



# Daily Current Affairs



## To The Point by Dhananjay Gautam

### Table Of Content 24 Oct 2024

1. World Economic Outlook (October 2024) Report
2. Stage II of Graded Response Action Plan (GRAP)
3. Standard Operating Procedures (SOPs) for 'White Revolution 2.0'
4. Key Biodiversity Areas (KBAs) at Risk
5. Remove Debris In-Orbit Servicing (RISE) Mission
6. What is a Cloud Chamber?
7. Clostridioides difficile Bacteria
8. Space Docking Experiment (SPADEX)
9. Key Fact About Black Sea
10. What is Cornea?

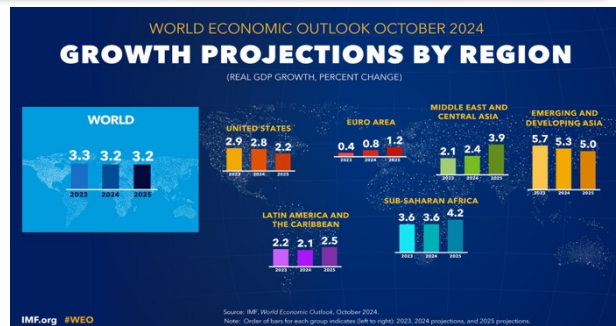


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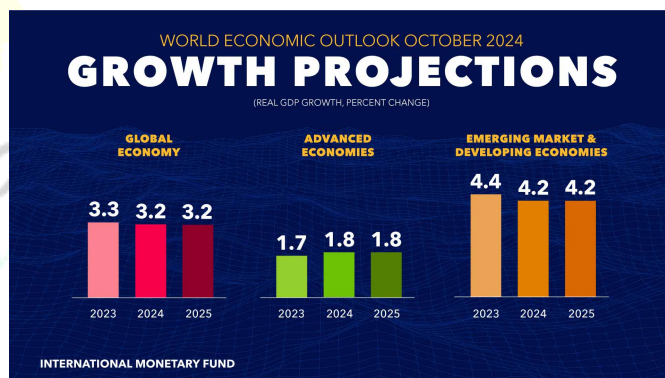
## 1 International Monetary Fund (IMF) World Economic Outlook (October 2024) Report

**Context:** The IMF's World Economic Outlook (WEO) is published twice a year and provides comprehensive analyses and projections of the global economy for the short and medium term. The October 2024 report presents key insights into global growth and highlights the importance of structural reforms.



### Key Highlights of the Report:

- Global Growth:** Projected to remain stable at **3.2%** in both 2024 and 2025.
- Uncertainty Factors:**
  - The global economic landscape faces uncertainties stemming from:
    - Geopolitical conflicts
    - Increasing trade tensions
    - Upcoming elections and leadership changes in major economies
- India's Growth:** India is expected to grow at **6.5%** in the fiscal year 2025-26.
- Urgency of Structural Reforms:**
  - The report emphasizes the necessity for structural reforms in economies to promote growth and stability.
  - It discusses strategies to enhance the social acceptability of these reforms.



### Structural Reforms:

- Definition:** Structural reforms are policy changes aimed at modifying acquired rights and economic rents to improve resource allocation within the economy.
- Social Acceptability:** Gaining social acceptance for structural reforms is challenging, as the benefits and drawbacks are often unevenly distributed across different societal groups and time periods.

### Determinants of Attitude Towards Structural Reforms:

- Personal Beliefs and Perceptions:**
  - Individual beliefs about the effects of policies significantly influence attitudes towards reforms.
  - Misinformation and misconceptions about how policies work can skew public perception.
- Socioeconomic Characteristics:** Individuals' economic self-interest, shaped by their socioeconomic background, also affects their views on policies.

### Strategies for Boosting Support for Structural Reforms:

1. **Information:** Providing clear, unbiased information to correct misperceptions about reforms.
2. **Engagement:** Facilitating two-way dialogue between policymakers and the public, allowing citizens to contribute to shaping policies.
3. **Mitigation:** Recognizing that reforms may negatively impact certain groups and addressing these concerns with targeted measures (e.g., temporary cash support, capacity building).
4. **Trust:** Establishing credible and independent government bodies, along with first-generation reforms aimed at combating corruption and enhancing governance.

### About the IMF

The IMF is a global organization that works to achieve sustainable growth and prosperity for all of its 191 member countries. It does so by supporting economic policies that promote financial stability and monetary cooperation, which are essential to increase productivity, job creation, and economic well-being. The IMF is governed by and accountable to its member countries.

- **Membership:** 191 member countries,
- **Voting Power:** Countries with larger economies have more voting power, reflecting their influence in global economic governance.
- **Objectives:**
  - Foster global monetary cooperation.
  - Secure financial stability.
  - Facilitate international trade.
  - Promote high employment and sustainable economic growth.
  - Reduce poverty worldwide.
  - Support macro-economic growth.
  - Provide policy advice and financing for developing countries.
  - Promote exchange rate stability and an international payment system.
- **Critical Missions:**
  - Encourage international monetary cooperation.
  - Expand trade and economic growth.
  - Discourage harmful economic policies.
- **Collaboration:** Works with member countries and international organizations to achieve its goals.
- **Financial Support:** Provides financial assistance to countries facing economic difficulties to stabilize their economies.
- **Surveillance:** Monitors global economic trends and advises member countries on policy measures.



**Conclusion:** The IMF's October 2024 WEO underscores the critical role of structural reforms in fostering economic growth while highlighting the challenges of securing social acceptance. By addressing misinformation, engaging the public, and implementing supportive measures, policymakers can enhance the effectiveness and acceptance of necessary reforms in their economies.

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Page No

3

2

**Implementation of Stage II of Graded Response Action Plan (GRAP) in Delhi NCR**

**Context:** The Commission for Air Quality Management (CAQM) has ordered the implementation of **Stage II** of the **Graded Response Action Plan (GRAP)** in the **Delhi NCR** region to address deteriorating air quality. This decision was made by the Centre's Sub-Committee tasked with operationalizing GRAP, and all relevant agencies in the NCR have been directed to enforce the measures outlined in this stage.

**Key Features of GRAP Stage II:**

- **Ban on Coal and Firewood:** The use of coal and firewood is prohibited, along with the operation of diesel generator sets, except for emergency and essential services.

**Overview of GRAP:**

The **Graded Response Action Plan (GRAP)** is an emergency response mechanism tailored to the **Air Quality Index (AQI)** levels in Delhi, categorized into four stages based on the severity of air pollution:

- **Stage 1:** Poor category (AQI 201-300)
- **Stage 2:** Very poor category (AQI 301-400)
- **Stage 3:** Severe category (AQI 401-450)
- **Stage 4:** Severe + category (AQI 451 and above)

The CAQM oversees the implementation of GRAP across the NCR and adjoining areas.

**Reasons for Increased Air Pollution in Winter:**

Several factors contribute to the rise in air pollution levels during winter months in Delhi:

- **Wind Patterns:** After the monsoon, the wind direction shifts to north-westerly, bringing dust from Rajasthan and sometimes from neighbouring countries like Pakistan and Afghanistan.
- **Reduced Wind Speed:** The winter season experiences a decrease in wind speed, which hampers the dispersion of pollutants.
- **Agricultural Practices:** Crop residue burning, particularly paddy stubble, significantly contributes to air pollution.
- **Other Sources:** Dust from construction sites and vehicular emissions also play a major role in worsening air quality.

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Page No

4

**Initiatives to Combat Air Pollution:**

The CAQM has proposed an **11-point action plan** to mitigate air pollution, which includes:

- Mechanical sweeping of roads
- Use of dust suppressants
- The **System of Air Quality and Weather Forecasting and Research (SAFAR)**
- Spraying **PUSA bio-decomposer** on farmlands to facilitate the breakdown of stubble.

**About Air Quality Index (AQI):**

- The **Air Quality Index (AQI)** is issued by government agencies to assess air pollution levels and communicate health risks to the public.
- It takes into account eight pollutants: PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb.

**About the Commission for Air Quality Management (CAQM):**

- The CAQM was established under the **Commission for Air Quality Management in NCR and Adjoining Areas Act, 2021**, replacing the Environment Pollution (Prevention and Control) Authority.
- Its purpose is to manage air quality in the NCR and adjoining areas, ensuring better coordination, research, and resolution of air quality issues.

**Graded Response Action Plan (GRAP)**

GRAP Stages

State	Category	AQI	AQI Color Code
Stage 1	Poor	201-300	
Stage 2	Very poor	301-400	
Stage 3	Severe	401-450	
Stage 4	Severe plus	451 and above	

Health Statements for AQI Categories

AQI	Category	Possible health impact
0-50	Good	Minimal impact
51-100	Satisfactory	Minor breathing discomfort to sensitive people
101-200	Moderate	Discomfort to people with lung, asthma, and heart diseases
201-300	Poor	Discomfort to most people on prolonged exposure
301-400	Very poor	Respiratory illness on prolonged exposure
401-500	Severe	Affects healthy people and seriously impacts those with existing diseases

**Conclusion:** The enforcement of Stage II of GRAP reflects a proactive approach to address the alarming levels of air pollution in Delhi NCR, particularly during the winter months when pollution levels typically rise. Implementing these measures is crucial for safeguarding public health and enhancing air quality in the region.

### 3 Standard Operating Procedures (SOPs) for 'White Revolution 2.0

**Context:** The Ministry of Cooperatives recently released Standard Operating Procedures (SOPs) for 'White Revolution 2.0,' aimed at accelerating growth in the dairy sector. This initiative was launched during the diamond jubilee celebrations of the National Dairy Development Board (NDDB).



#### About NDDB:

- **Foundation:** Established by Dr. Verghese Kurien, the father of India's White Revolution, in 1965, NDDB played a central role in transforming India's dairy industry.
- **Operation Flood (1970-1996):** NDDB implemented the world's largest dairy development program, leading to the first White Revolution, making India the largest milk producer globally.
- **NDDB Act, 1987:** The institution was declared one of national importance following its merger with the Indian Dairy Corporation.

#### White Revolution 2.0:

- **Goals:** The primary objective is to increase milk procurement by dairy cooperative societies by **50%** over the next five years, targeting **1,007 lakh kg/day by 2028-29**.
- **Focus Areas:** It aims to empower women, create employment opportunities, and expand cooperative coverage.

#### National Programme for Dairy Development (NPDD) 2.0:

- **Integration:** The targets of White Revolution 2.0 have been integrated into the newly proposed Central Sector Scheme, NPDD 2.0, which offers financial support to enhance village-level milk procurement systems, build milk chilling facilities, and strengthen overall dairy infrastructure.
- **Dairy Cooperative Societies (DCS):** There is a plan to establish or strengthen **1 lakh DCS** to meet the program's goals.

#### Other Initiatives Boosting the Dairy Sector:

- **Rashtriya Gokul Mission:** Aimed at conserving and developing indigenous bovine breeds.
- **National Programme for Dairy Development (NPDD):** Focuses on infrastructure and capacity-building in dairy.
- **Livestock Health & Disease Control Programme (LHDCP):** Addresses animal health issues.
- **Animal Husbandry Infrastructure Development Fund:** Provides financial assistance to support infrastructure in the livestock sector.

White Revolution 2.0 aims to build on India's past successes in dairy production, strengthen the dairy cooperative movement, and ensure sustainable growth in the sector.

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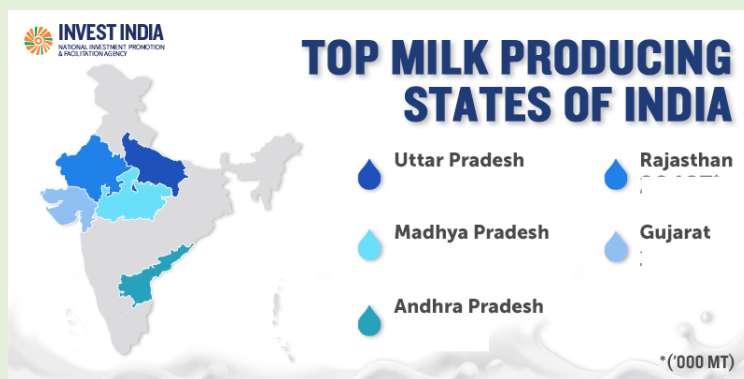
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## Current Status of Milk Production in India

**Global Ranking:** India is the world's leading milk producer, with production reaching **231 million tonnes** during the **2022-23** period. This marks a significant increase from just **17 million tonnes** in **1951-52**.

**Top Milk-Producing States:** According to the Basic Animal Husbandry Statistics (BAHS) 2023, the top five milk-producing states in India are:

1. **Uttar Pradesh:** 15.72%
2. **Rajasthan:** 14.44%
3. **Madhya Pradesh:** 8.73%
4. **Gujarat:** 7.49%
5. **Andhra Pradesh:** 6.70%



These states collectively contribute to **53.08%** of the country's total milk production.

**Per Capita Availability of Milk:** The national per capita availability of milk in India is **459 grams/day**, which is significantly higher than the global average of **323 grams/day**. However, this availability varies across states, ranging from **329 grams/day** in **Maharashtra** to **1,283 grams/day** in **Punjab**.

### Milk Production by Animal Type:

- Approximately **31.94%** of the total milk production comes from indigenous buffaloes.
- **29.81%** is contributed by crossbred cattle.
- Goat milk accounts for **3.30%** of the total production, while exotic cows contribute **1.86%**.

**Contribution of Dairy to the Agriculture and Livestock Sector:** In the 2022-23 period, the milk group (which includes milk, ghee, butter, and lassi) accounted for about **40%** of the total output value from agriculture, livestock, forestry, and fishing sectors. This amounted to approximately **Rs 11.16 lakh crore**, making dairy a much larger contributor to the agricultural sector than cereals.

4

## Closing Window of Opportunity Report: Key Biodiversity Areas (KBAs) at Risk

**Context:** The newly released report, *Closing Window of Opportunity: Mapping Threats to Important Areas for Conservation in Pantropics*, highlights the pressing threat posed by oil, gas, and mining concessions to Key Biodiversity Areas (KBAs) across some of the world's most ecologically critical regions—the Amazon Basin, Congo Basin, and Southeast Asia. Launched at the Convention on Biological Diversity (COP16) in Cali, Colombia, the report underscores the urgency of conserving these regions, which play a crucial role in regulating the global climate and maintaining biodiversity.

**Key Findings:**

- **518 KBAs** (18% by area in the pantropics) are under active or potential oil and gas concessions.
- In the **Amazon**, oil and gas blocks overlap with **14% of KBAs** and **12% of Indigenous Territories**.
- Across the pantropics, over **180 million hectares of high-integrity forests** are subject to ongoing or planned fossil fuel extraction projects.

**Challenges in Protecting KBAs**

The report outlines several challenges to safeguarding these areas:

- **Competing interests** between conservation and resource extraction, particularly due to the growing demand for minerals used in renewable energy technologies (e.g., nickel mining).
- **Unprotected KBAs** face spillover effects from infrastructure development linked to oil, gas, and mining projects, leading to degradation and habitat loss.

**Recommendations:**

1. Empower **Indigenous peoples** with resources and authority for self-governance while upholding their sovereignty over traditional lands.
2. Strengthen and enforce **legal frameworks** to stop new resource extraction in protected areas and phase out existing operations.
3. Restrict **green energy resource extraction** to non-critical habitats, with rigorous environmental standards to protect vital ecosystems.

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Page No

8



## Global Initiatives for KBAs:

The **Global Standard for the Identification of Key Biodiversity Areas** (2016) by the International Union for Conservation of Nature (IUCN) serves as an essential tool for identifying and protecting KBAs.

### Key Biodiversity Areas (KBAs)

- The concept of Key Biodiversity Areas (KBAs) originated from Birdlife International's initiative to identify Important Bird and Biodiversity Areas (IBA).
- The success of the IBA model prompted the expansion of the framework to include other taxonomic groups, such as plants, butterflies, and freshwater and marine biodiversity.
- Recognizing the need for a unified framework, the International Union for Conservation of Nature (IUCN) established the **global KBA Standard** in 2016 during the World Conservation Congress in Bangkok in 2004.

### About KBAs:

KBAs are designated sites that significantly contribute to the global persistence of biodiversity. These areas are essential for maintaining the health of the planet and may contain:

- Unique species
- Species found only in limited areas

### Criteria for Recognition:

To qualify as a KBA, a site must meet at least one of the 11 criteria grouped under five categories:

1. **Threatened Biodiversity**
2. **Geographically Restricted Biodiversity**
3. **Ecological Integrity**
4. **Biological Processes**
5. **Irreplaceability**

### Global KBA Presence:

- Over **16,000 KBAs** have been mapped worldwide, highlighting their importance for global biodiversity conservation.
- The **Key Biodiversity Areas Partnership**, consisting of 13 global conservation organizations, works collaboratively to identify, map, and conserve these critical areas across the globe.

### KBAs in India:

India has **862 KBAs**, which play a vital role in conserving the country's rich biodiversity. Notable examples include the **Western Ghats**, recognized for their unique species and ecosystems.

**Conclusion:** This report serves as a stark reminder of the delicate balance between meeting global energy demands and preserving the world's most essential ecosystems. Effective conservation strategies and collaborative efforts are urgently needed to prevent irreversible damage to these vital regions.

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## 5 The Remove Debris In-Orbit Servicing (RISE) Mission

**Context:** The *Remove Debris In-Orbit Servicing (RISE) Mission*, a pioneering initiative by the European Space Agency (ESA), is set to play a crucial role in advancing the circular economy in space. Scheduled for launch in 2028, RISE is ESA's first in-orbit servicing mission, designed to refuel, refurbish, and assemble satellites in orbit—key components of a sustainable, circular space economy. The mission will dock and control geostationary satellites, raising them to the geostationary graveyard, an area about 100 km above the operational satellite orbit, where retired satellites are stored.



### Circular Space Economy:

The concept of a circular space economy is based on minimizing waste and maximizing resource efficiency, much like its terrestrial counterpart. Key components include:

- **Satellite refurbishment and repair**
- **Space debris removal**
- **Resource utilization** (extracting materials from asteroids or the Moon)

### Significance of a Circular Space Economy:

- **Reduced space debris**, minimizing the risk of collisions and preventing the generation of more debris.
- **Resource conservation** by reusing and recycling materials in space.
- **Cost reduction** through extending the operational lifespan of satellites.
- **Faster development times** by assembling and manufacturing space systems directly in orbit.

**Challenges:** Despite its promise, the circular space economy faces several hurdles:

- **Technological limitations**, such as developing in-orbit servicing, recycling, and asteroid mining capabilities.
- **Funding requirements** for specialized equipment, research, and development.
- **Regulatory challenges** related to the establishment of global standards for space sustainability.

### Global and Indian Initiatives:

- **ESA's Circular Economy in Space Goal** by 2050, with debris neutrality by 2030.
- **NASA's COSMIC Initiative**, promoting in-space servicing, assembly, and manufacturing.
- **Reusable launch vehicles** like SpaceX's Falcon 9.
- **India's ISRO**, advancing reusable launch vehicle technology and aiming for debris-free space missions by 2030.

The RISE mission represents a major step forward in making space activities more sustainable and ensuring long-term resource efficiency in orbit.

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Page No

10

## 6 What is a Cloud Chamber?

**Context:** India is establishing its first cloud chamber at the **Indian Institute of Tropical Meteorology (IITM)** in Pune. This innovative facility will enable advanced research into cloud formation and dynamics, particularly in relation to the Indian monsoon.

### About Cloud Chamber:

A **cloud chamber** is a scientific apparatus designed to replicate the conditions necessary for cloud formation. Key features include:

- **Structure:** It typically resembles a closed cylindrical or tubular drum.
- **Function:** Inside the chamber, water vapor, aerosols, and other components are injected.
- **Conditions:** By controlling humidity and temperature, researchers can facilitate cloud development.

India's cloud chamber will be specifically engineered with convection properties to study the unique characteristics of Indian monsoon clouds. Currently, only a few such convective cloud chambers exist worldwide.

**Objectives:** The primary goals of establishing a convective cloud chamber include:

- **Understanding Cloud Physics:** The facility will enable scientists to study cloud behavior under various conditions that affect Indian weather systems.
- **Weather Modification Strategies:** Insights gained from this research can inform strategies for weather modification and improved weather forecasting.

The Pune facility will allow for the sustained study of **seed particles** that contribute to the formation of cloud droplets and ice particles.

**Cloud Physics:** Research in cloud physics encompasses several aspects, including:

- Behaviour of clouds under normal and extreme conditions
- Interactions between particles within a cloud
- Formation of rain droplets and ice particles
- Influence of moisture added to the atmosphere by cyclones or low-pressure systems
- Interactions between different layers of clouds

### Significance:

The establishment of the cloud chamber will provide scientists with the flexibility to adjust physical and atmospheric parameters, enabling tailored experiments that consider the environmental factors influencing Indian weather and climate.

### What is Convection?

**Convection** refers to the process of heat transfer through the movement of fluids, such as air or water. Key points include:

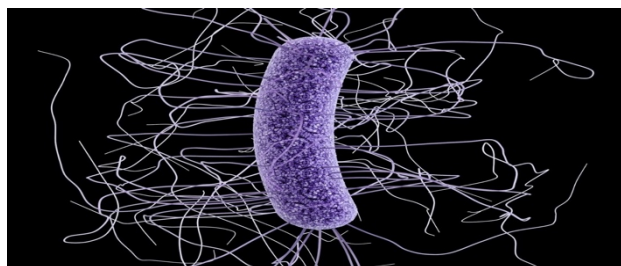
- **Heat Transfer Mechanism:** Convection is one of the primary methods through which heat is transferred in a fluid.
- **Driving Force:** This process is driven by temperature differences within the fluid, leading to the movement of warmer, less dense fluid rising and cooler, denser fluid sinking.

Understanding convection is crucial for studying weather patterns, cloud formation, and various atmospheric processes.



## 7 Clostridioides difficile Bacteria

**Context:** Researchers are making strides in developing the first effective vaccine against **Clostridioides difficile**, a highly contagious and challenging-to-treat bacterium. This vaccine is leveraging the mRNA technology that proved successful in combating COVID-19.



### About Clostridioides difficile:

- **Nature of the Bacterium: Clostridioides difficile** (C. difficile) is a bacterium that primarily causes an infection in the colon, which is the longest segment of the large intestine.
- **Symptoms:** Symptoms of C. difficile infection can range from mild to severe and include:
  - **Watery diarrhea**
  - **Mild abdominal cramping and tenderness**
  - Severe infections can lead to dehydration due to excessive fluid loss.
  - In extreme cases, the infection can cause **toxic megacolon**, where the colon becomes inflamed and significantly enlarged.

### Risk Factors and Affected Populations:

- C. difficile infections are particularly prevalent among:
  - **Older adults** in hospitals or long-term care facilities.
  - Individuals outside of healthcare settings can also contract the infection, although the risk is lower.
- **Antibiotic Use:** Illness often arises following the use of antibiotics, which can disrupt the balance of bacteria in the gut, allowing C. difficile to thrive.

### Transmission

- **Patient-to-Patient Spread:** The bacterium can be transmitted from one patient to another, primarily via the hands of healthcare workers who have come into contact with contaminated surfaces or materials.

**Recurrence:** Approximately **one-third** of individuals infected with C. difficile will experience recurrent infections, highlighting the persistent nature of this bacterium and the challenges in treatment.

**Treatment Options:** Treatment strategies for C. difficile infection include:

- **Antibiotics:** A prolonged course of strong antibiotics is commonly used; however, this can also eliminate beneficial gut bacteria.
- **Fecal Transplants:** This procedure delivers healthy bacteria to the gut, helping to restore a balanced microbiome and combat infection.

**Significance of Vaccine Development:** The development of a vaccine against C. difficile could dramatically reduce the incidence of infections, particularly in vulnerable populations, and alleviate the burdens associated with antibiotic treatment and recurrence.

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Page No

12

## 8 Space Docking Experiment (SPADEX)

**Context:** Recently, a Hyderabad-based company delivered two 400 kg class satellites to ISRO, which will be part of the **Space Docking Experiment (SPADEX)** planned for later this year. This experiment represents a significant advancement for ISRO in developing autonomous docking technology.

**About Space Docking Experiment (SPADEX):**

- **Autonomous Docking Technology:** SPADEX is one of ISRO's most significant steps toward developing autonomous docking capabilities.
- **Mission Structure:** The mission involves two vehicles: the 'Chaser' and the 'Target', which will come together and connect in space.
- **Docking Systems:** These systems allow two spacecraft to connect in orbit, enabling critical operations such as:
  - Assembling space stations
  - Refueling
  - Transferring astronauts and cargo
- **Stability and Control Testing:** The experiment will also assess how well the combined spacecraft maintains stability and control after docking, ensuring smooth operations for future missions.

**Unique Aspects:**

- **Indigenous and Cost-Effective:** India's SPADEX experiment is unique because it focuses on developing indigenous, scalable, and cost-effective docking technology.
- **Precision and Navigation:** The experiment will demonstrate precision, navigation, and control capabilities critical for future missions and is designed to accommodate various spacecraft sizes and mission objectives, including potential collaborations for building space stations or conducting deep space exploration.

**Historical Context:**

- **First Successful Docking:** The history of docking systems dates back to the Cold War when the Soviet Union achieved the first successful docking in space. On **October 30, 1967**, the Soviets completed the historic docking of **Kosmos 186** and **Kosmos 188**, marking the first fully automated docking between two unmanned spacecraft.
- **Impact on Space Exploration:** This achievement paved the way for later space exploration efforts, including long-term stays aboard space stations.

**Significance:** SPADEX is crucial for achieving India's long-term space exploration goals, which include:

- Manned spaceflight
- Satellite maintenance
- Future construction of space stations

**What is Outer Space?**

**Outer space**, often referred to simply as **space**, is the vast expanse that exists beyond the atmospheres of celestial bodies. It starts around **100 km** above Earth at the **Kármán line**, where the atmosphere transitions into space. This term is used to distinguish it from airspace and terrestrial locations. Outer space is characterized by a near vacuum, with extremely low pressure and density, and is the realm where various astronomical phenomena and activities, including satellite deployment and space exploration, occur.

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Page No

13

## 9 Key Fact About Black Sea

**Context:** Recent attacks by Russia on Ukrainian Black Sea ports have significantly impacted the delivery of vital aid to Palestinians and hindered grain supplies to the Global South, as noted by the British Prime Minister.

### About the Black Sea:

- **Location:** The Black Sea is a large inland sea located at the southeastern extremity of Europe.
- **Classification:** It is classified as one of the marginal seas of the Atlantic Ocean.
- **Area:** The sea covers approximately **436,000 square kilometers** (about **168,000 square miles**).
- **Geography:**
  - To the **west**, it is bordered by the **Balkan Peninsula** in Southeastern Europe.
  - To the **east**, it is bounded by the **Caucasus**.
  - To the **north**, the **East European Plains** border it.
  - To the **south**, it is bordered by **Anatolia** in Western Asia.



### Bordering Countries: The Black Sea is bordered by:

- **North:** Russia and Ukraine
- **South:** Turkey
- **West:** Bulgaria
- **East:** Georgia
- **Other:** Romania also has access to the Black Sea.
- The **Crimean Peninsula** extends into the sea from the north.



### Coastline Lengths:

- Russia: **2,300 km**
- Turkey: **1,329 km**
- Ukraine: **1,282 km**

### Connections:

- The Black Sea is connected to the **Aegean Sea** (an arm of the Mediterranean Sea) via:
  - **Bosphorus Strait**
  - **Sea of Marmara**
  - **Dardanelles Strait**
- It connects to the **Sea of Azov** through the **Kerch Strait**.

**Formation and Hydrology:**

- The Black Sea was formed when geological upheavals in Asia Minor separated the Caspian basin from the Mediterranean Sea, leading to its gradual isolation.
- Its salinity is now less than half that of the world's oceans.
- The sea receives freshwater from several rivers, including the **Danube, Southern Bug, Dnieper, Rioni, and Dniester**.
- It is known as the largest **meromictic basin**, meaning water movement between its upper and lower layers is rare.
- The Black Sea is also one of the world's largest **anoxic basins**, with areas having very low dissolved oxygen levels.

**Islands:**

The Black Sea features several islands, with the largest being:

- **Snake Island** (Ukraine)
- **Giresun Island** (Turkey)
- **St. Ivan Island** (Bulgaria)

**What is the Balkan Peninsula?**

The **Balkan Peninsula** is the easternmost of Europe's three main southern peninsulas. While there is no universal agreement on its exact composition, the region is generally considered to include:

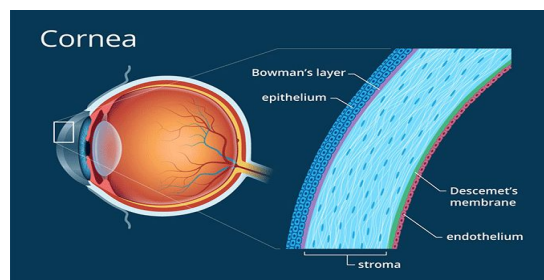
- **Countries:**
  - Albania
  - Bosnia and Herzegovina
  - Bulgaria
  - Croatia
  - Kosovo
  - Montenegro
  - North Macedonia
  - Romania
  - Serbia
  - Slovenia



**Additional Territories:** Portions of **Greece** and **Turkey** are often included in descriptions of the Balkan Peninsula.

## 10 What is Cornea?

**Context:** The Ministry of Health and Family Welfare in India is considering amendments to the **Transplantation of Human Organs and Tissues Act (THOTA), 1994**, to facilitate the retrieval of corneas from all Indian patients who die in hospitals, without requiring consent from the family. This initiative aims to increase the availability of corneal transplants.

**About the Cornea:**

- **Definition:** The **cornea** is the clear, dome-shaped outer layer at the front of the eye. It plays a crucial role in vision by refracting and focusing light as it enters the eye.
- **Anatomical Features:**
  - **Covers Key Structures:** The cornea covers the pupil (the opening at the center), iris (the colored part), and the anterior chamber (the fluid-filled space inside the eye).
  - **Lack of Blood Vessels:** The cornea contains no blood vessels except at its margins. It relies on tears and the **aqueous humor** (a watery fluid in the anterior chamber) for nourishment.
  - **Nerve Endings:** The cornea is highly sensitive due to the many nerve endings it contains, making it sensitive to pain and touch.
- **Functions:**
  - **Light Refraction:** The primary function of the cornea is to refract, or bend, light, helping to focus most of the light that enters the eye.
  - **UV Protection:** The cornea also filters some ultraviolet (UV) rays from sunlight, protecting the internal structures of the eye.
- **Vision and Shape:**
  - The cornea's curvature is spherical in infancy but changes with age, affecting its focusing power.
  - An irregular curvature can lead to **astigmatism**, a condition where images appear elongated or distorted.
- **Healing and Damage:** The cornea can repair itself quickly from minor abrasions, but deeper abrasions may result in scarring, which can reduce its transparency and lead to visual impairment.

**What Are Ultraviolet (UV) Rays?**

- **Definition: Ultraviolet (UV) rays** are a form of non-ionizing radiation emitted by the sun and artificial sources, such as tanning beds. They fall between visible light and X-rays on the electromagnetic spectrum.
- **Benefits:** UV rays play a role in the production of **Vitamin D** in the skin, which is essential for various bodily functions.

**Health Risks:** While there are benefits to UV exposure, excessive exposure can lead to health risks, including skin damage, cataracts, and other eye disorders. Therefore, protection from UV rays is important for eye health, and wearing sunglasses that block UV radiation can help safeguard the cornea and other ocular structures.

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Page No

16