

DAILY CURRENT AFFAIRS (DCA)

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Table of Content

Union Cabinet Gives Approval for Bills on Simultaneous Polls (ONOE)

Global Report on Trafficking in Persons 2024

Disease X

Jal Jeevan Mission (JJM) Empowering Women

Google's Willow Chip & Quantum Computing

India's Green Steel Taxonomy

NEWS IN SHORT

La Nina

Cess and Surcharge

Coastal Hardening

Desert Knight Exercise

Dulcibella Camanchaca

Marbled Duck

UNION CABINET GIVES APPROVAL FOR BILLS ON SIMULTANEOUS POLLS (ONOE)

In News

- The Union Cabinet, chaired by Prime Minister Narendra Modi, has approved the One Nation, One Election (ONOE) plan.
 - ♦ Draft legislation will be introduced in the Parliament, potentially during the ongoing Winter Session.

What is One Nation, One Election?

- It means to synchronize elections for the Lok Sabha (Lower house of Parliament) and state legislative assemblies, essentially holding them all at the same time.
- It aims to:
 - ♦ Reduce the frequency of elections.
 - ♦ Streamline governance.
 - ♦ Minimize electoral expenditure and disruption.

Proposed Amendments to Articles

- **82A:** To facilitate delimitation for synchronized elections.
- **83(2):** To amend the tenure of Lok Sabha and assemblies.
- **327:** To give Parliament the power to make provisions for simultaneous elections.
- **New Article 324A:** To empower the Election Commission to conduct synchronized elections.

Ram Nath Kovind Committee Recommendations

- The committee, chaired by former President Ram Nath Kovind, made 11 key recommendations after extensive consensus-building efforts:
 - ♦ **Reinstating Simultaneous Elections:** Frequent elections disrupt the economy, polity, and society. Synchronizing elections will alleviate this burden.
 - ♦ **Phased Implementation: Phase 1:** Align Lok Sabha and state assembly elections.
 - ♦ **Phase 2:** Synchronize municipal and panchayat elections within 100 days of general elections.
 - ♦ **Appointed Date for Synchronization:** Post-general elections, the President to notify the date for the first Lok Sabha session as the "appointed date" to maintain alignment.
 - ♦ **Shortened Terms for State Assemblies:** Newly-formed state assemblies will have

adjusted terms to synchronize with the next Lok Sabha elections.

- ♦ **Implementation Group:** A dedicated group to oversee and ensure effective execution of ONOE reforms.
- ♦ **Constitutional Amendments:** Introduce Article 324A to enable synchronized elections for panchayats and municipalities.
 - Amend Article 325 to establish a unified voter roll and photo ID system for all elections.
- ♦ **Handling Hung Houses:** In case of a hung house or no-confidence motion, elections will be held, but the newly-elected Lok Sabha or state assembly will serve only the remaining term.
- ♦ **Election Equipment Readiness:** The Election Commission of India (ECI) should ensure the procurement of adequate EVMs and VVPATs to manage synchronized elections efficiently.
- ♦ **Unified Voter Roll and ID System:** A single voter roll and ID system for all elections, subject to constitutional amendments and state ratification.
- ♦ **Efficient Electoral Management:** Advanced planning and robust infrastructure development to ensure smooth execution of simultaneous elections.
- ♦ **Continued Synchronization:** All future elections will align with the Lok Sabha schedule unless dissolved earlier.

Need for ONOE

- **Reduced Expenditure:** Holding simultaneous elections could significantly reduce the financial burden on the exchequer and political parties.
- **Streamlined Governance:** Frequent elections disrupt governance as the Model Code of Conduct comes into effect, restricting policy announcements and development work. ONOE could provide more stability and continuity in governance.
- **Improved Voter Turnout:** A single election cycle might increase voter participation as it reduces voter fatigue and simplifies the electoral process.
- **Reduced Disruption:** Minimizes disruption to normal life and economic activity caused by frequent elections.
- **Manage Security Concerns:** A lot of Security forces are deployed on election time that can be efficiently used.

Key Challenges and Concerns

- **Constitutional Amendments:** Implementing ONOE requires significant amendments to the Constitution, which could be politically challenging.
- **Federalism:** Critics argue that ONOE could undermine India’s federal structure by centralizing electoral power and reducing the importance of state-level issues.
- **Regional Diversity:** India’s diverse political landscape and regional aspirations could be overshadowed by national issues in a synchronized election cycle.
- **Logistical Complexity:** Conducting simultaneous elections across a vast and diverse country like India poses significant logistical challenges for the Election Commission.

Way Forward

- **Wider Consultations:** Engage with all stakeholders, including political parties, states, and the public, to build consensus.
- **Pilot Implementation:** Test ONOE at smaller scales to identify challenges and refine the framework.

- **Infrastructure Development:** Equip the ECI with resources, technology, and personnel for efficient execution.

Source: HT

GLOBAL REPORT ON TRAFFICKING IN PERSONS 2024

Context

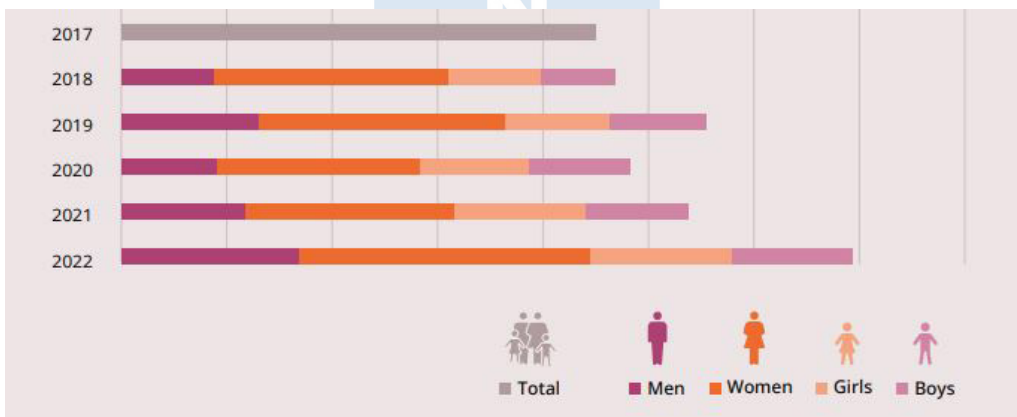
- The United Nations Office on Drugs and Crime has released its Global Report on Trafficking in Persons 2024.

About

- This is the eighth edition of the UN Report. First report was published in 2009.
- It covers 156 countries and provides an overview of the response to the trafficking in persons by analysing trafficking cases detected between 2019 and 2023.

Major Highlights

- A 25% rise in the global detection of victims was recorded in 2022 compared to 2019.

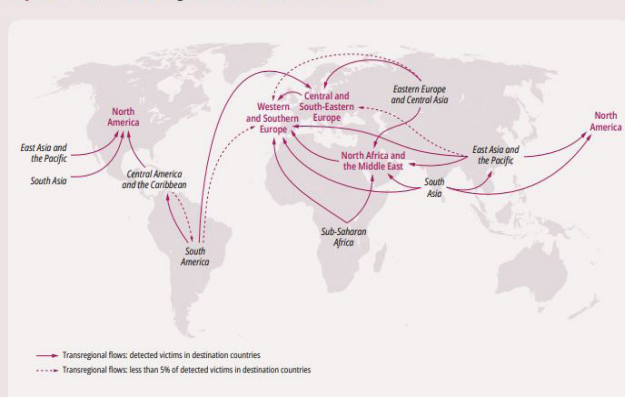


- **Child Victims:** In 2022, global detections increased 31% compared to the pre-pandemic levels in 2019, with a sharper increase of 38% specifically among girls.



- **Majority of Victims:** In 2022, 61% of trafficking victims detected worldwide were female.
 - ◆ Adults continue to be the most detected age group, and adult females make up 39% of all detected victims.
 - ◆ At the same time, girls make up a significant 22% of the total detected victims.
- **Organised Crime Groups:** 74% of the traffickers operated as groups and networks loosely connected in a business-type criminal relation or as structured criminal organizations.
 - ◆ Non-organized criminals account for about 26% of traffickers convicted.
- **Trafficking routes:** Victims are trafficked globally through an increasing number of international routes, with African victims trafficked to the highest number of destinations.

Map.1 Main detected transregional flows, 2022 (or most recent)



UN Office on Drugs and Crime (UNODC)

- It is a global leader in the fight against illicit drugs and international crime, in addition to being responsible for implementing the United Nations lead programme on terrorism.
- Established in **1997** and **headquartered in Vienna**.
- UNODC relies on **voluntary contributions**, mainly from governments, to carry out the majority of our work.
- The UNODC Strategy 2021-2025 is committed to promoting human rights, gender equality and disability inclusion, as well as protecting children and harnessing the transformative power of youth.

Human Trafficking in India

- India recorded 10,659 cases of human trafficking between 2018 and 2022.
- Maharashtra registered the highest number of cases in the past five years, followed by Telangana and Andhra Pradesh.

- States like West Bengal and Assam are considered source States while Maharashtra and Karnataka are destination States.

Government Initiatives

- **The Immoral Traffic (Prevention) Act, 1956 (ITPA)** is the premier legislation for prevention of trafficking for commercial sexual exploitation.
- **Article 23 of the Constitution of India** prohibits trafficking in human beings and 'begar' and other similar forms of forced labour.
- **Criminal Law (amendment) Act 2013** provides for comprehensive measures to counter the menace of human trafficking including trafficking of children for exploitation in any form.
- **Protection of Children from Sexual offences (POCSO) Act, 2012**, is a special law to protect children from sexual abuse and exploitation.
- **Section 143 to 146 of the Bharatiya Nyaya Sanhita (BNS), 2023** provides penal provisions for various forms of trafficking in persons, habitual dealing in slaves and unlawful compulsory labour.
- **UN Convention:** India has ratified the United Nations Convention on Transnational Organised Crime (UNTOC) which has as one of its Protocols Prevention, Suppression and Punishment of Trafficking in Persons, particularly Women and Children.
- **SAARC Convention:** India has ratified the SAARC Convention on Preventing and Combating Trafficking in Women and Children for Prostitution.
 - ◆ A Regional Task Force was constituted to implement the SAARC Convention.

Source: UN

DISEASE X

In News

- The recent outbreak reported in the Democratic Republic of Congo, which remains unclassified, has raised concerns that it could be an instance of **Disease X**.

What is Disease X?

- **Unknown Threat:** Disease X represents the very real possibility of a future pandemic caused by a pathogen that is currently unknown to science. It's a placeholder name for a potential global health emergency.
- **Potential Origins:** It could emerge from various sources, including zoonotic spillover (animal-to-human transmission), antimicrobial resistance, or even bioterrorism.

- **Severity:** The prediction that Disease X could be 20 times more lethal than SARS-CoV-2 underscores the potential for devastating consequences.

Why is Disease X a Concern?

- **Unpredictability:** The emergence, transmission, and impact of Disease X are uncertain, making it difficult to prepare for.
- **Globalized World:** Increased travel, trade, and interconnectedness make it easier for diseases to spread rapidly across the globe.
- **Environmental Factors:** Deforestation, urbanization, and climate change are disrupting ecosystems and increasing the risk of zoonotic diseases.
- **Limited Knowledge:** We have identified only a small fraction of the pathogens that could potentially infect humans.

Challenges in Predicting and Preparing for Disease X

- **Unpredictable Emergence:** The complex interplay of factors that lead to the emergence of new diseases makes prediction challenging.
- **Vast Pathogen Pool:** Millions of unknown viruses exist in wildlife, with the potential to jump to humans.
- **Climate Change:** Altering disease patterns and expanding the range of vector-borne illnesses.
- **Resource Inequality:** Disparities in healthcare infrastructure between countries can hinder effective responses.

Global and National Initiatives

- **WHO Priority Pathogens List:** The inclusion of Disease X on this list highlights the need for proactive research and development of medical countermeasures.
- **Global Initiatives:** The WHO Pandemic Treaty, Pandemic Fund, mRNA technology hubs, and other initiatives aim to strengthen global cooperation and preparedness.
- **Indian Initiatives:** India has programs like the IDSP, National Institute of Virology, and biotech initiatives focused on disease surveillance, research, and vaccine development.

Source: IE

JAL JEEVAN MISSION (JJM) EMPOWERING WOMEN

In News

- Prime Minister Narendra Modi highlighted the Jal Jeevan Mission's role in empowering women, particularly in rural areas.

Role of JJM in Women Empowerment

- **Time Savings:** Women traditionally bear the responsibility of fetching water, often walking long distances. Jal Jeevan Mission frees up their time, allowing them to engage in other activities like **education, skill development, or income generation**.
 - ♦ A **report by SBI shows:** 7.4 percentage point increase in women's participation in productive activities.
- **Health and Well-being:** Access to clean water reduces the risk of waterborne diseases, improving the health of women and their families. This leads to increased productivity and overall well-being.
- **Economic Opportunities:** With more time and better health, women can participate more actively in the workforce, contributing to household income and economic growth. The SBI report highlighting increased female workforce participation in agriculture and other sectors is a testament to this.
- **Education:** Girls who previously had to miss school to fetch water can now attend regularly, leading to improved educational outcomes and better future prospects.
- **Social Status:** By reducing the burden of water collection, the Jal Jeevan Mission enhances the social standing of women and gives them a greater voice in their communities.

About Jal Jeevan Mission (JJM)

- **Objective:** It is a flagship program under the Ministry of Jal Shakti launched in August 2019 with an ambitious goal: to provide **every rural household in India** with a functional **tap water connection by 2024**.
- **Goal:** Develop "WASH enlightened villages" where local communities are equipped to provide long-term assured water supply and sanitation services to all residents.
- **Progress and Achievements:** Significant increase in tap water connections: From 3.23 crore (17%) households in 2019 to over 15.35 crore (79.31%) households in October 2024.
 - ♦ 100% Coverage in several states/UTs
- **Key components:** Water quality, source sustainability, greywater management – demonstrate a holistic approach to water management.

Conclusion

- The JJM reflects the government's commitment to achieving holistic development aligned with the Sustainable Development Goals (SDGs), particularly SDG 6 (Clean Water and Sanitation).

Source: ET

GOOGLE'S WILLOW CHIP & QUANTUM COMPUTING

Context

- Google has developed a state-of-the-art **quantum computing chip called Willow**.

Quantum Chip

- **A quantum chip** is a special type of computer chip designed to use the principles of quantum mechanics, the science of very tiny particles like atoms.
- While regular chips use 'bits' (0 or 1) to process information, quantum chips use 'qubits', which can be 0 or 1 or both at the same time.
 - ♦ This unique ability allows quantum chips to handle complex calculations much faster than traditional computers.

About Willow

- Willow operates using **superconducting transmon qubits**—tiny electrical circuits exhibiting quantum behaviour at extremely low temperatures.
 - ♦ These circuits are engineered to function like artificial atoms in a quantum state.
 - ♦ To maintain these delicate quantum states, the qubits are cooled to temperatures just above absolute zero.
 - ♦ This minimises vibrations and other disturbances that could disrupt the qubits and introduce errors in calculations.
- **Achievements:**
 - ♦ It has solved a complex computation under 5 minutes, that would have taken a supercomputer around 10 septillion (10^{25}) years to complete.
 - ♦ Willow can reduce errors exponentially as we scale up using more qubits. This cracks a key challenge in quantum error correction that the field has pursued for almost 30 years.
- **Significance:** Google sees Willow as an important step in its journey to build a useful quantum computer with applications in areas such as drug discovery, fusion energy, and battery design.

Quantum Technology

- Quantum technology is a rapidly advancing field that leverages the **principles of quantum mechanics** to develop new technologies with unprecedented capabilities.

- ♦ **Quantum mechanics** is the branch of physics that studies the **behavior of particles at the quantum level**, where classical physics no longer applies.
- Quantum technology harnesses the unique properties of quantum systems, such as **superposition and entanglement**, to perform tasks that were previously thought impossible or **significantly enhance existing capabilities**.

Quantum Computing and Key Concepts:

- It is a type of computing that leverages the principles of quantum mechanics to perform calculations in ways that classical computers cannot.
- **Superposition:** Qubits can exist in multiple states at once, unlike classical bits which are either 0 or 1. This enables quantum computers to process a vast amount of possibilities simultaneously.
- **Entanglement:** When qubits become entangled, the state of one qubit is directly tied to the state of another, regardless of the distance between them.
 - ♦ This allows for faster and more complex information processing since the state of the system is interconnected in ways classical systems cannot replicate.
- **Quantum Interference:** Quantum algorithms exploit interference to amplify correct paths and cancel out incorrect ones, helping solve problems more efficiently.
- **Quantum Tunneling:** Quantum systems can transition between states via tunneling, bypassing barriers that would be insurmountable in classical physics. This allows certain quantum algorithms to explore solutions faster than classical methods.

Significance

- Quantum computing has the potential to revolutionize fields like cryptography, drug discovery, material science, artificial intelligence, and optimization problems by performing calculations that would take classical computers thousands of years to complete.

Challenges:

- **Error correction:** Qubits are very fragile and prone to errors due to their sensitivity to the environment (like temperature and radiation).
- **Scalability:** Building large-scale quantum computers requires developing a technology that can maintain the stability of many qubits simultaneously.

Application

- **Cryptography:** Shor's algorithm, for example, could theoretically break current cryptographic systems that rely on the difficulty of factoring large numbers.
- **Optimization:** Quantum algorithms may help solve complex optimization problems, useful in logistics, finance, and manufacturing.
- **Drug Discovery:** Quantum simulations could model molecular structures and chemical reactions at an unprecedented level of detail, speeding up the development of new drugs.

Source: IE

INDIA'S GREEN STEEL TAXONOMY**In News**

- India is the **first country globally to define a taxonomy for green steel**. The Taxonomy marks a milestone in India's decarbonization journey in the steel sector.

What is the Green Steel Taxonomy?

- **Definition:** It's a framework that defines "green steel" based on its carbon emission intensity. This is the first such taxonomy globally, making India a pioneer in setting standards for sustainable steel production.
- **Key Features:**
 - ♦ **Emission Intensity Threshold:** Steel is considered "green" if its CO₂ equivalent emission intensity is less than 2.2 tonnes of CO₂e per tonne of finished steel.
 - ♦ **Star Rating System:** A star rating system categorizes green steel based on emission intensity:
 - **Five-star:** < 1.6 tCO₂e/tfs
 - **Four-star:** 1.6 - 2.0 tCO₂e/tfs
 - **Three-star:** 2.0 - 2.2 tCO₂e/tfs
 - ♦ **Scope of Emissions:** Includes Scope 1 (direct emissions), Scope 2 (indirect emissions from energy consumption), and limited Scope 3 emissions (indirect emissions from the supply chain).
 - ♦ **Nodal Agency:** The National Institute of Secondary Steel Technology (NISST) will be responsible for measurement, reporting, verification (MRV), and issuing greenness certificates.

- ♦ **Review:** The emission intensity threshold will be reviewed every three years to ensure continuous improvement.

Benefits of Green Steel Taxonomy

- **Environmental Sustainability:** Promotes decarbonization of the steel sector, a major contributor to greenhouse gas emissions.
- **Global Leadership:** Establishes India as a frontrunner in defining green steel standards.
- **Market Creation:** Drives demand for low-carbon steel products and encourages innovation in sustainable steelmaking technologies.
- **Policy Coherence:** Provides a clear framework for developing policies and incentives to support green steel production.

Challenges

- **Implementation:** Meeting the emission intensity targets will require significant investments and technological advancements.
- **Data Collection and MRV:** Accurate and reliable measurement, reporting, and verification of emissions will be crucial.
- **Competitiveness:** Ensuring that Indian steel remains competitive in the global market while meeting the green steel criteria.

Initiatives to Decarbonise Steel Sector in India

- **National Mission on Green Steel (NMGSS):** This mission aims to provide a framework for the transition to green steel production, including financial incentives, R&D support, and policy interventions.
- **Green Steel Public Procurement Policy (GSPPP):** This policy will promote the use of green steel in government procurement, creating a market for low-carbon steel products.
- **Steel Scrap Recycling Policy 2019:** Encourages the use of scrap in steel production, reducing reliance on primary production routes that are more carbon-intensive.
- **Perform, Achieve and Trade (PAT) Scheme:** Incentivizes energy efficiency improvements in the steel sector.
- **Carbon Capture, Utilization and Storage (CCUS):** While still in early stages of development in India, CCUS technologies have the potential to capture and store carbon emissions from steel plants.

Source: PIB

NEWS IN SHORT

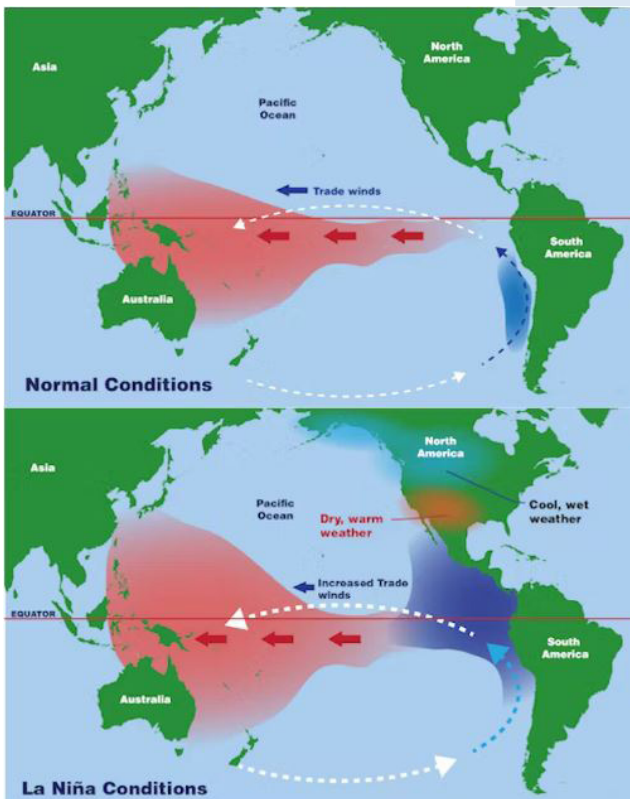
LA NINA

Context

- The cooling La Nina phenomenon in the equatorial Pacific Ocean may develop in the next three months but it is likely to be weak, according to the World Meteorological Organization (WMO).
 - A weak and short-lived La Nina may mean the heightened trend of global average temperatures in 2023 and 2024 may not relent in 2025 as well.

La Nina

- La Nina **means Little Girl in Spanish**. La Niña is also sometimes called El Viejo, anti-El Niño, or simply “a cold event.”
- La Niña is a weather phenomenon that occurs in the **Pacific Ocean**. It is the counterpart of El Niño, and both are part of the **larger El Niño-Southern Oscillation (ENSO) cycle**.
- The **trade winds become stronger than usual**, pushing more **warmer waters towards the Indonesian coast**, and making the **eastern Pacific Ocean colder than normal**.



Impacts

- Increased rainfall:** Regions such as Southeast Asia, northern Australia, and parts of South America often experience above-average rainfall

during La Niña events.

- Drier conditions in some areas:** Conversely, regions like the southwestern United States and parts of Africa experience below-average rainfall, leading to drought conditions.
- Stronger Atlantic hurricanes:** La Niña tends to reduce wind shear in the Atlantic, creating conditions that are more conducive to the development of hurricanes.
- Cooler temperatures:** Some areas experience cooler temperatures than normal, particularly in the Pacific Northwest of the United States and parts of South America.

Source: DTE

CESS AND SURCHARGE

Context

- Arvind Panagariya, Chairman, 16th Finance Commission**, termed the grievance of States regarding the Centre's increasing reliance on cesses and surcharges as a complicated issue.

About

- Dr. Panagariya observed that the share of States in the divisible pool has risen **from 32% in the 13th Finance Commission to 42% under the 14th**.
- The Centre is entitled to collect cesses and surcharges under a Constitutional provision.

Cess and Surcharge

- Cess and Surcharge are **additional taxes that are levied over and above the basic tax liability**.
- Cess:** It is calculated as a percentage of the base tax (e.g., income tax or GST) and is used for designated causes, like education, health, or sanitation.
 - Cess is typically non-refundable and must be paid on top of the regular tax liability.
 - Examples include Education Cess and Health Cess.
- Surcharge:**
 - It is imposed on higher-income individuals, companies, or entities to increase government revenue.
 - Unlike cess, the surcharge does not have a specific earmarked purpose and goes into the general revenue fund.
 - The rate of surcharge increases as the taxable income rises, and it is applied on top of the base tax amount.

Source: TH

COASTAL HARDENING

Context

- A new study published in Nature, has revealed that **about 33% of the world's sandy beaches have hardened.**

About

- **The Bay of Bengal** occupies first position with 84% coastal hardening.
 - ♦ It was followed by western and central Europe, which showed the second-largest coastal hardening with 68%, followed by the Mediterranean with 65%.
 - ♦ Western North America and east Asia showed 61% and 50% respectively.
- The study urged acknowledging potential underestimation in the amount of hardened sandy beaches and percentage of sandy beaches facing heavy losses in low and lower middle-income countries.

Costal Hardening

- **Coastal hardening** refers to 'rigid', semi-impermeable structures created by humans that alter the natural landscape, potentially obstructing the shoreline retreat, and landward translation of sandy beaches.
 - ♦ These include infrastructure such as seawalls, harbours, roads, highways, buildings, railway revetments or other urban structures.

Impacts:

- **Disruption of natural processes:** Hard structures often interfere with the natural movement of sand, leading to increased erosion in other areas.
- **Loss of habitats:** Hardening destroys or degrades coastal ecosystems, including beaches, dunes, and wetlands that provide important habitats for wildlife.
- **Long-term sustainability issues:** Coastal hardening result in a "locking in" of coastal conditions, making future adaptation more difficult as sea levels rise.

Source: DTE

DESERT KNIGHT EXERCISE

In News

- India, France, and the UAE have launched "Desert Knight, defence exercise.

About Desert Knight Exercise

- **Nations Involved:** India, France, and the United Arab Emirates (UAE).

- **Location:** Conducted over the Arabian Sea, approximately 350-400 km southwest of Karachi.
- **Objective:** Strengthen trilateral defence cooperation.
 - ♦ Enhance combat skills and interoperability among the air forces of the three nations.

Significance

- Desert Knight aligns with India's broader Indo-Pacific strategy, which emphasizes cooperation with like-minded nations to ensure a free, open, and inclusive Indo-Pacific region.
- Countering China's Influence

Source: TOI

DULCIBELLA CAMANCHACA

In News

- Researchers have identified a new predatory amphipod species, *Dulcibella camanchaca*, in the Atacama Trench.
 - ♦ The Atacama Trench stretches along the **eastern South Pacific Ocean**, plunging to depths **exceeding 8,000 m off the coast of northern Chile.**

Key Features of *Dulcibella Camanchaca*

- **Taxonomic Classification:** Belongs to the Eusiridae family.
 - ♦ Represents a newly identified genus.



- **Morphological and Genetic Characteristics:** Larger than related species, measuring just under 4 cm.
 - ♦ Pale coloration aids survival in pitch-black environments.
 - ♦ DNA barcoding confirmed its distinct genetic lineage.
- **Predatory Behavior:** Unlike scavenging amphipods, it actively preys on other amphipods, playing a crucial role in the deep-sea food web.
- **Naming: Genus Name:** *Dulcibella*, inspired by characters from the 17th-century Spanish novel *Don Quixote*.

- ◆ **Species Name:** Camanchaca, meaning “darkness” in indigenous Andes languages, reflecting its habitat.

Source: ET

MARBLED DUCK

In News

- A marbled duck, a rare winter migrant, was recently spotted at **Sultanpur National Park, Haryana**.
 - ◆ This marks the **first sighting in Sultanpur since 1990**, creating excitement among bird enthusiasts.

About Marbled Duck

- **Physical Characteristics:** Medium-sized duck with grey-white plumage.

- ◆ Features a large head and light eye patches.
- ◆ The diet consists of fish and aquatic plants.
- **Global Conservation Status:** Classified as “Vulnerable” by the IUCN.
 - ◆ Population decline primarily due to: Habitat destruction, Hunting in breeding and wintering grounds.
- **Geographic Range and Habits:** Native to Europe, breeding in the summer months.
 - ◆ Breeding occurs in three regions: Eastern Mediterranean. Western Mediterranean. Iran.
 - ◆ Prefers lowland, shallow freshwater habitats for breeding.

Source: DTE

