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DAILY CURRENT AFFAIRS (DCA)

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INDIA NEED TO CREATE CLOSE TO 8 MILLION NEW JOBS

In News

- In the recently released Economic Survey, the Chief Economic Advisor estimated that India **needed to create close to 8 million** new jobs each year for the coming decade.

Status

- India has been one of the brightest spots when it comes to GDP growth rates.
- India is doing extremely well in terms of its growth numbers.
    - At 7% growth for this fiscal year makes India the fastest growing major economy in the world, and that contributes about 17% to global growth

Main Challenges

- **Inflation**: Inflation is stabilizing but still needs careful management to avoid adverse economic effects.
- **Geopolitical Tensions:** Conflicts, particularly in the Middle East, could affect commodity prices, such as oil.
- **Political Uncertainty**: Numerous elections globally this year may bring policy uncertainty affecting growth.
- **Medium-Term Growth**: Projected global growth rates are weak compared to historical averages, necessitating structural reforms.
- The dollar's dominance is due to the strength of U.S. institutions, open capital markets, and network effects.

Impact of Artificial Intelligence (AI) on Employment

- About 25% of Indian workers are exposed to AI, with mixed effects on different sectors.
    - **AI can help address skill shortage**s, improve public finance, and enhance educational methods.
    - But certain sectors, like call centres, may see reduced demand for human labour due to AI.

Related steps

- **Flexible inflation targeting** has generally been successful globally by anchoring inflation expectations and improving credibility.

- **India's Experience :** Since adopting inflation targeting in 2015, India has seen more stable inflation, although challenges remain.\
    - India is **experiencing robust GDP growt**h, contributing significantly to global growth.

Suggestions and Way Forward

- **Encouraging corporate investment** and flexible labour markets can aid broad-based growth and job creation.
- **Improving ease of doing business** and reducing trade restrictions are vital.
- **Focus on educatio**n, skilling, and raising productivity in agriculture is essential for long-term growth.
- **Improving macroeconomic and financial stability,** and currency convertibility, benefits countries regardless of whether their currency becomes dominant.
- With continued reforms, India could sustain and possibly enhance its growth, but job creation is crucial.
    - India needs to create 60 to 148 million new jobs by 2030, requiring broad-based growth across sectors.

Source:IE

SPACE-DRIVEN SOLUTIONS FOR AGRICULTURAL TRANSFORMATION IN INDIA

Context

- The Department of Agriculture & Farmers' Welfare organized a conference on the pivotal role of **space technology in the growth and development of India's agricultural sector**.
- The conference also marked the launch of the **Krishi-Decision Support System.**

Krishi-Decision Support System

- Krishi-DSS is a first-of-its-kind **geospatial platform** designed for Indian agriculture. It is part of the **Digital Public Infrastructure for Agriculture** announced in the recent Budget.
- The platform provides seamless access to comprehensive data including **satellite images, weather information, reservoir storage, groundwater levels and soil health information**, which can be easily accessed from anywhere at any time.

Space technology application in agriculture

- **Weather Predictions:** Satellites provide data for accurate weather forecasting, helping farmers plan their activities, such as sowing, irrigation, and harvesting, to avoid losses due to adverse weather conditions.

- **Water Resource Management:** Satellite data is used to monitor water bodies and manage water resources more effectively, ensuring that irrigation is optimized and water is conserved.

- **Mobile Apps and Digital Platforms:** Several government and private initiatives use satellite data to provide real-time advisory services to farmers through mobile apps.
  - **Example: Kisan Suvidha mobile application** to facilitate dissemination of information to farmers on the critical parameters viz., Weather; Market Prices; Plant Protection; Agro-advisory; Extreme Weather Alerts etc.

- **Crop Yield Forecasting:** Satellite data is used to forecast crop yields, helping in market planning and pricing strategies.
  - **KISAN [C(K)rop Insurance using Space technology And geoiNformatcs]** project launched in 2015 envisaged use of high-resolution remote sensing data for optimum crop cutting experiment planning and improving yield estimation.

Other initiatives

- **FASAL (Forecasting Agricultural output using Space, Agro-meteorology, and Land-based observations):** This project provides pre-harvest crop production forecasts using satellite data.

- **Bhuvan:** The platform provides satellite imagery and services to support agriculture, including crop insurance and land use planning.

- **Pradhan Mantri Fasal Bima Yojana (PMFBY):** This crop insurance scheme leverages satellite data to assess crop damage and process claims faster and more accurately.

Agriculture Sector in India

- India is one of the major players in the agriculture sector worldwide and it is the primary source of livelihood for **~55%** of India's population.

- It is the **second-largest** producer of fruit, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.

- India occupies **fifth place** globally with a total area of 2.66 million hectares in organic farming.

Source: PIB

INDIA AI MISSION AND GRAPHICS PROCESSING UNITS (GPUS)

Context

- Recently, India has finalised a tender document to procure **1,000 Graphics Processing Units (GPUs)** as part of its ambitious **IndiaAI Mission** and offer computing capacity to Indian start-ups, researchers, public sector agencies and other entities approved by the government.

About the IndiaAI Mission

- It is rooted in the vision of 'Making AI in India' and ensuring that AI truly works for India. Recognizing the transformative potential of AI, the government has allocated substantial resources to foster AI development, research, and application across various sectors.

Key Components

- **Compute Capacity:** At the heart of the IndiaAI Mission lies the goal to build cutting-edge compute capacity. This involves **deploying over 10,000 Graphics Processing Units (GPUs)** through strategic public-private collaborations.

- By democratising access to powerful compute resources, the mission **aims to bridge the 'AI divide'** and empower startups, researchers, and innovators.

Graphics Processing Units (GPUs)

- These are specialised chips or electronic circuits designed primarily for rendering graphics and visual content on electronic devices.

Origins and Purpose

- Initially, GPUs were created to handle complex 3D scenes and objects, such as those found in video games and computer-aided design software.
  - Their **parallel processing architecture** allowed them to crunch massive amounts of graphical data efficiently.

- Over time, GPUs evolved to handle additional tasks, including video stream decompression and scientific simulations.

Parallel Processing Power

- **Unlike the Central Processing Unit (CPU)**, which **acts as the 'brain'** of most computers, **GPUs excel at parallel processing**. They can perform multiple calculations simultaneously, making them ideal for tasks that involve massive data sets or repetitive computations.

- This **parallelism** is especially valuable for applications like machine learning, where neural networks require extensive matrix operations.

AI and Machine Learning

- The recent AI boom has thrust GPUs into the spotlight. Researchers and data scientists realised that GPUs could accelerate training deep learning models.
- It is because training neural networks involves matrix multiplications, GPUs are exceptionally good at handling these matrix operations in parallel.
- As a result, GPUs have become the workhorses behind AI breakthroughs, powering everything from natural language processing to computer vision.

Innovation and Application Development

- The AI mission establishes innovation centres focused on developing and deploying indigenous Large Multimodal Models (LMMs) and domain-specific foundational models.
- These models will find applications in critical sectors such as healthcare, education, agriculture, and smart cities.
- Imagine AI-powered solutions that improve crop yield predictions, enhance medical diagnostics, or optimise traffic management in our cities.

Data Platforms

- The **IndiaAI Datasets Platform** streamlines access to quality non-personal datasets for AI innovation.
- Researchers and startups can tap into a unified data platform, making it easier to experiment, train models, and create impactful AI applications.

FutureSkills

- IndiaAI FutureSkills aims to mitigate barriers to entry into AI programs. It will increase the availability of AI courses at undergraduate, master's, and Ph.D. levels.
- By nurturing a skilled workforce, the mission ensures that India remains competitive in the global AI landscape.

Safe and Trusted AI

- Responsible AI development is crucial. The mission emphasises building tools and practices for safe, ethical, and transparent AI.
- As AI systems become more pervasive, ensuring their trustworthiness is essential.

Global Context

- Other nations have also recognized the importance of AI. The **European Union (EU) recently passed the AI Act**, which categorises AI systems based on risk and sets guidelines for their deployment.
- China, the United States, and various international forums prioritise AI development.
- India's mission positions it as a frontrunner, aligning with the global race for AI leadership.

Challenges Ahead

- While the allocation of Rs. 10,372 crore is significant, execution and effective utilisation are key.
- Balancing innovation with ethical considerations, privacy, and security remains a challenge.
- Collaboration between academia, industry, and startups will be crucial for success.

Source: IE

ANDHRA PRADESH COMMUNITY-MANAGED NATURAL FARMING (APCMNF)

Context

- Recently, the **Andhra Pradesh Community Managed Natural Farming (APCNF),** a State government's initiative **launched through Rythu Sadhikara Samstha (RySS)**, has won the Portugal-based **Gulbenkian Prize for Humanity (2024)**.

About the Andhra Pradesh Community-Managed Natural Farming (APCNF)

- Andhra Pradesh embarked on an alternative approach to agriculture—one that harmonises with nature rather than relying solely on synthetic inputs, earlier in 2004.
  - ◆ Moving away from chemical-intensive farming and embracing practices that improve ecological conditions, reduce costs, and enhance climate resilience.
- Initially, an initiative called **AP Community-Managed Sustainable Agriculture** took root. It engaged **Women's Self-Help Groups (SHGs)** across the state.

- **Principles:** While APCNF follows certain generic principles, practices vary based on local contexts, farming traditions, and community knowledge.
- **Regenerative Agriculture:** APCNF is more than just a farming technique; it's a regenerative approach.

  - It addresses the core challenges faced by farmers, including high-cost chemical farming, soil degradation, biodiversity loss, and water scarcity.

Core Success Factors

- The core success factors that enable scale, replication, and sustenance are as follows:

| Institutionalisation at government level | Institutionalisation at community level | Financial sustainability | Sync between the solution and the enabling environment | Sustained leadership in the driving organisation |
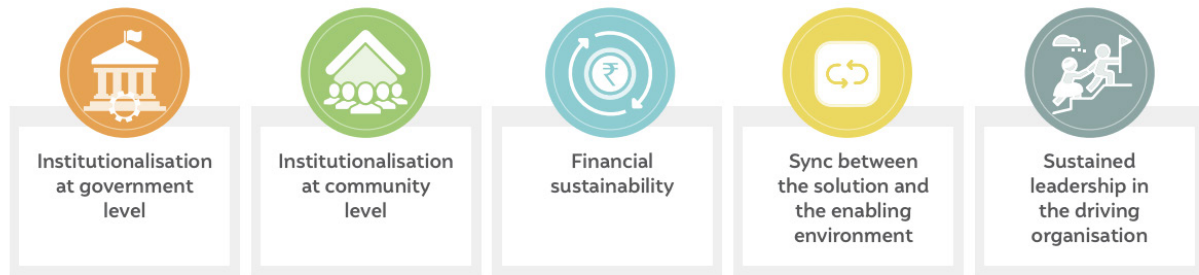
Positive Impact

- **Livelihoods:** APCNF positively impacts farmers' livelihoods by reducing input costs and enhancing yields.
- **Climate Resilience:** It's climate-resilient, which is crucial in an era of changing weather patterns.
- **Food Security:** Citizens benefit from improved food and nutrition security.
- **Environment:** APCNF contributes to environmental restoration and mitigates climate change.

Source: TH

SMALL SATELLITE LAUNCH VEHICLE (SSLV)

Context

- The Indian Space Research Organisation (ISRO) successfully launched the **third developmental flight of the Small Satellite Launch Vehicle (SSLV)** from the Satish Dhawan Space Centre.

About

- The SSLV-D3 placed the Earth observation satellite EOS-08 precisely into orbit.
- It also marks the completion of ISRO/Department of Space's SSLV Development Project.
- NewSpace India Limited (NSIL), ISRO's commercial arm, and India's private space industry can now produce SSLVs for commercial missions.

What is an SSLV?

- It is a **three-stage Launch Vehicle** configured with three Solid Propulsion Stages.
- It also has a liquid propulsion-based Velocity Trimming Module (VTM) as a terminal stage, which can help adjust the velocity as it prepares to place the satellite.
- **Significance:** Essentially, the aim behind SSLVs is to produce low-cost launch vehicles with short turnaround times and minimal infrastructural requirements.

  - The SSLV can launch satellites weighing up to 500kg and accommodate multiple satellites.
  - Before SSLVs, smaller payloads had to be sent into Space using other launch vehicles carrying multiple, bigger satellites. They depended upon the launch schedules of those satellites.

Launch Vehicles

- Launchers or Launch Vehicles are **used to carry spacecraft to space.**
- **India has three active operational launch vehicles:** Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), Geosynchronous Satellite Launch Vehicle Mk-III (LVM3).
- **PSLV:** PSLV has been a versatile launch vehicle deployed for launching all the three types of payloads viz. **Earth Observation, Geo-stationary and Navigation**. It has got highest success rate and considered as work horse of ISRO.

- **GSLV** with indigenous Cryogenic Upper Stage has enabled the launching up to 2 tonne class of communication satellites.

- **The LVM3** is the next generation launch vehicle capable of launching 4 tonne class of communication satellites and 10 tonne class of payloads to LEOs.

  - The vehicle was developed with completely indigenized technologies including the C25 cryo stage.

  - The launch vehicle has a track record of all successful launches even from the first development flight.

  - The Human rated LVM3 is identified as the launch vehicle for Gaganyaan mission, which is named as HRLV.

SLV-3
Height   : 22.7m
Lift-off weight : 17 t
Propulsion   : All Solid
Payload mass : 40 kg
Orbit   : Low Earth Orbit

ASLV
Height   : 23.5m
Lift-off weight : 39 t
Propulsion   : All Solid
Payload mass : 150 kg
Orbit   : Low Earth Orbit

PSLV-XL
Height   : 44m
Lift-off weight : 320 t
Propulsion   : Solid & Liquid
Payload mass : 1860 kg
Orbit   : 475 km Sun Synchronous Polar Orbit (1300 kg in Geosynchronous Transfer Orbit)

GSLV Mk II
Height   : 49m
Lift-off weight : 414 t
Propulsion   : Solid, Liquid & Cryogenic
Payload mass : 2200 kg
Orbit   : Geosynchronous Transfer Orbit

GSLV Mk III
Height   : 43.43 m
Lift-off weight : 640 t
Propulsion   : Solid, Liquid & Cryogenic
Payload mass : 4000 kg
Orbit   : Geosynchronous Transfer Orbit

Source: IE

THREAT TO ARAVALI RANGE

Context

- The **Aravali range is facing a severe threat** from illegal mining, deforestation, and human encroachments, which have led to environmental degradation as well as depletion of groundwater reserves in the region.

About

- The destruction of the hills has also led to loss of vegetation and soil cover, upsetting the area's biodiversity, according to a **scientific study on the land use dynamics of the Aravali range post-1975,** published in the journal, Earth Science Informatics.

Aravali Range

- With a **length of 692 km** and a width variation of 10 km to 120 km, Aravali forms an **ecotone zone** between Thar desert and the Gangetic plain, in a semi-arid environment.

- The range comprises over **500 hillocks,** and the altitude of its highest peak, **Guru Shikhar in Mount Abu**.

- Rajasthan occupies **80%** of the world's oldest hill range, while other States — **Haryana, Delhi, and Gujarat — have 20%** share in the terrain.

- The mountain range is characterised by **rugged hills, rocky outcrops, and sparse vegetation,** and it plays a crucial role in the region's ecology and hydrology.

- The Aravallis serve as a **natural barrier against desertification,** and helps regulate the climate, supports diverse ecosystems, and acts as a watershed for several rivers, including the **Sabarmati, Luni, and Banas.**

Concerns

- **Decrease in Forest Area:** The Aravali range had recorded a change in the forest area significantly. From 1999 to 2019, the forest area decreased up to 0.9% of the total area, which is 75,572.8 sq. km.

- **Increase in Mining Area:** The mining area increased continuously from 1.8% in 1975 to 2.2% in 2019.
  - Jaipur, Sikar, Alwar, Ajmer, Bhilwara, Chittorgarh, and Rajsamand districts have intensive mining activities.

- **High rates of carbon flux Regions** in upper and lower Aravali range had high positive rates of carbon flux as they received high rainfall and had protected areas.
  - Carbon flux refers to the amount exchanged between carbon stocks over a specified time, as it records the movement of carbon between land, oceans, atmosphere, and living beings.

- **The southern part was greener than the middle and upper parts** because of the presence of more protected regions and less populated areas with minimum chances of anthropogenic disturbances.

Way Ahead

- **The Aravali range's significance** for conserving biodiversity, human livelihoods, desertification protection, and ecosystem services is critical.

- **A comprehensive light detection and ranging (LiDAR)-based drone survey f**or the Aravali region is necessary.
  - The LiDAR survey targets an object or a surface with laser and measures the time for the reflected light to return to the receiver.
  - The survey is widely used in remote sensing to examine the surface of the earth and its objects with 3D dimensions.
  - It will facilitate the identification and mitigation of illegal mining activities and enable authorities to take prompt enforcement actions to curb environmental degradation.

- **Establishment of an independent Aravali Development Authority,** comprising experts from diverse fields, would help devise and implement strategies for the sustainable preservation of the hill ecosystem.

- Besides, **a ban on all forms of mining** within the Aravali region would safeguard the remaining hills from further depletion and exploitation and preserve their ecological balance and biodiversity.

Source: TH

NEWS IN SHORT

NORD STREAM GAS PIPELINE

Context

- Almost two years after bombing of the Nord Stream pipelines under the Baltic Sea, it remains unclear who sabotaged the pipes.

About the Nord Stream Pipeline

- Nord Stream is a **twin pipeline system,** a **subsea export gas pipeline** tha**t runs under the Baltic Sea** carrying gas from **Russia to Europe**, built and operated by **Nord Stream AG.**

Nord Stream pipelines from Russia

- **Source:** Bovanenkovo oil and gas condensate deposit in Western Siberia, and runs **from Vyborg, Russia to Lubmin** near Greifswald, Germany.

- It crosses the Exclusive Economic Zones (EEZs) of **Russia, Finland, Sweden, Denmark and Germany**, as well as the territorial waters of Russia, Denmark, and Germany.

- **Nord Stream 1**, completed in 2011 (From Vyborg in Leningrad to Lubmin near Greifswald, Germany).

- **Nord Stream 2**, completed in September 2021 (From Ust-Luga in Leningrad to Lubmin).

Importance For Europe

- **Europe's dependence on Russia:** For Natural gas (around 40% of its gas comes from Russia, domestic gas production).

- **No easy replacements:** No infrastructure to import LNG from exporters like Qatar and the U.S.
- **European Green Deal:** To phase out of Nuclear & Coal-based energy, increased dependence on Russian Gas.
- **Industrialist's Investment:** Pressurise the govt. to go ahead with Nord Stream.
- **Economic impact:** Gas used for factories, offices and power generation.

Importance For Russia

- **Part of Major Budget Chunk:** 40% of its budget comes from sales of gas and oil.
- **Bypass transit countries**: Cuts operating costs by doing away with transit fees & delivering important European customers.
- Increases Europe's dependence on Russia.

Source: IE

KRISHI-DECISION SUPPORT SYSTEM (KRISHI-DSS)

In News

- The Department of Agriculture & Farmers' Welfare launched Krishi-Decision Support System (Krishi-DSS)

Krishi-DSS

- It is a geospatial platform for agriculture.
- It provides access to satellite images, weather data, reservoir storage, groundwater levels, and soil health information.
- It Includes modules for crop mapping, drought monitoring, crop weather watch, field parcel segmentation, soil information, and ground truth data.
- **Functional Capabilities:** Analyzes cropping patterns and encourages sustainable agriculture.
  - Offers real-time information on drought indicators.
  - Tracks weather impacts on crops.
  - Provides comprehensive soil data for crop suitability and conservation.
- **Purpose**: Aims to empower farmers, inform policies, and promote agricultural innovation and sustainability.
  - Supports development of farmer-centric solutions and early disaster warnings.

Source: PIB

CYANIDE SENSOR

In News

- A team led by Dr. Ravi Kumar Kanaparthi at Central University of Kerala has developed a highly sensitive and selective cyanide sensor.

About the sensor

- Cyanide is a **potent toxin found in plants**, **fruits**, and **microorganisms**, with strict WHO guidelines limiting its concentration in potable water to below 0.19 mg/L due to its lethal effects.
- The new sensor aims to **enhance safety** by detecting toxic cyanide at low concentrations in drinking water and food products.
- The new sensor material changes color from yellow to colorless upon detecting cyanide, providing a clear visual indication of its presence.
- The sensor specifically detects cyanide without interference from other ions, ensuring accuracy.
- **Importance :** The sensor's relevance is underscored by a recent cyanide poisoning incident in Idukki district, where 13 cows died from cyanide toxicity after consuming tapioca hulls.
  - The sensor is expected to play a crucial role in preventing cyanide-related deaths and ensuring public safety globally.

Source:TH

CALIFORNIUM ELEMENT

Context

- The police in Bihar's Gopalganj seized 50 grams of the highly radioactive metal Californium.

About

- Californium is a **silvery-white synthetic radioactive metal** with the atomic number 98 on the periodic table.
- It was first synthesized in **1950 at Berkeley, California**, from where it derives its name, by **bombarding curium with alpha particles.**
- Californium is a very **strong neutron emitter** and is used in portable metal detectors for identifying gold and silver ores, to help identify water and oil layers in oil wells, and detect metal fatigue and stress in airplanes.

Source: IE

EXTREMOPHILE

Context

- Recently scientists found bacterial communities, known as Extremophiles, living in microwave ovens that survive repeated rounds of radiation.

About Extremophile

- Microbes that **live in extreme natural conditions** are called extremophiles.

- Microbes **adapt to extreme environments** by incorporating unique biological and biochemical processes.

Survival Mechanism

- Researchers believe that life began on the earth in an extreme environmental niche, in the form of an extremophile, before spreading and adapting to more temperate ecosystems.

- Extremophile microbes have **multiple sets of proteins**, each customized for life in a specific environmental niche.

- They activate each set depending on the conditions around them and what they need to survive.

Source: TH

GREEN TUG TRANSITION PROGRAM (GTTP)

Context

- The Union Minister of Port Shipping and Waterways, launched the Standard operating procedure (SOP) for Green Tug Transition Program (GTTP) in New Delhi.

Green Tug Transition Program (GTTP)

- The GTTP is designed to **phase out conventional fuel-based harbor tugs** operating in Indian Major Ports and replace them with green tugs powered by cleaner and more sustainable alternative fuels.

- **Under Phase 1** of the GTTP four Major Ports—Jawaharlal Nehru Port Authority, Deendayal Port Authority, Paradip Port Authority, and V.O. Chidambaranar Port Authority—will procure or charter at least two green tugs each.

- The goal of the GTTP is to **convert at least 50% of all tugs into Green Tugs by 2030** and to have Green Tugs operating at all major ports.

Source: PIB

MALABAR TREE TOAD (MTT)

Context

- According to a study, Climate change may decrease the distribution range of the Malabar Tree Toad by up to **68.7 percent** of the current estimated distribution in India's protected areas (PAs).

About

- MTT is a species of toad **endemic to Western Ghats** of India.

- It is the **only species in the monotypic genus Pedostibes**, also known as **Asian tree toads.**

- It was **first discovered in 1876** and the species was not sighted for more than 100 years.
  - It was later rediscovered in **1980** at **Silent Valley National Park in Kerala.**

- **Characteristics:** It is a slender frog with a moderate-sized head. The **snout is pointed** and the lores are vertical. Females are larger than males.

- **IUCN Status: Endangered**

Silent Valley National Park

- It is located in the **Nilgiri hills, Kerala.**

- **The Bhavani River,** a tributary of the Kaveri River, and **Kunthipuzha River**, a tributary of Bharathapuzha river, originate in the vicinity of Silent Valley.

- The park is home to the birds like, Crimson-backed sunbird, Yellow-browed bulbul, Black bulbul, Indian white-eye, and Indian swiftlet.

Source: DTE

PROKARYOTES

Context

- Scientists found **prokaryotes** are remarkably resilient to climate change – and as a result, could increasingly dominate marine environments.

About

- **Prokaryotes:** The world's oceans are home to microscopic organisms invisible to the human eye. The tiny creatures, known as "**prokaryotes**", comprise 30% of life in the world's oceans.
    - Prokaryotes include **both bacteria and "archaea"**, another type of single-celled organism.
    - These organisms are thought to be the **oldest cell-based lifeforms on Earth.** They thrive across the entire planet – on land and in water, from the tropics to the poles.
- **Concerns:** This could reduce the **availability of fish** humans rely on for food, and hamper the ocean's ability to absorb carbon emissions.
    - Marine prokaryotes grow extremely fast – a process that emits a lot of carbon.
    - In fact, prokaryotes to an ocean depth of 200 metres produce about 20 billion tonnes of carbon a year: double that of humans.

Prokaryotic and Eukaryotic Cells

- The cell is the basic unit of life and forms the building blocks of all living organisms. It was discovered by **Robert Hooke In 1665.**
    - Some cells have **membrane-bound organelles** and some do not. Depending upon the internal structure of the cell, two types of cells are found in an organism namely **Eukaryotic and Prokaryotic.**

- Prokaryotic cells are **simpler and smaller in size,** while eukaryotic cells **are more complex and larger.**

Source: TH

IMPACT OF ARTIFICIAL LIGHTS ON PLANTS

Context

- Artificial lights that run all night, such as streetlights, can **make leaves grow so tough** that insects cannot eat them, which could threaten urban food chains, according to a new study.

About

- The researchers wanted to examine **how artificial lights impact the relationship between plants and insects.**
- The researchers found **no sign of insects munching on leaves** in areas which were lit the brightest at night due to toughening of leaves.
- They also noted that **artificial lights altered the levels of nutrients and chemical defence compounds** in the leaves that were analysed.
- **Concerns:** Lower levels of herbivory imply lower abundances of herbivorous insects, which could in turn result in lower abundances of predatory insects, insect-eating birds, and so on.
    - The decline of insects is a global pattern observed over recent decades.

Source: IE

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