

ASIAN DEVELOPMENT BANK (ADB)



- It is a **multilateral development bank** established on 19th December 1966.
- It is the **principal international development finance institution** for the **Asia-Pacific region**.
- It envisions a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty in the region.
- **Headquarters: Manila, Philippines.**
- **Functions:**
 - It provides **assistance to its developing member countries**, the **private sector**, and public-private partnerships **through grants, loans, technical assistance, and equity investments** to promote social and economic development.
 - ADB maximizes the development impact of its assistance by **facilitating policy dialogues**, providing **advisory services**, and mobilizing financial resources through **cofinancing operations** that tap official, commercial, and export credit sources.
 - The Bank focuses on **six key areas** that align with the UN's Sustainable Development Goals (SDGs): **education, health, transport, energy, finance, and climate change**.

Membership:

- Membership in the ADB is **open to members and associate members of the United Nations Economic Commission for Asia and the Far East**.
- It's also **open to other regional countries and non-regional developed countries** that are members **of the U.N.** or of any of its specialized agencies.

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- From 31 members at its establishment in 1966, ADB has grown to encompass **69 members**, including **49 regional members from Asia and the Pacific**, such as **India, China, Japan**, South Korea, Australia, and many others, and **20 non-regional members** from Europe, North America, and other regions.
- **Governance:**
 - It is operated by a **Board of Governors**, which is composed of one representative from each member state.
 - The Board then votes to **choose 12 of their members to serve as the Board of Directors**, with eight members coming from members from the Asia and Pacific region and the other four from non-regional members.
 - The **Board of Governors** is also **responsible for electing a president** who serves a **five-year term** as the chairperson of the Board as well as being **responsible for the bank's operations**.
 - Because Japan founded the ADB and remains the largest shareholder of the bank, **every single president of the ADB has been from Japan**.
- **Voting Power:**
 - The ADB was **modelled closely on the World Bank** where votes are **distributed in proportion to members' capital subscriptions**.
 - ADB's **five largest shareholders** are **Japan and the United States** (each with **6%** of total shares), the **People's Republic of China (6.4%)**, **India (6.3%)**, and **Australia (5.8%)**.
- **Source of Funding:**
 - It raises capital regularly through the **international bond markets**.
 - The ADB also relies on **member contributions, retained earnings from lending**, and the **repayment of loans** for the funding of the organization.
- **In terms of financial commitments to members** that are developing countries, **India** ranks first with **14%** of the bank's financial commitment, followed by **China, Bangladesh, the Philippines, and Pakistan**.

FIRST-PERSON VIEW DRONES



Recently, Ukraine used First-person view drones to attack Russia and destroyed more than 40 planes.

- These drones are **unmanned aerial vehicles** enhanced with artificial intelligence to perform advanced tasks with greater precision and autonomy.
- By processing real-time video data through AI algorithms, FPV drones are able to avoid obstacles & **carry out mission-specific operations** like surveillance, search & rescue.
- First-person view (FPV) means that a **person piloting a drone can see what the drone sees**, through a camera attached to its body.
- The live video can be seen through specialised goggles, or on smartphones and other kinds of screens, and the drone can be manoeuvred remotely.
- FPV drones have a much **smaller range, of a few kilometres**.
- **Features**
 - **GPS-independent navigation:** Operates without relying on satellite-based GPS, enhancing resilience against jamming or signal loss.
 - **Smart Pilot system:** Utilises advanced visual-inertial navigation, interpreting camera data to determine position and movement.
 - **LiDAR technology:** LiDAR technology complements the SmartPilot system, boosting precision in complex or cluttered environments.
- **Advantage:** The key advantages are cost and deep strike capabilities while remaining largely undetected.
- **Challenge:** One major challenge is that the drones' movement through their **surroundings cannot be seen by the drone operator**.
- This can limit situational awareness and may lead to disorientation. At times, another person, a visual observer, may be needed to guide the person controlling the drone.
- **Uses:** Such drones are also used in **filming and other non-defence purposes**.

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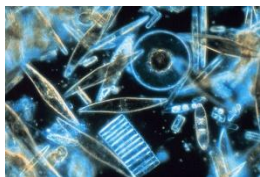
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BHARATGEN



BharatGen
GenAI for Bharat, by Bharat

- It is India's first-of-its-kind, **indigenously developed, Artificial Intelligence (AI)** based, government-funded, **Multimodal Large Language Model (LLM)** for Indian languages.
- It is developed **under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)** and implemented through TIH Foundation for IoT and IoE at IIT Bombay.
- BharatGen aims to **revolutionize AI development** across India's linguistic and cultural spectrum.
- The initiative is **supported by the Department of Science and Technology (DST)** and brings together a robust consortium of leading academic institutions, experts, and innovators.
- The platform integrates **text, speech and image modalities**, offering seamless **AI solutions** in **22 Indian languages**.
- This initiative will empower critical sectors such as healthcare, education, agriculture, and governance, delivering region-specific AI solutions that understand and serve every Indian.
- The BharatGen initiative is being executed through a network of **25 Technology Innovation Hubs (TIHs)**, four of which have been upgraded to **Technology Translational Research Parks (TTRPs)**.
- The Mission's four pillars include **technology development, entrepreneurship, human resource development, and international collaboration**.
- **Key features of BharatGen:**
 - Multilingual and multimodal models
 - Bhartiya dataset-based training
 - Open-source platform
 - Generative AI research ecosystem in India.



PHYTOPLANKTON

Phytoplanktons are **microscopic plants**, but they play a huge role in the marine food web.

- Phytoplankton, also known as **microalgae**, are similar to terrestrial plants in that they contain chlorophyll and require sunlight in order to live and grow.
- Most phytoplankton are **buoyant and float** in the upper part of the ocean, where sunlight penetrates the water.
- They require **inorganic nutrients** such as **nitrates, phosphates and sulfur** which they convert into proteins, fats, and carbohydrates.
- The two main classes of phytoplankton are **dinoflagellates and diatoms**.
 - Dinoflagellates use a whip-like tail, or flagella, to move through the water and their bodies are covered with complex shells.
 - Diatoms also have shells, but they are made of a different substance and their structure is rigid and made of interlocking parts. **Diatoms do not rely on flagella to move through** the water and instead **rely on ocean currents** to travel through the water.
- In a balanced ecosystem, **phytoplankton provide food for a wide range of sea creatures** including shrimp, snails, and jellyfish.
- When too many nutrients are available, phytoplankton may grow out of control and form **harmful algal blooms (HABs)**.
- These blooms can produce extremely toxic compounds that have harmful effects on fish, shellfish, mammals, birds, and even people.
- **Ecological significance**
 - Phytoplankton is estimated to produce about 50 percent of **Earth's oxygen**.
 - They have a crucial role in the **global carbon cycle**.
 - They provide an essential food source for organisms like **zooplanktons**.
 - Just like land plants, they grow more in certain seasons.

HEATWAVES AND THEIR TOLL ON INDIA'S WORKFORCE PRODUCTIVITY

- Heatwaves—periods of abnormally high temperatures—typically strike India between March and June, peaking in May.
- Central, Northwest, East, and North Peninsular India are the most affected.
- A report by the Council on Energy, Environment and Water (CEEW) shows that **57% of Indian districts**, home to **76% of the population**, are at **high or very high heat risk**.

Urban Heat Island Effect Intensifies Risk

- Urbanisation has worsened heatwave impacts. Cities absorb and retain more heat, making nights warmer—a phenomenon known as the urban heat island effect.
- This reduces relief during nights, especially in Tier-II and Tier-III cities, thereby affecting sleep and overall recovery from daytime heat.

Labour and Economic Impact

- India's workforce is highly vulnerable to heat. A 2022 World Bank report states that 75% of the workforce (380 million people) is exposed to heat-intensive work.
- India could face 34 million job losses due to heat stress by 2030.
- Informal sector workers suffer the most, with net earnings in Delhi dropping by 40% during heatwaves.
- These workers are often unable to attend work, sleep poorly, and face increased illness in their households during extreme heat.
- **Productivity Loss Across Sectors**
 - Factory and blue-collar workers also experience reduced output.
 - A 2021 study led by Dr. Somanathan found that each 1°C increase in temperature could reduce manufacturing output by 2%.
 - Rising absenteeism and declining efficiency are common during hot days.
- **Rural and Agricultural Vulnerability**
 - In rural India, summer is typically a lean farming season, but many shift to non-farm jobs like construction and road building, increasing their exposure.

- Livestock are also susceptible to heat stress, especially when temperature and humidity exceed certain thresholds.

Government Measures to Tackle Heatwaves

- The National Disaster Management Authority (NDMA), along with the Union Ministry of Home Affairs, has issued comprehensive guidelines to safeguard workers.
- These emphasize education, regulated work hours, access to water, medical aid, and suitable clothing, and serve as templates for city and town-level heatwave action plans.
- **Localized Heat Action Plans**
 - **Short-term solutions:** Water stations, shaded public shelters (e.g., cool bus stops).
 - **Long-term strategies:** Urban greening and expanding water bodies.
- **Urban Focus and Rural Neglect**
 - Most current heatwave preparedness focuses on **urban areas** due to their dense populations and infrastructure.
 - However, experts warn that **rural regions** face serious risks due to:
- **Weak healthcare infrastructure**
 - Poor quality of housing
 - Limited access to water, electricity, and sanitation
 - This makes rural communities highly vulnerable to heat-related health issues.
- **Funding and Strategic Planning**
 - States can utilize the **State Disaster Management Fund** to address immediate needs during heatwaves.
- **Social Protection for Heat-Affected Workers**
 - To safeguard incomes, especially for **informal workers**, mechanisms like **heat insurance** are being explored.
 - Under such models, workers contribute small premiums and receive compensation if a heatwave halts work.

RAIGAD FORT



The Archaeological Survey of India and the Raigad Development Authority's joint excavation recently unearthed a 'yantraraj' (astrolabe) at Raigad, Chhatrapati Shivaji Maharaj's capital fort.

- It is a **hill fort** situated in Raigad district, Maharashtra.
- It is situated in the Sahyadri mountain ranges, or the **western ghats**.
- It stands at an elevation of 2,700 feet (820 meters) above its base and 4,449 feet (1,356 meters) above sea level.
- Raigad, **surrounded by valleys shaped by the Kal and Gandhari rivers**, stands as an **isolated massif** without connections to neighbouring hills.
- The fort also overlooks an artificial lake known as the 'Ganga Sagar Lake'.
- It is **only accessible by a pathway on one side**, through several steps in a stiff climb.
- There is a **famous tower** built on a high valley near Raigad Fort, which is called "Hirkani Buruj".
- It is one of the strongest-ever fortresses of the Deccan Plateau and is **known as the 'Gibraltar of the East'** across the world.
- It was **seized by Chhatrapati Shivaji Maharaj in 1656** from Chandraraoji More, the King of Jawali.
- Chhatrapati Shivaji Maharaj **renovated** this fort and **declared it the capital of the Maratha Empire in 1674 AD**.
- The fort's layout is strategically designed to maximize its defensive capabilities, with multiple layers of fortification, bastions, and gateways.
- The fort was the location for an **armed campaign executed by the British East India Company in 1765**.
- On May 9, 1818, the **fort was looted and subsequently destroyed by British**.

INTERNATIONAL AIR TRANSPORT ASSOCIATION



- It was founded in **Havana, Cuba, on 19 April 1945.**
- It is the prime vehicle for **inter-airline cooperation** in promoting safe, reliable, secure and economical air services - for the benefit of the world's consumers.
- **Members:** At its founding, IATA had 57 members from 31 nations, mostly in Europe and North America. Today it has some **350 members** from 120 nations in every part of the globe.
- The modern IATA is the **successor to the International Air Traffic Association** founded in the Hague in 1919.
- The last AGM in India was held **42 years ago in 1983.**

Objectives

- Promote the development and growth of international air transportation.
- Promote and guarantee collaboration between the different international air transport companies.
- Strengthen safety within all areas of air transportation.
- Creation of international air traffic rules and regulations.

Head Office: Montreal, Canada.
