

NEWSPAPER HIGHLIGHT

Chilika Lake, the largest brackish water lake and wintering ground of birds in the Indian subcontinent, saw a million birds, including the uncommon Mongolian gull, visiting the waterbody this year. As per the Water Bird Status Survey 2022 conducted in the Chilika, 10,74,173 water birds (107 species) and 37,953 individuals (76 wetland dependent species) were counted in the entire lagoon. Last year, the count in the Chilika was over 12 lakh. Members who were part of the census also reported sighting the Mongolian gull.

India's services sector activity moderated in December as business activity and sales rose at a softer pace, while price pressures and the possibility of new waves of COVID19 affected business sentiment, a monthly survey said on January 5. The seasonally adjusted India Services Business Activity Index fell from 58.1 in November to a three-month low of 55.5 in December. The rates of expansion moderated but were nevertheless 'marked' by historical standards, according to the survey. For the fifth straight month, the services sector witnessed an expansion in output. In Purchasing Managers' Index (PMI) parlance, a print above 50 means expansion, while a score below 50 denotes contraction.

Britain's Cairn Energy has dropped all lawsuits against the Indian government and its entities in courts from the U.S. to France and to Singapore, to now be entitled for about ₹7,900 crore in tax refunds that were collected to enforce a retrospective tax demand.

The Centre, in the Supreme Court, backed its committee's recommendation to retain the ₹8-lakh annual income criterion to identify the economically weaker sections (EWS) of society as the "best way forward" and urged the court to let NEET counselling continue. Appearing before a Bench of Justices D.Y. Chandrachud and A.S. Bopanna, the government said it would not let anything come in the way of the Other Backward Classes (OBC) and the "poorest of the poor" getting the benefits of reservation. "We will not accept any position whereby OBC or EWS is deprived of something that is legitimately due to them," Solicitor General Tushar Mehta submitted.

WHALE SHARK

1.A 15-foot whale shark was rescued by the Andhra Pradesh Forest Department. Whale sharks (*Rhincodon typus*) are the world's largest fish species (its maximum size could be as large as 20 metres). Habitat - Found in all the tropical oceans of the world, whale sharks have white spotted colouration.

2.In India, Gujarat has the maximum density of whale shark population in the Indo-pacific region. The presence of whale sharks indicates the availability of plankton and the overall health of the oceans. Food - The whale shark, like the world's second largest fish, the basking shark, is a filter feeder i.e., they feed on planktons. In order to eat, it juts out its formidably sized jaws and passively filters everything in its path.

3.The mechanism is called "cross-flow filtration". The whale shark travels massive distances to find food to sustain their huge size, and for reproduction. Threats - Unregulated over-fishing for their meat, fins and oil; bycatch (accidental capture of non-target species in fishing gear); habitat loss; slow reproduction; climate change and tourism.

PEROVSKITE-BASED SOLAR CELLS

1.IIT-Guwahati scientists have created a polyelectrolyte (polymer with positive or negative charge) to increase the stability of the perovskite films used in the hybrid perovskite-based solar or photovoltaic devices. Perovskite Solar Cell (PSC) includes a perovskite-structured compound, most commonly a hybrid organic-inorganic lead or tin halide-based material, as the light-harvesting active layer.

2.Perovskite-based devices are considered heavily used semiconductor materials as they are affordable and easy to manufacture. Developing large-scale perovskite solar cells requires high-quality defect-free perovskite films with improved surface coverage. But, perovskite materials are extremely unstable towards ambient (humidity and oxygen) conditions that restrict their commercialisation.

3.Stabilisation - The most convenient way to harness the maximum potential of the perovskite active layer is to use a coating of an appropriate passivation material. This will make the perovskite active layer 'stable' or less readily affected by the environment, in this case humidity and oxygen.

4.Perovskite-based solar cells can be manufactured at room temperature, making them cost-effective and more eco-friendly. As the all components used in the hybrid perovskite-based solar cells are recyclable, they will help reduce the growing problem of Waste Electrical and Electronic Equipment (WEEE).

5.An International Renewable Energy Agency (IRENA) report estimated the global PV waste will touch 78 million tonnes by 2050, with India being one of the top five PV waste creators.

SOLID-STATE BATTERIES

1.A solid-state lithium-metal battery replaces the polymer separator used in conventional lithium-ion batteries with a solid-state separator (electrolyte) separating the two electrodes. The replacement of the separator enables the use of a lithium-metal anode in place of the traditional carbon/graphite anode.

2.A Solid-state Battery could offer a safer, cheaper alternative to lithium-ion batteries. [Lithium-ion batteries use aqueous electrolyte solutions, where ions transfer to and fro between the anode (made of graphite) and cathode (made of lithium), triggering the recharge and discharge of electrons.] Development of solid state batteries which would help in overcoming the main problems of batteries containing liquid electrolytes, i.e. leakage and/or corrosion at the electrodes.

3.A solid-state battery has higher energy density than a Li-ion battery that uses liquid electrolyte solution. Advantages of the solid-state battery technology include Higher cell energy density (by eliminating the carbon anode), Lower charge time (by eliminating the need to have lithium diffuse into the carbon particles in conventional lithium-ion cells), Ability to undertake more charging cycles and thereby a longer life, and improved safety, Lower cost.

A Division Bench of the Gujarat High Court has asked a journalist facing contempt of court proceedings to speak only in English as that was the language in the higher judiciary. The Bench comprising Chief Justice Aravind Kumar and A.J. Shastri made the directive to Vishal Vyas, a local journalist who runs Samna Bharstachar Ka, against which contempt of court proceedings was initiated in 2014.

A petition has been filed in the Supreme Court challenging guidelines issued by the Bombay High Court in cases under the Protection of Women from Sexual Harassment (POSH) Act, which include a blanket bar on parties and advocates from sharing records, including orders and judgments, with the media. The petition filed by advocate Abha Singh argued that the September 24, 2021 order of a Single Bench of the High Court was a "death blow" to freedom of speech and expression enshrined under Article 19. The petition said a well-informed citizenry governs itself better.

North Korea fired a ballistic missile into the sea on Wednesday, the U.S. military said, its first weapons launch in about two months and a signal it isn't interested in rejoining denuclearisation talks anytime soon and would rather focus on boosting its weapons arsenal. The launch came after North Korean leader Kim JongUn vowed to further strengthen his military capability — without disclosing any new policies toward the United States or South Korea — at a high profile ruling party conference last week.

Myanmar has "all the ingredients for civil war", Cambodia, chair of Southeast Asia's regional bloc, has warned ahead of a visit by Prime Minister Hun Sen to the crisis wracked country. Myanmar has been in chaos since a coup last year, with more than 1,400 people killed in a crackdown on dissent by security forces. Mr. Hun Sen, whose country this year holds the rotating chairmanship of the Association of Southeast Asian Nations (ASEAN) bloc, will visit Myanmar on Friday and Saturday in an effort to defuse the crisis.

The banned Communist Party of India (Maoist) would probably like to forget 2021. It not only suffered setbacks in the Andhra-Odisha Border (AOB) region in Visakhapatnam district, which the leftwing extremists consider as their strongest fortress after the Dandakaranya region, but also received strong jolts in its self-proclaimed 'red corridor' region. The chief of the Andhra Odisha Border

INDEX OF EIGHT CORE INDUSTRIES

1. Index of Eight Core Industries for November, 2021 was released by the Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade. Index of Eight Core Industries has the base year: 2011-12=100 Eight Core Industries - Coal, Crude Oil, Natural Gas, Petroleum Refinery Products, Fertilizers, Steel, Cement, Electricity.
2. These Core Industries comprise 40.27% of the weight of items included in the Index of Industrial Production (IIP). Since 2014, Electricity generation data from Renewable sources are also included.
3. Since 2019, a new steel product called Hot Rolled Pickled and Oiled (HRPO) under the item 'Cold Rolled (CR) coils' within the production of finished steel has also been included.

INDIAN CYBER CRIME COORDINATION CENTRE

1. Ministry of Home Affairs (MHA) releases manuals of Indian Cyber Crime Coordination Centre (I4C) of Cyber and Information Security Division. Indian Cyber Crime Coordination Centre is an initiative of the Ministry of Home Affairs (MHA) to combat cyber crime in the country. Located in New Delhi, this state-of-the-art Centre deals with all types of cybercrimes in a comprehensive and coordinated manner.
2. It identifies the research problems of the Law Enforcement Agencies (LEAs) and take up R&D activities in developing new technologies and forensic tools in collab with institutes within India and abroad. It aims to prevent misuse of cyber space for furthering the cause of extremist and terrorist groups.
3. It even suggests amendments in cyber laws to keep pace with fast changing technologies and International cooperation. It aims to coordinate all activities related to implementation of Mutual Legal Assistance Treaties (MLAT) with other countries related to cybercrimes in consultation with the concerned nodal authority in MHA.
4. Components of I4C National Cyber Crime Threat Analytics Unit, National Cyber Crime Reporting Portal, National Cyber Crime Training Centre, Cyber Crime Ecosystem Management Unit, National Cyber Crime Research and Innovation Centre, National Cyber Crime Forensic Laboratory Ecosystem. Platform for Joint Cyber Crime Investigation Team.

NPT(Non-Proliferation of Nuclear Weapons)

1. The NPT is a multilateral treaty aimed at limiting the spread of nuclear weapons including three elements: (1) non-proliferation, (2) disarmament, and (3) peaceful use of nuclear energy. These elements constitute a "grand bargain" between the five nuclear weapon states and the non-nuclear weapon states. The treaty was signed in 1968 and entered into force in 1970.
2. **Implications:** States without nuclear weapons will not acquire them. States with nuclear weapons will pursue disarmament. All states can access nuclear technology for peaceful purposes, under safeguards.
3. **Key provisions:** The Treaty defines nuclear weapon states (NWS) as those that had manufactured and detonated a nuclear explosive device prior to 1 January 1967. All the other states are therefore considered non-nuclear weapon states (NNWS).
3. The five nuclear weapon states are China, France, Russia, the United Kingdom, and the United States. The Treaty does not affect the right of state parties to develop, produce, and use nuclear energy for peaceful purposes.
4. **Role of states:** Nuclear weapon states are not to transfer to any recipient whatsoever nuclear weapons and not to assist, encourage, or induce any NNWS to manufacture or otherwise acquire them. Non-nuclear weapons states are not to receive nuclear weapons from any transferor, and are not to manufacture or acquire them. NNWS must accept the International Atomic Energy Agency (IAEA) safeguards on all nuclear materials on their territories or under their control.
5. **Issues Pertaining to NPT:** Failure of Disarmament Process: The NPT is largely seen as a Cold War era instrument that has failed to fulfil the objective of creating a pathway towards a credible disarmament process. System of Nuclear 'Haves' and 'Have-Nots': NNWS criticizes the treaty to be discriminatory as it focuses on preventing only horizontal proliferation while there is no limit for vertical proliferation. NNWS also feels that the restrictions on Peaceful Nuclear Explosion (PNE) technology are one-sided.
6. **India's Stand on NPT:** India is one of the only five countries

Special Zonal Committee, Akkiraju Haragopal alias Ramakrishna alias R.K., died after a prolonged illness in October, six top leaders were killed by the Greyhounds in June in Koyyuru mandal in the Visakhapatnam Agency, and 26 cadres including Central Committee (CC) member Milind Teltumbde were killed during a gun battle by the C-60 force of Maharashtra in Gadchiroli.

that either did not sign the NPT or signed but withdrew, thus becoming part of a list that includes Pakistan, Israel, North Korea, and South Sudan. India always considered the NPT as discriminatory and had refused to sign it. India has opposed the international treaties aimed at non-proliferation since they were selectively applicable to the non-nuclear powers and legitimised the monopoly of the five nuclear weapons powers.

