to eat leaves, flowers, slugs and sometimes eggs of birds. The species acts as a biological predator of pests in agricultural crops and benefits farmers. The nocturnal mammal is listed as an endangered species as per the International Union for the Conservation of Nature (IUNC).

Sanctuary for Slender Loris

A total of 11,806 hectares of forest areas in the Karur and Dindigul districts of Tamil Nadu have been identified as important habitats for Slender Loris. The Kadavur Slender Loris sanctuary will cover Vedasandur, Dindigul East, and Natham taluks in the Dindigul district and Kadavur taluk in the Karur district of Tamil Nadu.

5. NGT fines Delhi government Rs 900 crore for its failure in 'solid waste management' (Oct. 12, 2022)

The [National Green Tribunal](#) (NGT) in an order passed on 12 October 2022 has ordered the Delhi government to pay **Rs 900 crore** as environmental compensation for improper management of solid municipal waste, stating that "citizens cannot be faced with an emergency situation due to lack of governance."

The NGT bench heard by **Justice Adarsh Goel** held the Delhi government responsible for not taking remedial steps to deal with the solid waste at the three landfills sites of Delhi- Ghazipur, Bhalswa, and Okhla .

The Bench said that there was continuous emission of methane and other harmful gasses along with groundwater contamination which posed a direct threat to the environment and people of Delhi.

The Bench directed the Delhi government to deposit the fine amount in a separate account which will be used by the Delhi Chief Secretary to for restoration of the environment by remediation of waste and other measures.

The NGT is monitoring compliance of Municipal Solid Waste Management Rules, 2016, and other environmental issues by states and Union territories.

National Green Tribunal

- It deals with cases relating to the environment protection and conservation of forest.
- It was set up in 2010 under the National Green Tribunal Act 2010.
- The Tribunal is not bound by the procedure laid down under the **Code of Civil Procedure, 1908,** but is **guided by principles of natural justice**.
- **New Delhi** is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai are other four places of sitting of the Tribunal.

Chairperson : Justice Adarsh Kumar Goel

6. Indian Railways plans to replace fossil fuel fleet with electric fleet by 2025 (Oct. 12, 2022)

In a big boost to the Centre's ambitious plan to make India a 100% electric vehicle nation by **2030,** the [Indian Railways](#) has proposed to replace its entire fleet of vehicles that run on diesel, biofuels or even natural gas with electric vehicles by **December 2025**.

To achieve the ambitious target of 2030 the country needs to set up 46,000 EV charging stations by 2030 to match the global benchmark.

Phase wise target of Railways

According to the timeline proposed by the railways, it aims to achieve the target of installing EV-charging stations and phasing out **20%** of its fleet by December 2023, **60%** by 2024 and **100%** by 2025.

The replacement of inspection vehicles in divisional offices and attached units would not be mandatory in the initial phase of three years since the vehicles would be required by officials for frequent visits to far-flung areas where adequate charging infrastructure may not be available.

The railways will also create an affordable and accessible charging infrastructure for users, including passengers, visitors and the general public, on its premises.

7. Nitin Gadkari launches Toyota's pilot project on Flex-Fuel Strong Hybrid Electric Vehicles (FFV-SHEV) in India (Oct. 11, 2022)

Union Minister for Road Transport and Highways **Nitin Gadkari** launched Toyota's first of its kind pilot project on Flex-Fuel Strong Hybrid Electric Vehicles (FFV-SHEV) in India on 11 October 2022, which would run on 100% petrol as well as 20 to 100% blended ethanol and electric power.

The Toyota car which was unveiled by the minister has been imported from Toyota Brazil. Flex-fuel vehicles are at present available in Brazil, the USA and Canada.

Ethanol in India is mainly derived from molasses of the sugarcane.

An FFV SHEV has a flex-fuel engine and an electric powertrain, providing dual benefit of higher ethanol use and greater fuel efficiency. It can run for a significant time period on its Electric Vehicle mode, wherein the engine is shut off.

Flex-fuel compatible cars can run on more than one type of fuel and also a mixture of fuel. It typically runs on a blend of petrol and ethanol or methanol is used.

FFVs provide an opportunity of greater substitution of petrol by ethanol as it is capable of using any of the higher blends of ethanol mix from 20 per cent up to 100 per cent.

Toyota was also the first company in India to launch India's **first green hydrogen-based advanced fuel cell electric vehicle (FCEV), Toyota Mirai.**

Toyota Motor Company of Japan has a joint venture with Kirloskar in India and the company is called as Toyota Kirloskar Motor ltd.

8. Second United Nations World Geospatial Information Congress (Oct. 11, 2022)

The **Committee of Experts on Global Geospatial Information Management (UN-GGIM)** is organizing the 2nd United Nations World Geospatial Information Congress **(UNWGIC)** in **Hyderabad, India** from 10-14 October 2022.

Important facts

- It is organized by the Government of India through the **Ministry of Science and Technology.**

- It is a global event bringing all stakeholders together to address at the highest level and ensure that geospatial information has broad utility in sustainable social, economic and environmental development.

- **The theme** of the congress is "**Geo-Enabling the Global Village : No one should be left behind".**

- The second UNWGIC will reflect the importance of integrated geospatial information to support sustainable development and the well-being of society, address environmental and climate challenges, embrace digital transformation and technological development, and catalyze a vibrant economy.

About UNWGIC

- It is organised by the United Nation Committee of Experts on Global Geospatial Information Management **(UN-GGIM).**

- Its objective is to enhance international collaboration among the Member States and relevant stakeholders in Geospatial information management and capacities.

- It is conducted **ever**y **four years.**

- **The first** UNWGIC was organized by **China in October 2018.**

About UN-GGIM

- It aims to play a leading role in setting the agenda for the development of global geospatial information and promoting its use to address major global challenges.

What is Geospatial Technology?

- It is an emerging field of study that includes G**eographic Information Systems (GIS), Remote Sensing (RS), and Global Positioning Systems (GPS).**

- It enables us to obtain data that is in reference to the Earth and used for **analysis, modelling, simulation and visualization.**

- This technology can be helpful in making decisions based on the importance and priority of scarce natural resources.

- Geospatial technology was used optimally during the **COVID-19** vaccination campaign.

9. Chandrayaan-2 spectrometer maps abundance of sodium on moon for first time (Oct. 10, 2022)

The **X-ray spectrometer 'CLASS' instrument** on the **Chandrayaan-2** orbiter has mapped an abundance of **sodium** on the moon for the first time, according to the Indian Space Research Organisation.

Important facts

- This is the first attempt to measure sodium on the lunar surface on a global scale using **X-ray fluorescent spectra.**

- **CLASS** was built at the U R Rao Satellite Centre of ISRO in Bengaluru.

- This report has recently been published in '**The Astrophysical Journal Letters'.**

- The new findings from Chandrayaan-2 provide an opportunity to study surface-exosphere interactions on the Moon.

X-Ray Fluorescence

- It is commonly used to study the structure of matter in a non-destructive way.

- When the Sun generates a solar flare, a large amount of X-ray radiation falls on the Moon, triggering X-ray fluorescence.

- CLASS measures the energy of incoming X-ray photons from the Moon and calculates the total number.

- The energy of the photon indicates the atom (for example, sodium atoms emit X-ray photons of 1.04 keV) and the intensity indicates the number of the atom.

10. U S and India launch a joint task force on energy storage technologies (Oct. 8, 2022)

India and the United States have launched a new task force under the Strategic Clean Energy Partnership (SCEP), which will focus on the accelerated deployment of energy storage technologies.

Battery energy storage systems (BESS), are devices that enable energy from renewables, like solar and wind, to be stored and then released when customers need power most.

The task force was announced during the meeting of the Union minister for Petroleum and Natural Gas **Hardeep Puri** and the US Energy Secretary Jennifer Granholm in **Washington** on 7 October 2022.

They also issued a US India Strategic Clean Energy Partnership (SCEP) joint statement which highlighted the importance of bilateral clean energy engagement to strengthen energy security and to accelerate clean, secure, and just energy transition.