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THE PLANET VISION



COP16
COLOMBIA
Paz con la naturaleza

**Racing Against Time:
Global Leaders Unite
at COP16 to Save
Earth's Biodiversity**

In a world where every second counts,
the haunting silence.....

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AHMEDABAD



BENGALURU



BHOPAL



CHANDIGARH



DELHI



GUWAHATI



HYDERABAD



JAIPUR



JODHPUR



LUCKNOW



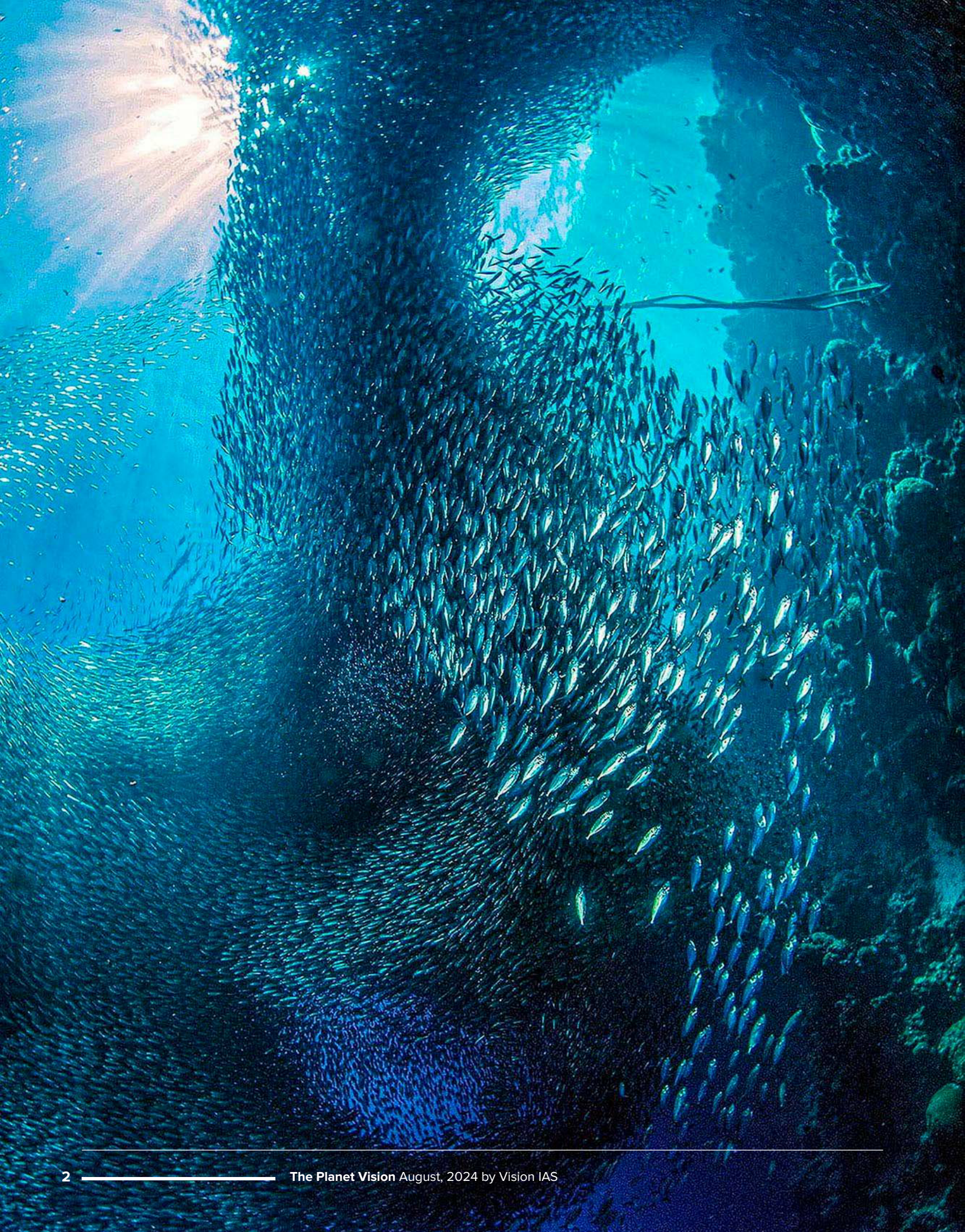
PRAYAGRAJ



PUNE



RANCHI



From the Editor's Desk

Dear readers,

“Making peace with nature is the defining task of the 21st century.”

These powerful words from UN Secretary-General António Guterres resonate deeply as the world gathers for COP16 under the Convention on Biological Diversity in Colombia. This year's logo takes inspiration from the Inírida flower, a species endemic to Colombia. It is a flower that never dies, its petals never falling apart—a hopeful vision for a sustainable future. The logo symbolises humanity's responsibility to nurture what is fragile yet indispensable: ‘our planet's biodiversity’, building on this year's theme ‘Peace with Nature’.

This issue is dedicated to exploring the outcome of the latest conference and the goals and challenges of the Kunming-Montreal Global Biodiversity Framework. We also delve into critical themes such as sustainable trade, the protection of traditional knowledge, and the interconnected challenges of the triple crisis of climate change, biodiversity loss, and pollution.

The journey toward harmony with nature is a challenging one, but it's a path we must walk if we are to ensure the prosperity and well-being of humanity – both today and for future generations. We hope this issue inspires you to lend your voice and take meaningful action in the global movement to protect biodiversity and secure a sustainable future for generations to come.

Happy Learning.

Team VisionIAS

We welcome and encourage your feedback, suggestions, and queries. Your input is invaluable to us as we strive to enhance our content and better serve our readers. Please feel free to reach out to us via email at: theplanet@visionias.in.

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Racing Against Time: Global Leaders Unite at COP16 to Save Earth's Biodiversity



Biodiversity conservation as the centre stage at COP16 conference
Source: COP16

In a world where every second counts, the haunting silence of extinct species echoes through our ecosystems. As world leaders gathered in Cali for the 16th Conference of Parties (COP16) to the Convention on Biological Diversity (CBD), they faced a stark reality: we are losing species at a rate 1,000 times faster than natural extinction. COP16 President Susana Muhamad's powerful declaration that "the planet doesn't have time to lose" wasn't just another diplomatic statement – it was a desperate plea for immediate action in a race against ecological collapse.

The stakes couldn't be higher. While media headlines often focus on

climate change, the silent crisis of biodiversity loss is unravelling the very fabric of life. From the disappearing rainforests of the Amazon to the bleaching coral reefs of the Great Barrier Reef, ecosystems are crying out for intervention. In this regard, the journey to COP16 represents three decades of growing awareness about biodiversity's pivotal role in maintaining planetary health.

A key moment in these persistent efforts has been the creation of the Kunming-Montreal Global Biodiversity Framework (KMGBF) in 2022. It embodies the collective global resolve to reverse biodiversity loss, reflecting humanity's gradual

recognition of its responsibility as stewards of Earth's biological wealth. The COP16 is the first conference since the adoption of this pivotal framework and has served as a critical platform to assess its progress and address the ongoing challenges.

COP16 President Susana Muhamad's powerful declaration that "the planet doesn't have time to lose" wasn't just another diplomatic statement – it was a desperate plea for immediate action in a race against ecological collapse.

How did we **Reach Here?**

Road to Kunming–Montreal Global Biodiversity Framework (**KMGBF**)



1992

Rio Earth Summit

United Nations Conference on Environment and Development

Convention on Biological Diversity (CBD) opened for signature with 3 main objectives:

- Conservation of biological diversity
- Sustainable use of the components of biological diversity
- Fair and equitable sharing of the benefits arising out of the utilization of genetic resources



1994

COP 1 Bahamas

Established the institutional framework of the CBD.

2000



Cartagena Protocol on Biosafety

COP 5 Kenya

Adopted the **Cartagena Protocol on Biosafety to the Convention on Biological Diversity**

It highlights the need to protect human health and the environment from the possible adverse effects of the products of modern biotechnology.

2004



COP 7 Malaysia

Created the first 10-year Strategic plan to protect Earth's biodiversity

2010



COP 10 Nagoya, Japan

3 major developments:

- Strategic Plan for Biodiversity 2011–2020 and Aichi Biodiversity Targets adopted as an overarching framework on biodiversity.
- Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization adopted.
- Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety adopted.

2021



2022

COP 15 China & Canada

Created the first 10-year Strategic plan to protect Earth's biodiversity

Building on Montreal's Legacy: Key Achievements at COP16

During COP15, KMGBF emerged as the groundbreaking agreement laying the groundwork for future conferences. It not only set four long-term goals for mid-century related to the 2050 Vision for Biodiversity but also set forth 23 action-oriented global targets requiring immediate implementation and completion by 2030. The current negotiations build on the achievements of the previous conferences, setting out to achieve the intended goals of the Convention on Biological Diversity (CBD). Let us take a look at some key developments and important decisions.

Global Cali Fund

The landmark agreement at Biodiversity COP16 has finally set the stage for the Digital Sequence Information (DSI) mechanism to

“**The landmark agreement at Biodiversity COP16 has finally set the stage for the Digital Sequence Information (DSI) mechanism to take off through a new financial mechanism, the “Cali Fund”.**”

take off through a new financial mechanism, the “Cali Fund”. Companies that use genetic data, including those in the pharmaceutical and agriculture sectors, will pay into the fund and money will be channelled toward conserving and sustainably using biodiversity.

This step is crucial because the way genetic information is used has transformed dramatically. In the past, researchers had to physically visit natural habitats to collect living samples for study. Now, genetic data is readily available online through massive public databases containing billions of DNA and RNA sequences. With the power of artificial intelligence,



these sequences can be analyzed in countless combinations, opening up endless possibilities for identifying useful traits that can be developed into commercial products.

With the “Cali Fund” now ready to receive contributions, companies are expected to chip in 1% of their profits or 0.1% of their revenue to support Indigenous Peoples and local communities. While key decisions on how the funds will be distributed remain on the agenda for the next COP, this breakthrough allows governments to press forward with implementing the national measures needed to bring the mechanism to life.

Indigenous Representation and Rights

Next, building upon this strong foundation, one of COP16’s most significant breakthroughs was the establishment of a permanent subsidiary body incorporating Indigenous groups into biodiversity conservation discussions. This historic decision recognized the crucial role of Indigenous peoples and local communities (IPLCs) in managing approximately 32% of Earth’s land surface and safeguarding 80% of global biodiversity.

The move represented a fundamental shift in conservation approach, elevating traditional knowledge and

“**COP16’s most significant breakthroughs was the establishment of a permanent subsidiary body incorporating Indigenous groups into biodiversity conservation discussions**”

practices as essential components of effective biodiversity protection. Moreover, at least half of the Cali Fund has been earmarked for the self-identified needs of Indigenous communities including women and youth.



Establishment of a permanent subsidiary body would ensure that Indigenous voices are heard at every stage of the process

Source: UN Biodiversity

World Coalition for Peace with Nature: A call for Life

Finally, the World Coalition for Peace with Nature was launched with the participation of countries across four continents including Mexico, Sweden,

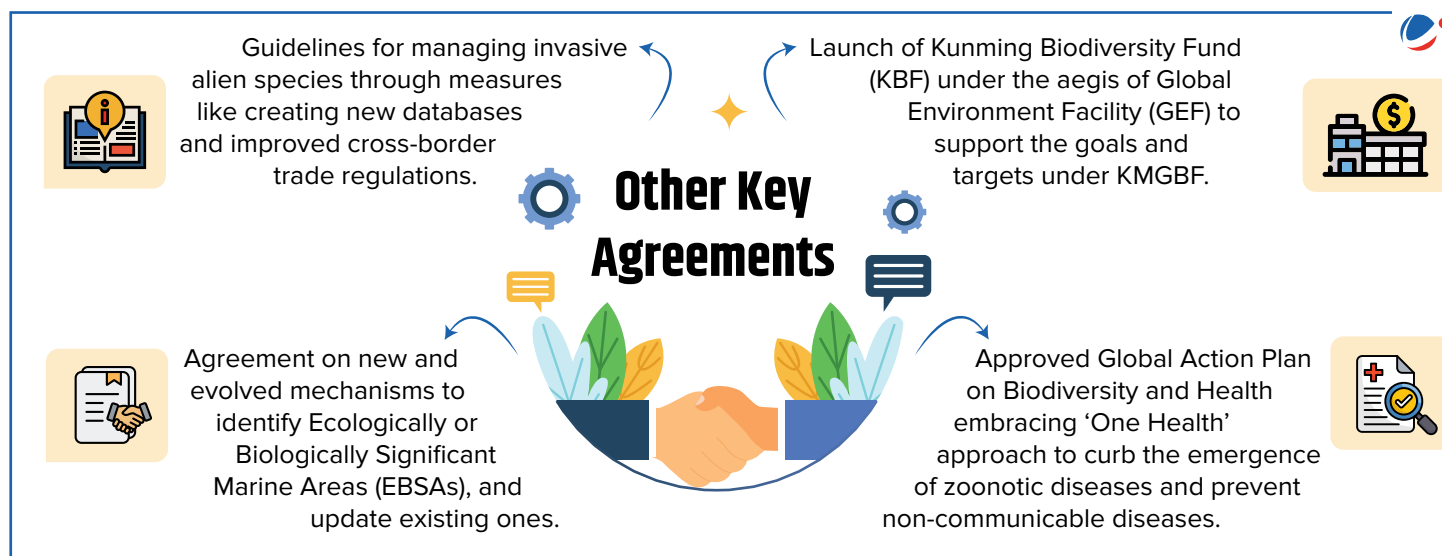
Uganda and Chile. It aims to change the nature of the relationship between humans and nature to address environmental challenges holistically. It will mobilize ‘whole of government, whole of society’ approach to spark collective actions by empowering local action for achieving peace with nature.

Talking about national efforts, among developing nations, India emerged as a proactive player at COP16, marking significant developments in global biodiversity conservation with the launch of its updated National Biodiversity Strategy and Action Plan (NBSAP).

India’s presence at the COP16

Under the guidance of Minister of State for Environment Kirti Vardhan Singh, the Indian delegation presented an ambitious updated biodiversity plan showcasing the country’s serious commitment to conservation. The plan included a dramatic increase in financial commitment, with projected spending rising from ₹32,207 crore in 2018-2022 to ₹81,664 crore for 2025-2030.

Building on their financial commitments, India’s presentation at COP16 highlighted several significant conservation achievements. The establishment of the International Big Cat Alliance, aimed at protecting seven major big cat species globally,





India at COP16 Source: PIB

demonstrated India's understanding of apex predators' importance as ecosystem health indicators. Furthermore, India's expansion of Ramsar sites from 26 to 85 since 2014, with projections to reach 100 sites soon, showcased their dedication to protecting critical wetland ecosystems. India's initiatives have already shown promising results, with tiger populations increasing by 33% since 2014 and forest cover expanding by over 2,000 square kilometres in the last two years. These achievements serve as a model for other nations struggling to balance development with conservation.

However, India stressed the need for international support in providing easily accessible financial resources, technology, and capacity building with the required Speed, Scope, and Scale. India's demands highlight the underlying gaps that still hinder the achievement of KMGBF's ambitious goals.

Financial Implementation and Challenges

Developed countries are falling short of their promise to provide \$20 billion annually for international biodiversity financing by 2025. Adding to the concern, pledges to the GBF Fund in Cali have been disappointing, with the fund currently holding just \$407

million—far from what's needed. Even the Cali Fund (DSI Fund), though operationalized, lacks clarity on how the contributions will be allocated equitably.

Moreover, key decisions have been stalled despite ongoing efforts. The decision to update and complete the Monitoring framework which tracks the progress in implementing the KMGBF targets has been pushed to COP17. Also, in a major disappointment, only 44 countries out of 196 member states submitted their updated NBSAPs aligned with KMGBF. The framework is key to holding countries accountable.

As we emerge from COP16, the way ahead demands more than just commitments; it requires concrete action. The conference has set the stage for global biodiversity conservation, but the true test will be in the steps we take over the coming years.

“Current calculations indicate a need for approximately \$20 billion annually to achieve the targets, yet less than 10% of this amount has been committed.”

Path Forward

Most importantly, countries must present bold and detailed national plans aligned with climate goals, adaptation strategies, and the Sustainable Development Goals (SDGs). Utilizing diplomatic engagements, countries should work towards adopting strong monitoring and transparency frameworks,

essential to ensure accountability, course correction, and sustained ambition.

In the field of financing, one critical solution is coming up with innovative financing models. Among these is the launch of the Global Biodiversity Impact Fund, which aims to secure \$5 billion in investments dedicated to conservation projects. Biodiversity credits, modelled after carbon credits, have been introduced to allow companies to offset their environmental impact. Green bonds specifically tied to biodiversity conservation projects are also being developed to channel funding toward these crucial efforts.

Integrating Indigenous knowledge and community-based approaches also provides hope for a future where humanity coexists harmoniously with nature. Indigenous-led conservation areas are also on the rise, inspired by Australia's successful Indigenous Protected Areas program. For example, Costa Rica's Payments for Ecosystem Services program, which compensates landowners for conserving natural resources, is being expanded. Nepal's community forestry model, which has restored forest cover and supported local livelihoods, is being replicated in other regions.

Protecting Earth's biodiversity is not merely an environmental obligation but a fundamental requirement for our survival. In the words of a Maasai elder at the conference, “We do not inherit the Earth from our ancestors; we borrow it from our children.” This profound reminder should guide our actions as we work to bring COP16's ambitious vision to life, paving the way for a biodiverse, sustainable future.

**As aptly iterated by the UN Secretary-General António Guterres' –
The survival of our planet – and our own – is on the line. Let us choose wisely.
Let us choose life. Let us make peace with nature.**

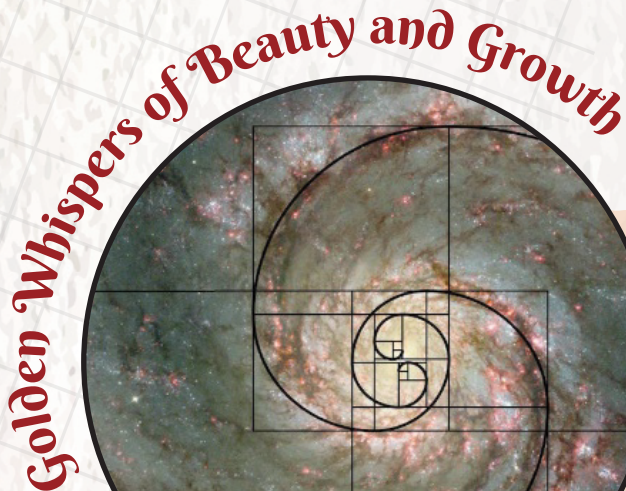
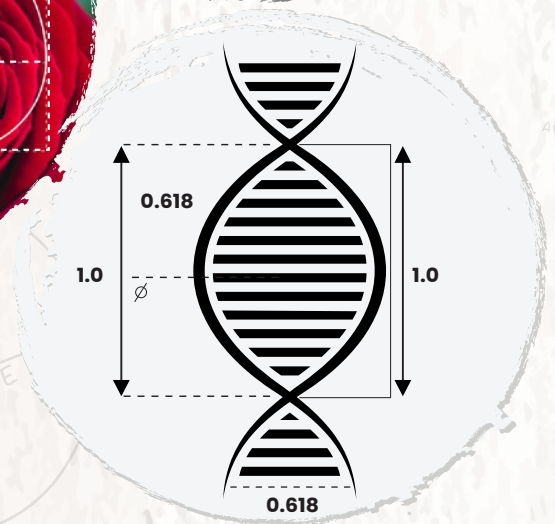
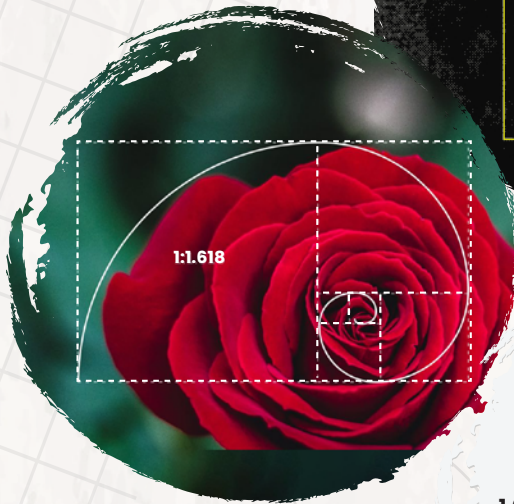
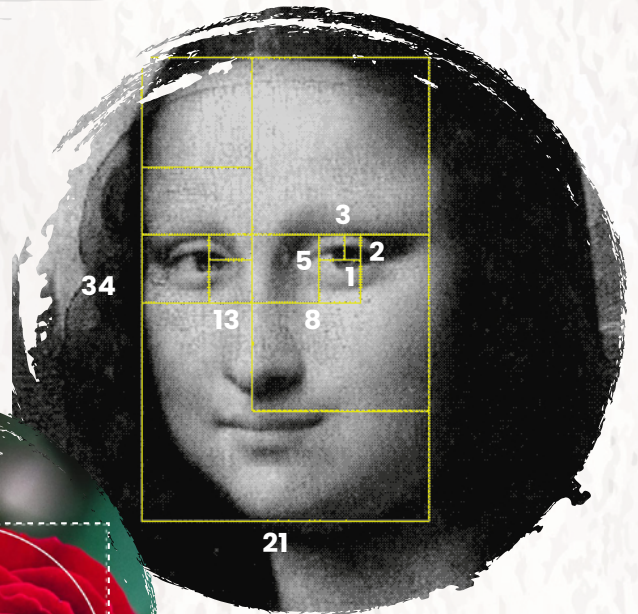
Snapshot

Hidden Mathematics of Beauty: Nature's Secret Code

Wonder why a rose's spiral feels perfect?
Or did the Mona Lisa captivate millions?
Maths is nature's language, and Earth is its
grandest exhibition, where every pattern
tells a story.

Do you know?

Leonardo da Vinci used
this ratio to create facial
proportions that
unconsciously please
the human eye, making
Monalise's beauty
mathematically precise.



There's a number that shows up
everywhere in nature. Scientists
call it the Golden ratio (ϕ),
approximately 1.618, which is a
fundamental principle of aesthetic
perfection.

What do the numbers 0, 1, 1, 2, 3, 5, 8, 13, 21, and beyond have in common? Each is the sum of the two numbers before it, forming the Fibonacci sequence. By following this pattern, nature optimizes growth and space—ensuring beauty and efficiency go hand in hand.



Fractals: Nature's Repeating Patterns

Fractals are self-repeating patterns that occur at different scales in nature.



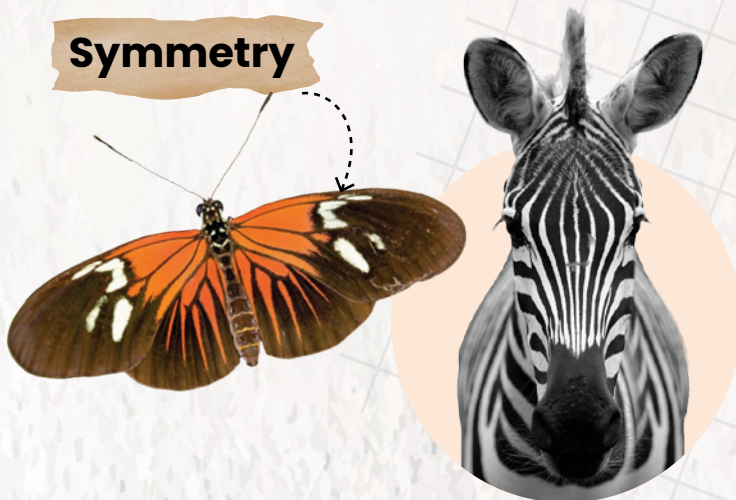
Look closely at a winter tree; each branch mirrors the entire tree's structure.



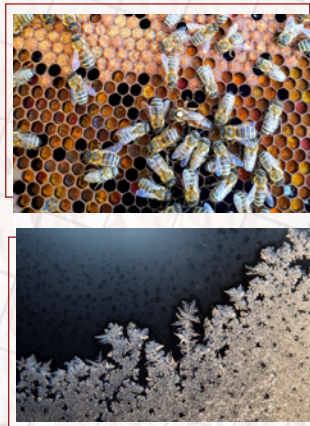
Cloud formations: Repeating patterns in different sizes

Spot the Math in Nature

Symmetry



Perfect Shapes



As physicist Richard Feynman once said, "knowledge of science only enriches the excitement, mystery, and admiration" for nature.

So, next time you're outside, play "spot the math"! It's like a treasure hunt – once you start looking, you'll see math patterns everywhere.

Preserving Our Planet's Wonders: Decoding the 30x30 Conservation Goal



30x30 conservation goal highlighting the natural landscapes and conservation efforts [Representative Image]

The global biodiversity crisis has reached a critical tipping point, with approximately one million animal and plant species facing extinction—the highest rate in human history. In response, the international community has united behind an ambitious initiative known as the 30x30 conservation target. But why 30 per cent, and why by 2030? Understanding the science and strategy behind these numbers reveals a carefully crafted approach to preserving Earth's biodiversity.

Science Behind the Numbers

The journey to 30x30 began with a recognition that previous conservation targets, such as the Aichi Goals, aiming for 17% land and 10% marine protection, were insufficient to halt biodiversity loss. Scientific research, particularly the groundbreaking Global Safety Net (GSN) analysis, demonstrated that approximately 30% of Earth's land contains areas of particular importance for biodiversity protection. This percentage emerged from comprehensive studies of species distribution, habitat requirements, and ecosystem connectivity.



The journey to 30x30 began with the recognition that previous conservation targets, such as the Aichi Goals, which aim for 17% land and 10% marine protection, were insufficient to halt biodiversity loss.



The target represents a delicate balance between scientific necessity and practical achievability. UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) research shows that this 30% threshold could safeguard around half of the world's vulnerable terrestrial carbon stocks while protecting nearly 90% of threatened species. The 2030 deadline aligns with other global environmental frameworks, creating a synchronized approach to addressing the



interconnected challenges of biodiversity loss and climate change. This compelling combination of scientific necessity, economic benefit, and social justice has garnered remarkable international support.

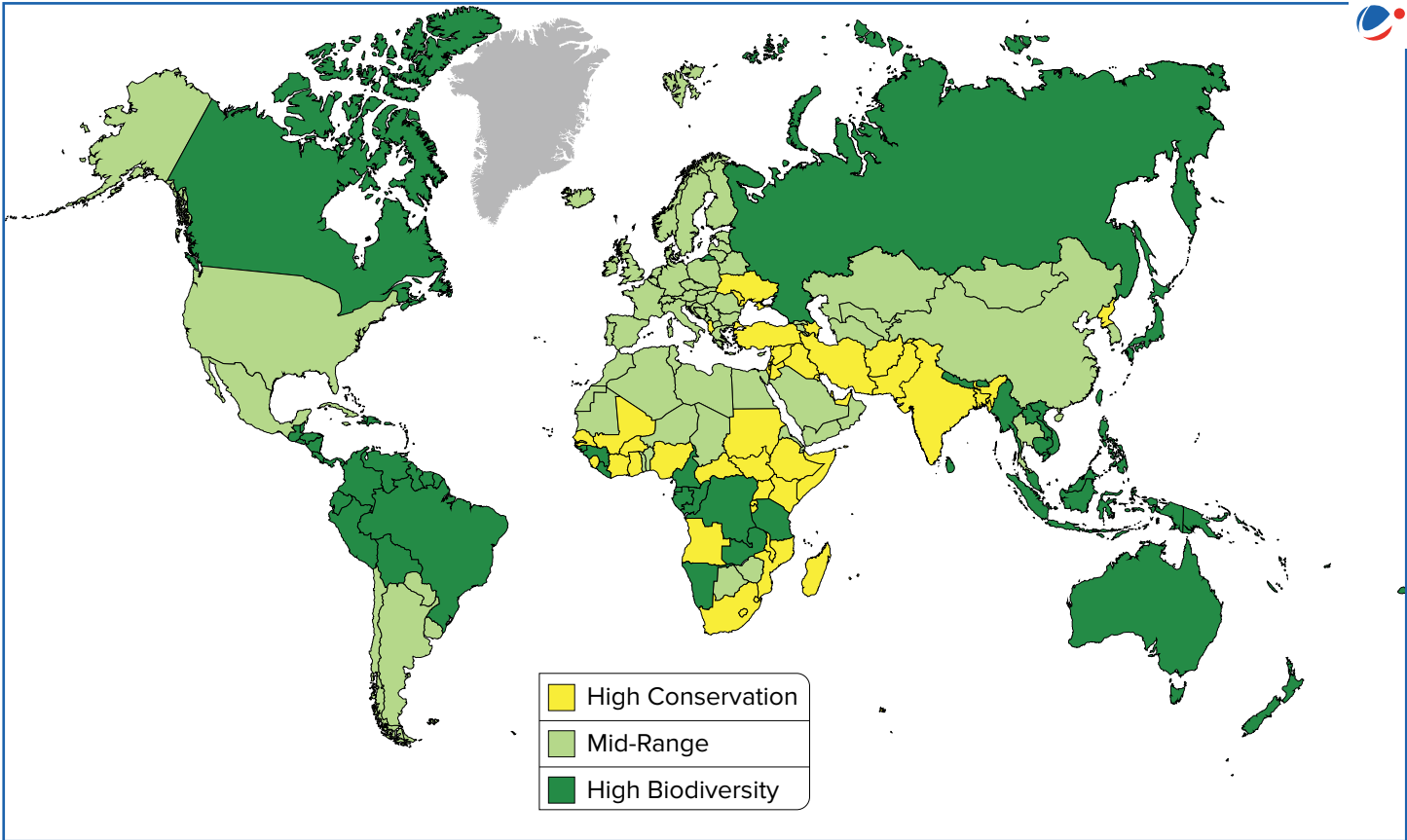


High Ambition Coalition
Source: Rewilding The Global Alliance

Beyond the Numbers: A Differentiated Approach

What makes the 30x30 initiative particularly sophisticated is its recognition that one size doesn't fit all. The Global Safety Net analysis reveals a three-tiered approach to implementation: roughly one-third of countries fall into the “Mid-Range” category where 30% is an appropriate target, another third are “High Conversion” countries with insufficient land for such targets, and the final third is “High Biodiversity” nations that should aim for even higher protection levels.

This nuanced understanding transforms 30x30 from a simple numerical goal into a flexible framework that accounts for national circumstances. For instance, countries like Colombia and Costa Rica, with 69% of their land identified as critical for biodiversity, require more ambitious targets. Meanwhile, nations with highly developed agricultural landscapes might focus on quality improvements in existing protected areas and restoration efforts.



GSN analysis categorises countries into Mid-Range, High Conversion, and High Biodiversity classifications
(Source: OneEarth)

More than 115 countries have joined the High Ambition Coalition for Nature and People, while 73 nations support the Global Ocean Alliance. This broad coalition demonstrates how 30x30 has evolved from a conservation target into a unifying global movement.

Indigenous Rights and Modern Conservation: A Crucial Partnership

The success of 30x30 hinges on a revolutionary approach to conservation that integrates Indigenous knowledge and rights. With 37% of lands identified for

conservation overlapping with Indigenous territories, the initiative represents a departure from traditional “fortress conservation” models. Instead, it embraces Other Effective Conservation Measures (OECMs), which recognize that sustainable human use and biodiversity protection can coexist.



The 30x30 target represents more than just numbers—it embodies a transformative vision for conservation that balances scientific imperatives with social justice and economic opportunity.



This shift in thinking has attracted unprecedented financial support, exemplified by the “Protecting Our Planet Challenge’s” \$5 billion pledge. The investment acknowledges that effective conservation must support both ecological and social objectives, ensuring that Indigenous communities benefit from and guide conservation efforts.

Looking Ahead

As we progress toward 2030, the initiative’s success will depend on innovative implementation strategies. Countries are developing diverse approaches, from

traditional protected areas to Indigenous Protected and Conserved Areas (IPCAs) and community-managed zones. The 30x30 target represents more than just numbers—it embodies a transformative vision for conservation that balances scientific imperatives with social justice and economic opportunity. As we face unprecedented environmental challenges, this carefully crafted framework offers a pathway to preserve Earth’s biodiversity for future generations while ensuring equitable benefits for present communities. The initiative’s success will ultimately depend on maintaining this delicate balance between ambition and practicality, between global goals and local needs, as we work collectively to protect our planet’s irreplaceable natural heritage.



With 37% of lands identified for conservation overlapping with Indigenous territories, the initiative represents a departure from traditional “fortress conservation” models.



The 30x30 conservation goal is more than a numeric target; it represents a transformative vision to safeguard Earth’s biodiversity while addressing interconnected global challenges.



Nature's Bottom Line: Trade Day Reshapes Business-Biodiversity Relations



Trade Day was celebrated at COP16, symbolizing the partnership between business and nature
Source: UNCTAD

Biodiversity Relations

Remember the Bollywood blockbuster ‘3 Idiots’, where success was redefined beyond conventional metrics? Today, global trade is facing a similar paradigm shift. Just as Rancho challenged the traditional education system, the world is now questioning how we conduct business with nature. But unlike the movie’s classroom drama, the stakes here involve a staggering \$58 trillion of global GDP that depends directly on our planet’s biodiversity. As the first-ever Trade Day at CBD COP16 convened in Cali, Colombia, this critical relationship between commerce and conservation takes centre stage, offering a pivotal



The business world faces a reality check: 40% of the world’s land is degraded, and one million species teeters on the brink of extinction, largely due to traditional trade practices. Yet, the stakes go beyond environmental concerns.



opportunity to rewrite the script. This groundbreaking event has reshaped global commerce’s view of its connection to biodiversity, yielding transformative outcomes.

Hidden Price Tag

The story unfolds with sobering statistics. The business world faces a reality check: 40% of the world’s land is degraded, and one million species are on the brink of extinction, largely due to traditional trade practices. Yet, the stakes go beyond environmental concerns. Over 4.3 billion people—more than half of humanity—depends directly on biodiversity for their livelihoods. Notably, 70% of these individuals are among the world’s most vulnerable, residing in rural areas where nature’s wealth is their primary capital.

Transformative Initiatives and Tools

The launch of TraBio, a pioneering tool, is a game-changer, offering businesses unprecedented insight into their environmental impacts by tracking over 1,800 biodiversity-based products across 185 economies. This innovative statistical tool is a significant step forward in



Pedro Manuel Moreno, Deputy Secretary-General of UN Trade and Development
Source: UNCTAD

managing trade's ecological footprint. "Trade can and should be harnessed to protect nature," asserts Pedro Manuel Moreno, Deputy Secretary-General of UN Trade and Development, underscoring the tool's potential to reshape business practices.

Long-standing friction between trade and biodiversity is giving way to a more balanced approach, bolstered by new data and frameworks. The Kunming-Montreal Global Biodiversity Framework's 23 targets are being strategically aligned with trade policies, introducing preferential tariffs for biodiversity-friendly products and sustainable management practices. The UN's BioTrade initiative showcases how sustainable, legal, and traceable trade can protect ecosystems while supporting local communities.

Indigenous Wisdom Meets Modern Commerce

A key breakthrough is the integration of indigenous knowledge into contemporary trade frameworks. Daniel Kobei of the Ogiek community brings centuries of sustainable trading wisdom to the global dialogue, noting, "Indigenous peoples have long known how to trade natural resources without depleting them." This traditional knowledge is now being woven into modern business models, fostering sustainable commerce that benefits both nature and communities.

The newly established informal working group on Trade and Biodiversity Statistics is transforming how we measure trade's impact on biodiversity. Their efforts go beyond conventional metrics, covering the entire supply chain's ecological footprint from harvesting to consumption, equipping businesses with vital insights for sustainable decision-making.

Partnerships and Future Directions

The Trade Day concluded by establishing new partnerships among governments, businesses, and civil society organizations, laying the foundation for future trade policies that properly value nature's contribution to the global economy. The event underscored that protecting biodiversity isn't merely an environmental issue but a fundamental business imperative.



Daniel Kobei of the Ogiek community brings centuries of sustainable trading wisdom to the global dialogue, noting, "Indigenous peoples have long known how to trade natural resources without depleting them."



As global commerce navigates this paradigm shift, the outcomes of Trade Day at COP16 represent a crucial turning point in recognizing the inseparable link between business success and biodiversity conservation. Moving forward, the path demands a fundamental reimagining of trade operations, with nature's capital finally recognized as a core element of global prosperity. This new approach to the relationship between business and biodiversity marks, not just an environmental milestone but a transformation in our vision of sustainable economic growth.



Trade Day at COP16 brings together global leaders, and businesses to integrate biodiversity into trade practices
[Representative Image]

As Trade Day at COP16 reshapes business-biodiversity relations, highlighting sustainability as essential, the question remains: will global businesses embrace this shift to protect both profits and the planet?

Synergising Solutions: Triple Planetary Crisis and Humanity's Crossroads



Earth struggles with the triple challenge from climate change, biodiversity loss and pollution [Representative Image]

Beyond the newspaper headlines and scientific reports lies a complex narrative of planetary transformation—a story where climate change, biodiversity loss, and pollution intersect in ways that challenge linear thinking and traditional problem-solving approaches. This triple planetary crisis is not a distant, abstract concept but a lived reality reshaping ecosystems, economies, and human experiences across the globe. It demands a holistic understanding that transcends disciplinary boundaries and traditional modes of global governance.

Gathering Storm: Triple Planetary Crisis

The evidence of the triple planetary crisis is stark and undeniable. Global temperatures have risen by 1.1°C above pre-industrial levels, triggering dramatic shifts in climate patterns resulting in climate change, the first axis of this crisis. The Intergovernmental Panel on Climate Change (IPCC) reports that extreme

weather events surged by 68% between 2011 and 2022, resulting in \$4.3 trillion in economic losses.

This climatic upheaval is inextricably linked to biodiversity loss, the second axis of this triple crisis. Over 1 million species face extinction, according to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Pollution, the third axis of this crisis,

compounds the challenge. It fundamentally disrupts the planet's capacity to regulate climate and support life. The interconnection between pollution, biodiversity loss, and climate change becomes starkly evident in these complex interactions.

Integrating Solutions: Synergies Across Frameworks

The interconnected nature of the triple planetary crisis demands integrated solutions. The Rio Conventions also known as 'Sister conventions'—United



Nations Framework Convention on Climate Change (UNFCCC), Convention on Biological Diversity (CBD), and United Nations Convention to Combat Desertification (UNCCD)—offer complementary approaches that can amplify environmental impact when synergized. While each convention has a distinct focus, their objectives converge around creating a sustainable and resilient planet. Climate change under the UNFCCC affects biodiversity and land productivity, addressed by the CBD and UNCCD, respectively. In turn, preserving biodiversity and combating land degradation enhance ecosystem resilience, mitigating climate impacts and supporting adaptation efforts.

Key frameworks illustrate this synergy. The Kunming-Montreal Global Biodiversity Framework (2022) aligns with the Paris Agreement (2015) and the Land Degradation Neutrality (LDN) targets by emphasizing ecosystem restoration, sustainable land management, and climate resilience. These frameworks share a common vision: integrating environmental sustainability into global and national policies. Similarly, the UNEP/EA resolution advocates for integrated governance, encouraging

nations to align biodiversity, climate, and land objectives under a unified approach to meet the 2030 Agenda for Sustainable Development. However, the scale of the challenge requires unprecedented financial mobilization.



‘Sister conventions’—United Nations Framework Convention on Climate Change (UNFCCC), Convention on Biological Diversity (CBD), and United Nations Convention to Combat Desertification (UNCCD)—offer complementary approaches that can amplify environmental impact when synergized.



Empowering Action: Finance, Indigenous Knowledge, and Governance

Mechanisms like the Green Climate Fund (GCF), which has committed over \$10 billion to climate adaptation, and the Global Environment Facility (GEF), which funds integrated environmental projects, are essential. At COP16, India called for enhanced financial support, emphasizing the need for international collaboration to meet the goals of the Kunming-Montreal framework. Innovative financing models, such as debt-for-nature swaps (e.g., Seychelles’ marine restoration), balance economic recovery with environmental conservation.

Indigenous knowledge offers sustainable practices grounded in harmony with nature. Traditional reforestation techniques in the Amazon and ‘taboo’ marine conservation zones in the Pacific Islands have restored ecosystems and preserved biodiversity. Strengthening environmental governance is critical. Legislation must prioritize ecological resilience, supported by inclusive decision-making processes, robust monitoring, and tools like satellite tracking for deforestation and pollution.



*Indigenous knowledge and environmental stewardship
[Representative Image]*

Context: Inter-linkages and Synergy Opportunities between the Rio Conventions



Rio Conventions:

- UNFCCC (Climate Change)
- CBD (Biodiversity)
- UNCCD (Desertification)



Commonalities and Synergies:

- Identified common commitments across the conventions
- Intertwined concerns and goals in sectors such as land use
- Integration into Sustainable
- Development Goals:
 - SDG 13 (Climate Action)
 - SDG 15 (Life on Land)
 - Multiple co-benefits for other SDGs



Importance for Sustainable Development:

- Crucial role in Agenda 2030
- Prioritizing synergies for efficient
- resource use and



Opportunities in the synergy

The triple planetary crisis is a defining challenge of our time, but it also offers an opportunity to reshape humanity's relationship with nature. COP16 discussions emphasized the importance of aligning international frameworks and increasing financial mobilization to meet biodiversity and climate goals. The next decade will determine whether we can halt ecological decline and forge a sustainable future. By aligning frameworks, empowering local communities, and mobilizing resources, we can transform this crisis into a turning point. The future we envision—a future of

harmony between humanity and the planet—is within reach. Now is the time to act, ensuring our planet's story ends not in catastrophe, but in triumph. ■■



At COP16, India called for enhanced financial support, emphasizing the need for international collaboration to meet the goals of the Kunming-Montreal framework.



The future of our planet depends on the choices we make today. By confronting the triple planetary crisis, we have the chance to build a resilient, sustainable world.



Snapshot

10 BIZARRE DEEP-SEA CREATURES

A recent study of deep-sea hydrothermal vents has identified animal life in the ocean crust for the first time. This discovery opens a new window to explore the intricate ecosystems that thrive in the deep sea.

One of the least explored realms, the deep-sea is home to many wonderful creatures. Let's take a look at some of the mysterious creatures. Some of them look straight out of fiction or a strange alien world!



1. Pink see-through fantasia (*Enypniastes eximia*)

Also called the 'Headless Chicken Monster', its transparent body allows you to see the digestive system in action.



2. The Barreleye Fish (*Opisthoproctus soleatus*)

Also known as spook fish, they are known for their transparent heads that reveal their eyes, brains, and other organs. Those dark circles that you see above their mouth are actually nostrils, not eyes! They see through those bright green, upward-facing orbs.



3. The Anglerfish (*Lophius Piscatorius*)

They have developed a fishing pole-like rod that projects from their head to hunt their prey. They do so by using light produced by the bioluminescent bacteria on the rod-shaped appendage growing from its snout.



4. The Blobfish (*Psychrolutes marcidus*)

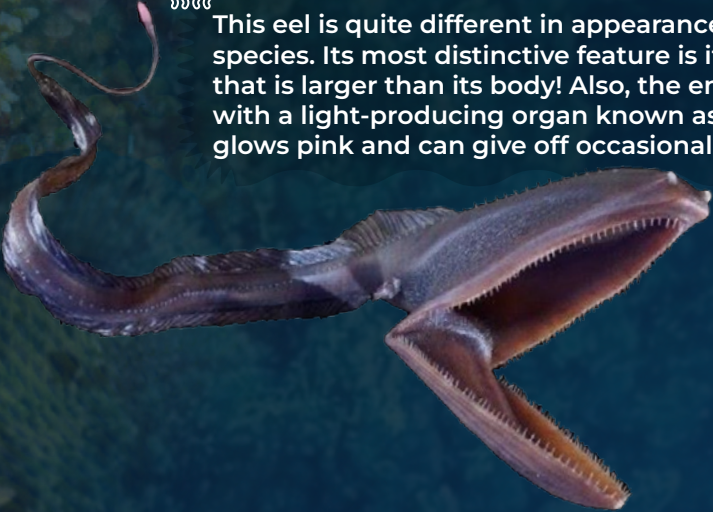
When observed at its home, the blobfish looks like a completely normal fish. However, it turns into a frowny pile of slime when taken out of its high-pressure habitat, rightfully earning the title marine Jabba the Hut.





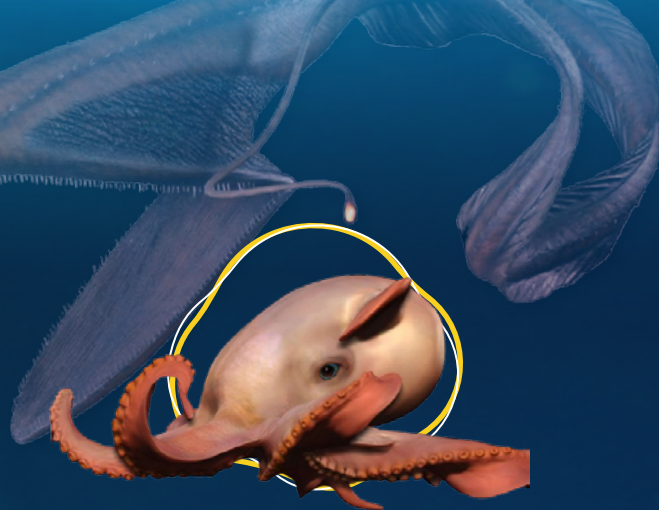
5. The Gulper eel (*Saccopharynx ampullaceus*)

This eel is quite different in appearance than most other eel species. Its most distinctive feature is its gigantic mouth that is larger than its body! Also, the end of the tail is tipped with a light-producing organ known as a photophore which glows pink and can give off occasional red flashes.



6. Dumbo Octopus (*Grimpoteuthis* spp.)

Named after the popular Disney character, Dumbo the elephant, the Dumbo octopus moves around floating like an umbrella and changing colors, taking the crown for the cutest octopus.



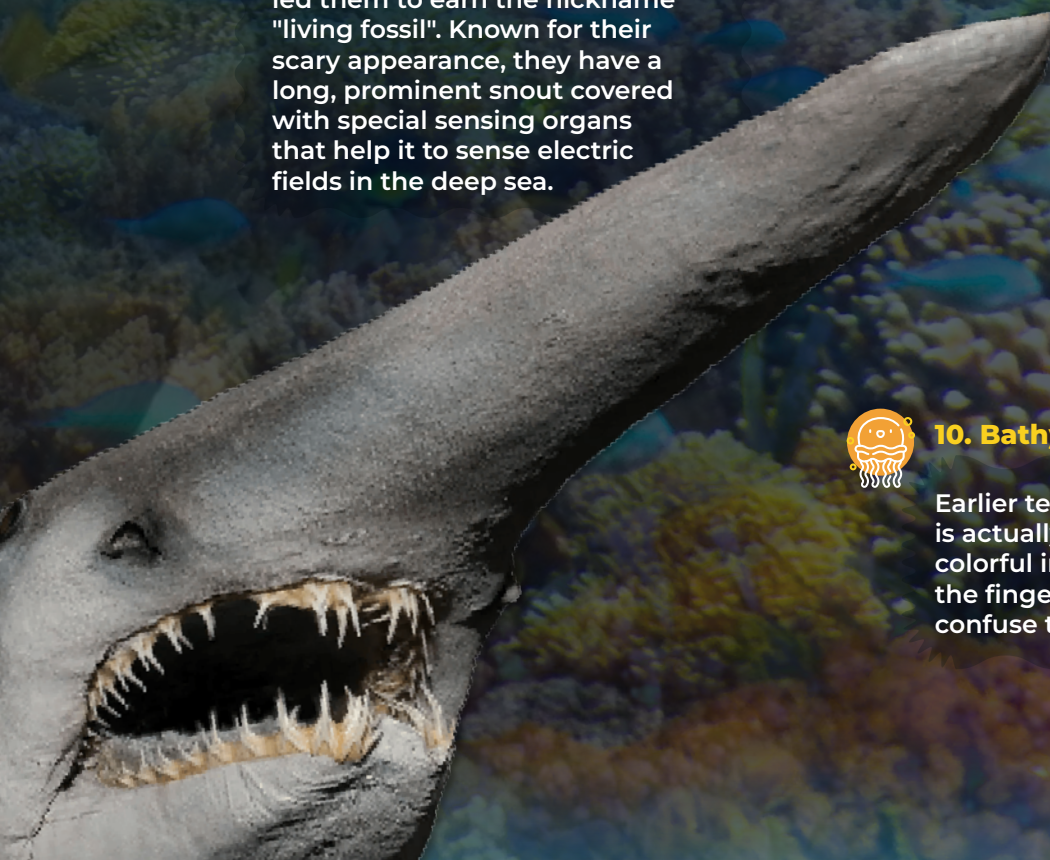
7. Giant Siphonophore (*Praya dubia*)

The Giant siphonophore is not a single organism but a colony of small organisms called zooids which are produced as it grows. Together, they can grow longer than whales.



9. Goblin Shark (*Mitsukurina owstoni*)

Can you believe that this species has been on Earth for more than 100 million years and has changed little ever since? This has rightfully led them to earn the nickname "living fossil". Known for their scary appearance, they have a long, prominent snout covered with special sensing organs that help it to sense electric fields in the deep sea.



8. Giant Tube Worms (*Riftia pachyptila*)

Can animals survive without eating? The world's heaviest worms do. They simply let the bacteria living inside them transform sulphur into energy



10. Bathydevius Caudactylus

Earlier termed as a mystery mollusk, this species is actually a bioluminescent slug can turn its colorful internal organs transparent and detach the finger-like projections from its body to confuse the predators.

Protection of Traditional Knowledge



Communities around the world have developed and passed on rich repositories of traditional knowledge down generations and over centuries. Are they fading into oblivion or are we passing them on?

Source: COP16

Tucked away amidst the endless bounty of nature, lies Dzongu Valley in North Sikkim, the sacred land of the Lepchas. Known as the oldest tribe of Sikkim, the Lepchas have lived in harmony with nature for centuries, embodying a profound connection to their environment. This deep bond is exemplified in their traditional medicine system, Maon tyaam yantan, which seamlessly integrates extensive botanical knowledge with animistic beliefs. Scientific studies have documented that the Lepchas utilize over 118 plant species to treat nearly 66 ailments, showcasing their expertise in ethnomedicine.

At the heart of this practice is the Maon-Doak, or Lepcha medicine man, who has long been revered as the healer of the region. However, the survival of this unique knowledge system is now at risk. The Maon-Doak faces the challenge of preserving these traditions, bound by beliefs that sharing their knowledge with outsiders could not only render the medicinal plants ineffective but also invite the wrath of a supreme deity.

Stewards of Innovations and Biodiversity

The Lepchas' Maon tyaam yantan reflects a broader category of traditional knowledge, which, as defined by the World Intellectual Property Organization, includes the know-how, skills, and practices developed and passed down within communities, forming a vital part of their cultural identity. While traditional knowledge profoundly informs the ways in which biological resources can be used; functional utility is just one of the motives for its conservation. These indigenous and local communities see themselves as the custodians of biological resources and play instrumental roles in conservation.

However, despite its importance, traditional knowledge systems like Maon tyaam yantan face significant challenges globally. They are threatened by a dual crisis: the loss of existence, driven by diminishing interest, superstitions, and a lack of intergenerational transfer, and the loss of identity through biopiracy, as external entities exploit these



systems for profit without acknowledging or crediting their true custodians. This exploitation undermines both the knowledge itself and the communities that sustain it.

For instance, L'Oreal patented the use of Kava for reducing hair loss and promoting hair growth, a plant first domesticated in Fiji and Vanuatu thousands of years ago for its recreational and medicinal properties. Similarly, while snail mucin-based skincare products have become a global trend, the moisturizing properties of snail secretion were first discovered by Chilean farmers in the 1980s. These examples highlight how traditional knowledge often remains uncredited and under-protected, raising concerns about fairness and equity.

“Traditional knowledge often remains uncredited and under-protected, raising concerns about fairness and equity.”

Uniting Laws and Traditions: Frameworks for Protection

Recognizing the value of traditional knowledge and ensuring its protection has become a critical global priority. A notable step in this direction was taken during the Convention on Biological Diversity, COP16 summit in Cali, Colombia, where delegates agreed to establish a subsidiary body to amplify the voices of indigenous groups in nature conservation decisions.

The Convention on Biological Diversity serves as the principal international instrument addressing traditional knowledge. Article 8j of the Convention obliges signatories to respect, preserve, and promote these knowledge systems for the sustainable use of biological resources



Connection between Indigenous people with the environment
[Representative Image]

while ensuring the equitable sharing of benefits with traditional knowledge holders. Complementing this, the Nagoya Protocol mandates prior and informed consent from indigenous and local communities, before accessing their knowledge. Additionally, the Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge includes provisions to safeguard the rights of Indigenous Peoples and local communities, further strengthening the framework for protection and equitable benefit-sharing.

From Jeevani to Dalchini: India's success stories

India has taken significant strides in protecting its traditional knowledge, offering inspiring examples of equitable benefit-sharing and the prevention of intellectual property theft. One such instance involves the Kani tribals of the Western Ghats, who were observed consuming seeds of the Arogyapacha plant for energy and relief. Inspired by their practice, scientists studied its bioactive components and developed the drug “Jeevani.” A benefit-sharing agreement was established, with license fees split equally between the tribal community and the research institute, demonstrating how India safeguards traditional knowledge while ensuring equitable outcomes.

Another successful instance is the blockage of patent claims by Colgate Palmolive over a composition containing botanical extracts from three herbs, including cinnamon, a common kitchen spice across India, known here as ‘dalchini’. India used the traditional Knowledge Digital Library (TKDL), a digital repository of traditional medicinal knowledge, to oppose this claim. India also empowers the traditional knowledge holders through fair and equitable sharing of benefits derived from biological resources under the Biodiversity Act, 2002.

Embracing the Old to forge the Future

While success stories in the protection of genetic resources are encouraging, the broader discourse on safeguarding traditional knowledge must account for its immense diversity. This spans from preserving unique bamboo handicrafts in museums and compiling local folklore to documenting the medicinal use of native plants. Each field is rich with its own intricacies and requires tailored approaches. A truly holistic protection system can only emerge by actively involving indigenous and local communities, providing them not only with a voice in existing decision-making forums but also empowering them to create platforms of their own.

As we strive to find new ways to conserve biodiversity, we must build upon traditional knowledge systems that play crucial roles in conservation. The preservation of these systems depends on empowering the communities that developed them.

Jal Sanchay Jan Bhagidari: A Community-Driven Path to Water Sustainability

The Prime Minister of India recently launched the 'Jal Sanchay Jan Bhagidari' initiative in Surat, Gujarat. The Ministry of Jal Shakti and the State Government of Gujarat are collaborating with each other for this initiative. It seeks to conserve water with a strong emphasis on community partnership and ownership.

Under the initiative, approximately 24,800 rainwater harvesting structures are being constructed across the state to enhance rainwater harvesting and ensure long-term water sustainability. It is driven by a whole-of-society and a whole-of-government approach. It will compliment other initiatives such as the Jal Shakti Abhiyan, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), and Atal Bhujal Yojana. It is aligned with the success of the Jal Sanchay initiative led by the Government of Gujarat.

During the launch event, the PM highlighted that water conservation is not just a policy but a matter of social commitment. He said that water conservation is the question of life; this is the life of the future of humanity. This initiative can lead to significant strides in water conservation. With the construction of thousands of rainwaters harvesting structures and the integration of various schemes like AMRUT 2.0, PM Krishi SinchaYi Yojana, and Mission Amrit Sarovar, India is building a framework for long-term water security.



Source: PIB

Poumai Naga Tribe-Sentinel for Flora and Fauna

The Poumai Naga tribe, like most of the other tribes in India, is dependent on natural resources such as forests for their needs. The Tribe is mainly concentrated in Manipur's Senapati district. The tribe has recently announced to ban hunting, trapping, and killing of wild animals and birds within their territory. The Tribe has also resolved to designate a portion of their forest as a conservation reserve. Forest fires and other harmful activities in and around the village and forests have been also prohibited.



People of Poumai Naga Tribe

This is seen as a significant step towards wildlife conservation. This decision was taken at the general body meeting, organized by the Purul (Hiimai) Union. These measures have been adopted in accordance with the Manipur Wild Life Protection Act, 1972. This establishes an example of a community-driven conservation approach in front of the world.

To ensure effective implementation of the measures, the Assembly, has set up local forest protection units to monitor the implementation of aforementioned rules. These forest units comprise of members of community only, and they will actively patrol the forest areas to prevent illegal hunting. Also, violators are fined. Fines have been decided on the basis of the activities performed by them. For instance, individuals found setting or starting fires in the forest will be fined Rs 60,000.

The measures announced by the Tribe showcases their commitment to safeguarding endangered species and preserving the natural environment. This is essential for their cultural and ecological heritage. Also, such measures will serve as a model for other communities in the country. Such efforts will ensure that future generations will continue to benefit from the biodiversity.

Max Water Conservation Programme – Making a positive difference to Underserved Communities

Recently, Max Healthcare Foundation successfully completed the rejuvenation of a pond in Meerut, Uttar Pradesh under the Max Water Conservation Programme. The Foundation is the Corporate Social Responsibility (CSR) arm of Max Healthcare Institute Limited (MHIL), one of India's largest hospital chains in India. Under the Programme, the Foundation aims to recharge 1 million kilolitres of water that it consumes in different operations. This will help them to achieve the target of 100% water neutral by March 2025.

The rejuvenated pond is the 2nd Project of the foundation in Uttar Pradesh. About 2,500 community members will be benefitted from the Project. The pond was in a dismal condition due to apathy from the community and

concerned government officials/representatives. The restored pond has the potential to recharge around 57 million litres of water annually. It will unleash new life to aquifers.

The Foundation has completed this project in partnership with Neer Foundation, an NGO working in water conservation space. Also, it has received support from the community. While rejuvenating, a key focus has been given to deepening the pond, de-silting, and ensuring proper water channels for natural inflow. This will help in reducing the instances of waterlogging in the village.

Along with sustainability, Foundation is active in the sphere of education and skilling. It aims to augment water security and make a meaningful contribution towards conserving our planet's natural resources. ■■



Member of Parliament from Meerut handing over Rejuvenated pond to the village community

Source: IndiaCSR



Snapshot

Firefox of the Mist

The Red Panda Story

With fewer than 10,000 red pandas remaining, International Red Panda Day, celebrated every third Saturday in October, raises global awareness for conservation efforts to protect these Himalayan "Firefox" ambassadors.

Meet the Red Panda (*Ailurus fulgens*)

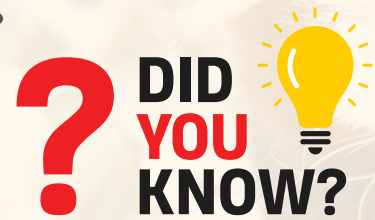
Nature's original 'firefox', it is a cat-sized marvel that's neither a cat nor a bear, but a unique species in its own family.

Tail: 28-59 cm (11-23 in)

Length: 40-64cm(16-25 in)



Life Expectancy: 8-10 Years | **Weight:** around 5 kg (11 lb)



The name "**panda**" comes from Nepali "**ponya**," likely referring to their bamboo-munching habits.

Wild Language of Communication

In general red pandas live on their own, but when they do interact with other red pandas, in a variety of ways.



Tail Talk: The Arching Signal



Head Bob Dance: Affectionate display towards other pandas.



Standing on Hind Legs: Defensive posture when threatened.



Squeal & Huff-Quack Symphony: Communication with nearby red pandas.



Barking: Warning sound



High-pitched bleats or whistles: Distress calls from young cubs.





IUCN RED LIST STATUS: ?

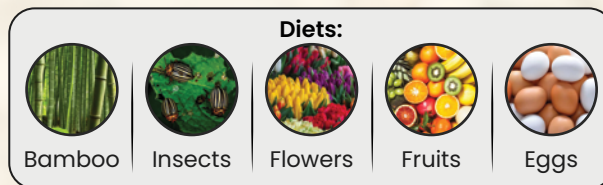


CURRENT POPULATION TREND: Decreasing ↓

Interesting facts about the adorable creature!

Surprising Menu

They have the digestive system of a carnivore, but they are considered practically vegetarians.



Six Digits for Master Climbing

Red pandas have a unique pseudo-thumb, a modified wrist bone that helps them climb and grip bamboo.

Panda That Glows!

In general red pandas live on their own, but when they do interact with other red pandas, in a variety of ways.

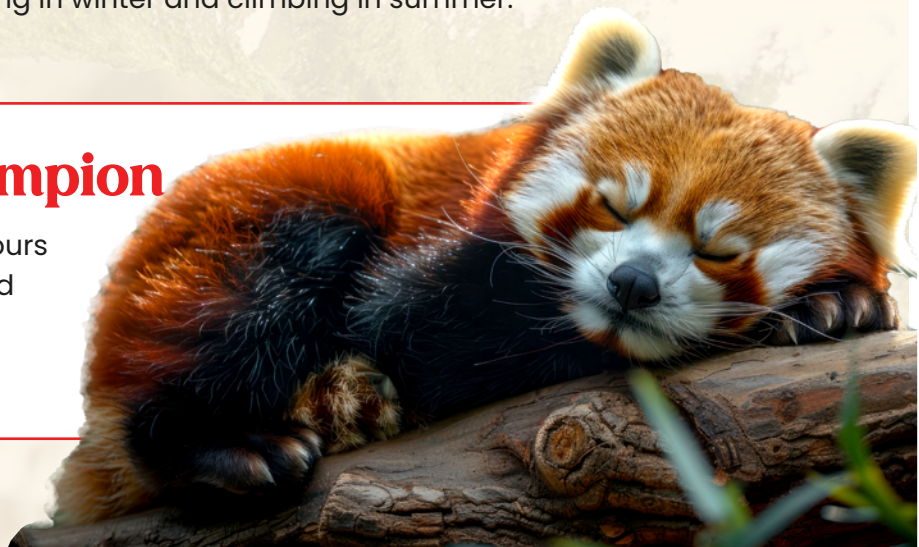


Seasonal Staircase

Red pandas migrate vertically in mountains, descending in winter and climbing in summer.

Sleeping Champion

They also sleep up to 17 hours a day, being nocturnal and crepuscular by nature.



Smog Tower Dilemma: Quest for Clean Air

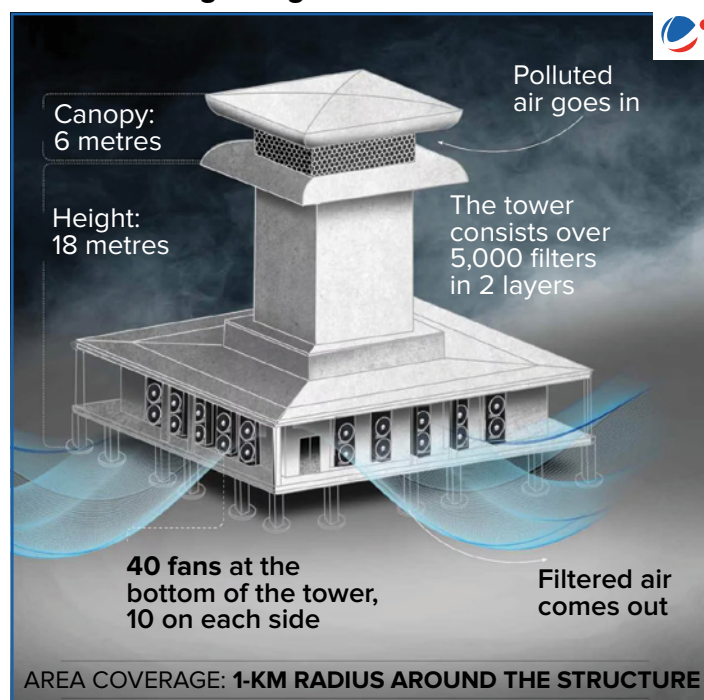


Delhi with more than 1000 AQI

Recently, when Delhi's Air Quality Index (AQI) skyrocketed beyond 1,000, the city's environmental crisis reached an unprecedented level. With residents struggling to breathe and schools forced to close, the urgent need for clean air solutions became more pressing than ever. This alarming situation thrust smog towers into the spotlight, raising critical questions about their effectiveness and potential as a solution to urban air pollution. The extreme pollution levels acted as a wake-up call for experts and policymakers to evaluate advanced air purification technologies, particularly the much-debated smog towers.

“The extreme pollution levels acted as a wake-up call for experts and policymakers to evaluate advanced air purification technologies, particularly the much-debated smog towers.”

Understanding Smog Towers



HOW HEPA FILTERS WORK



1. IMPACT

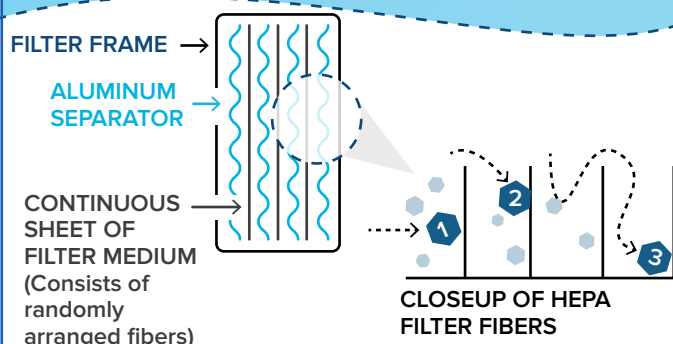
Particles crash into filter fibers.

2. INTERCEPTION

Particles in the airstream move too close to filter fibers and are trapped.

3. DIFFUSION

At lower air speeds, randomly moving dust and air particles crash into one another and are pushed into filter fibers.



As cities worldwide grapple with deteriorating air quality, smog towers emerge as a potential mitigation strategy. Essentially, smog towers are large, sophisticated air purification systems designed to filter and cleanse atmospheric pollutants.

The operational mechanism of smog towers leverages advanced filtration technologies similar to those found in household air purifiers. At their core, large industrial-grade fans draw in polluted air from the surrounding environment, channelling it through multiple filtration stages. The filtration process typically involves multiple layers, such as electrostatic precipitators, activated carbon filters, and high-efficiency HEPA filters.

The heart of this purification process is the HEPA (High-Efficiency Particulate Air) filter technology which is used even in household air purifiers. These filters can capture particles as small as 0.3 microns (about 300 times smaller than the diameter of a single strand of human hair) with 99.97% effectiveness. It acts as a barrier against ultra-fine dust particles, pollutants, harmful aerosols, pollen, bacteria, and mould spores.

While these systems present promising short-term benefits, they cannot be viewed as a complete fix for air pollution.

Big Picture: Are Smog Towers Our Pollution Savors?

Smog towers despite their impressive filtration capabilities, address only a localised and limited portion of the atmospheric pollution challenge. Studies from Beijing, which piloted similar technologies, show that while air quality around smog towers improved marginally, broader urban air pollution remained largely unaffected due to the sheer scale of the problem.

Their implementation also demands significant infrastructure investment and ongoing maintenance.

A single tower can cost millions of dollars, with operational expenses

including electricity consumption, filter replacements, and regular maintenance. For example, the smog tower installed in Delhi's Connaught Place reportedly cost over ₹20 crores and serves only a small radius, highlighting its limited impact relative to the investment. Further, manufacturing these towers and meeting their energy requirements can generate additional environmental burdens, somewhat offsetting their benefits.

Critics argue smog towers represent a symptomatic treatment rather than addressing root causes, such as vehicular emissions, industrial pollutants, and deforestation. Hence, smog towers should be considered complementary to broader ecological and policy-driven approaches.

Balancing our strategy

Ultimately, tackling urban air pollution requires a multipronged strategy—combining immediate relief measures like smog towers with systemic solutions. Alternatives such as stricter vehicular emissions norms, transitioning to renewable energy, and increasing urban green spaces offer more sustainable outcomes. The future of smog towers lies in continuous technological innovation, making them more energy-efficient, scalable, and economically viable.



Smog tower in Connaught Place
Source: Ecologist Association

e-DNA: Here, there and everywhere



All organisms leave behind molecular footprints of their presence.

What if a single drop of water could tell you everything about the creatures that live in a river, a lake, or even the ocean? It seems impossible, but the revolutionary approach ‘environmental DNA or eDNA’ is currently transforming how we explore and understand the natural world. It is increasingly being utilised by scientists in the field of marine conservation. Let’s understand what exactly this innovative approach is.

What is eDNA?

As the name suggests, eDNA is the genetic material left by organisms in the environment. It includes DNA from cells, tissues, fluids, and excrement which can be collected and detected from environmental samples. Genetic material serves as the fundamental blueprint for life, with deoxyribonucleic acid (DNA) acting as the primary carrier of hereditary information across living organisms.

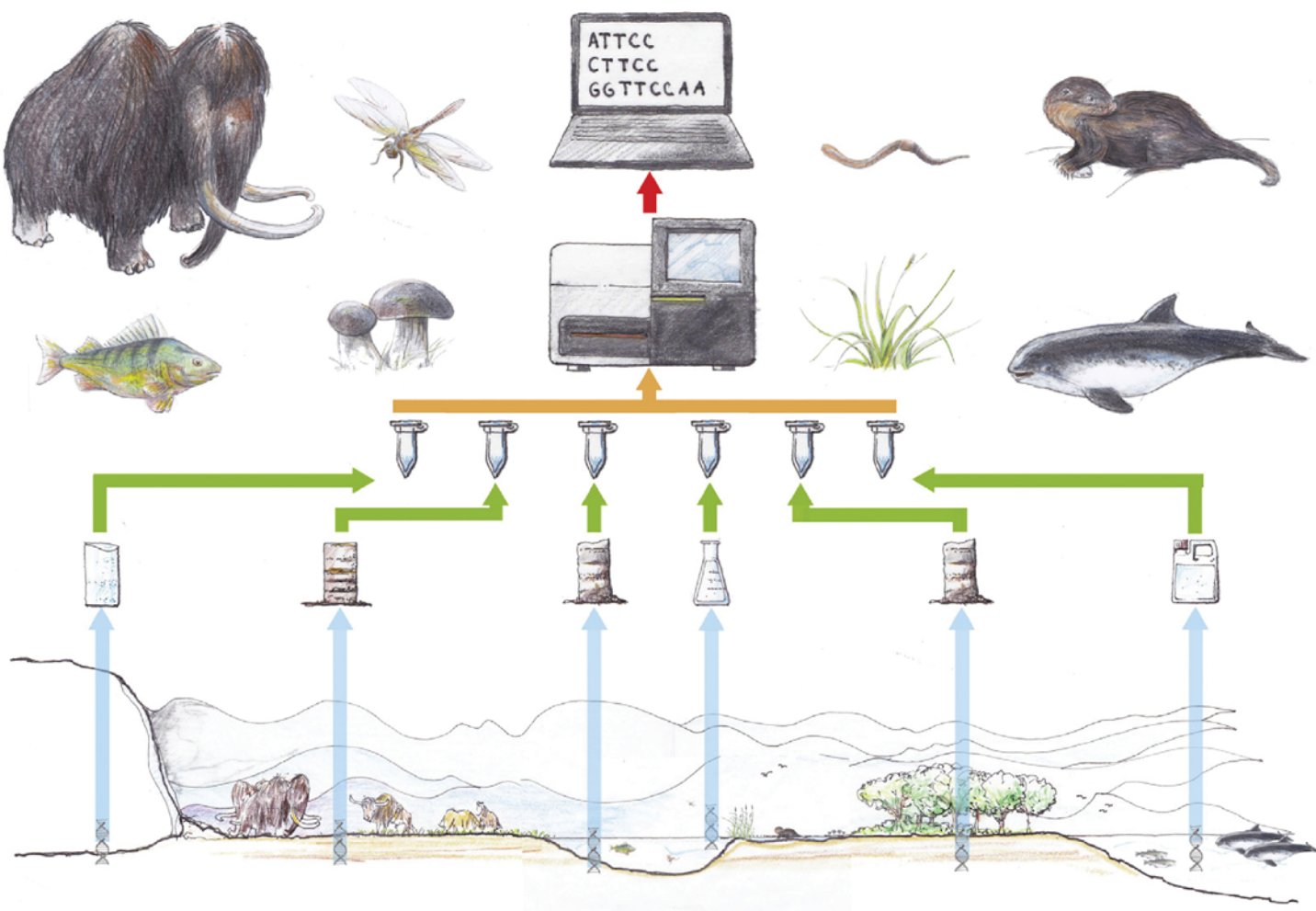
Imagine how you leave a digital footprint every time you use the internet – every site visit, every search, leaves a trace. In nature, animals, plants, and even microbes leave behind their own kind of ‘digital footprint’ in the form of DNA. Scientists can analyze these footprints (eDNA) to understand what species are present in an area, much

like how marketers use your digital footprint to know what you like.

What gets measured gets managed: eDNA and Conservation

The key aim of this methodology is to provide big data on species in nature. Researchers from the Laboratory for the Conservation of Endangered Species (LaCONES) were able to estimate the biological diversity of the Chilika Lake using this method. As it does not require the physical presence of researchers, it has the potential to replace traditional tools of DNA sampling when it comes to inhospitable environments such as the Arctic and the deep sea, saving labor costs and time. Moreover, due to being non-invasive, it is kinder to the environment being studied.

Its highly sensitive nature also makes it good at tracking changes in biodiversity and measuring progress concerning healthy ecosystem targets. It is particularly effective in monitoring the growth and spread of invasive species, and evaluating the impacts of climate change, land degradation, and pollution on various ecosystems.



DNA samples collected from water, soils, aerosols
Source: Science Direct

Limitations

However, eDNA has its limitations. eDNA can tell us who's in the room but not how many or what they're doing; it confirms presence but leaves details like the number, size, sex, or life stage of organisms a mystery. Another challenge is the identification puzzle, where many species remain unknown due to gaps in DNA reference databases, making it hard to name every life form we detect.

There's also the risk of contamination and although collecting eDNA is budget-friendly, the lab analysis can be quite the opposite. Despite these hurdles, eDNA remains a powerful tool in our quest to understand and protect Earth's biodiversity, constantly evolving to become more effective and inclusive.

The potential of eDNA seems almost limitless, but the technique requires scientific collaboration and coordination. It will prove incredibly adaptable and essential for the future, serving objectives ranging from ecological restoration to human health. ■■

“Despite these hurdles, eDNA remains a powerful tool in our quest to understand and protect Earth's biodiversity, constantly evolving to become more effective and inclusive.”



Global: Quick Hits



Spain

As per Climate scientists, catastrophic floods in Spain might be connected to human-caused global warming.



Paraguay River

Due to a severe drought upriver in Brazil, which has obstructed navigation along Amazonian waterways, the Paraguay River in South America has reached a record low in Asuncion, the capital of Paraguay.



Congo Basin

According to a recent Study, Cacao farming has surged in Congo Basin due to rising chocolate demand leading to deforestation.



Antarctica

Plant cover across Antarctic peninsula is increasing due to climate crisis.



Convention on
Biological Diversity

Armenia

Armenia will be hosting the next Conference of the Parties (COP17) to the Convention on Biodiversity (CBD) in 2026.

Prespa Lake (Albanian-Greek)

Little Prespa Lake, on the Albanian-Greek border, is slowly dying due to rising temperatures and increasingly mild winters with little snowfall and a scarcity of precipitation.



Mongolia

Mongolia has officially designated October 25 as Khulan Conservation Day to highlight the importance of the Khulan- Mongolian Wild Ass, in the Gobi-Steppe ecosystem.



Republic of Korea

Jeju Special Self-Governing Province in Republic of Korea was the venue for World Environment Day for its innovative environmental initiatives, especially in tackling plastic pollution.



Vietnam

Typhoon Yagi, the strongest storm in Asia this year, caused flooding and landslides in Vietnam, killing several people after causing damage in China and the Philippines.



India

India undertook its first 'teal carbon' study at Keoladeo National Park (KNP) to understand the role of wetlands in climate change mitigation.



Zimbabwe

Severe droughts in Zimbabwe which have led to food shortages may be linked to the El Niño phenomenon.



Turn Down the Lights: Practical Tips to Combat Urban Light Pollution



Dim the lights to brighten the stars – let's fight light pollution for a clearer night sky!

It was meant to be a perfect night. I had invited my friends, fellow stargazing enthusiasts, for an evening of looking at the stars—a tradition we had loved since our astronomy club days. We had our constellation maps ready and a telescope set up.

But as night fell and we looked up, our excitement turned to disappointment. Instead of a clear night sky full of twinkling lights, all we could see was a faint, hazy glow. The bright city lights—from streetlights, billboards, and buildings—had taken over the sky. We fiddled with the telescope, hoping to catch a glimpse of Jupiter or Saturn,

but even the brightest stars seemed to be swallowed by the glare. That night, instead of marvelling at the stars, we realized how much we've lost to light pollution and how urgently we need to bring the night sky back.

As per a 2023 study published in science magazine, the number of stars visible in the night sky decreased between 7-10% per year from 2011 to 2022. So why is it that light which seems so necessary for the functioning of human society, has suddenly turned into 'light pollution'? Do they have any other consequences we should be concerned about?

What is light pollution and how it affects us?

Light pollution is the presence of excessive or misdirected artificial light, often produced by urban environments, which obscures our view of the night sky and disrupts natural ecosystems. As per satellite-based research led by the University of Exeter, global light pollution increased

“As per a 2023 study published in science magazine, the number of stars visible in the night sky decreased between 7-10% per year from 2011 to 2022.”

by at least 49%, in the 25 years from 1992 to 2017. There's growing evidence that suggests its impact goes beyond merely blocking the potential for stargazing, posing serious consequences for human health as well as overall biodiversity.

Hidden Costs of Light Pollution

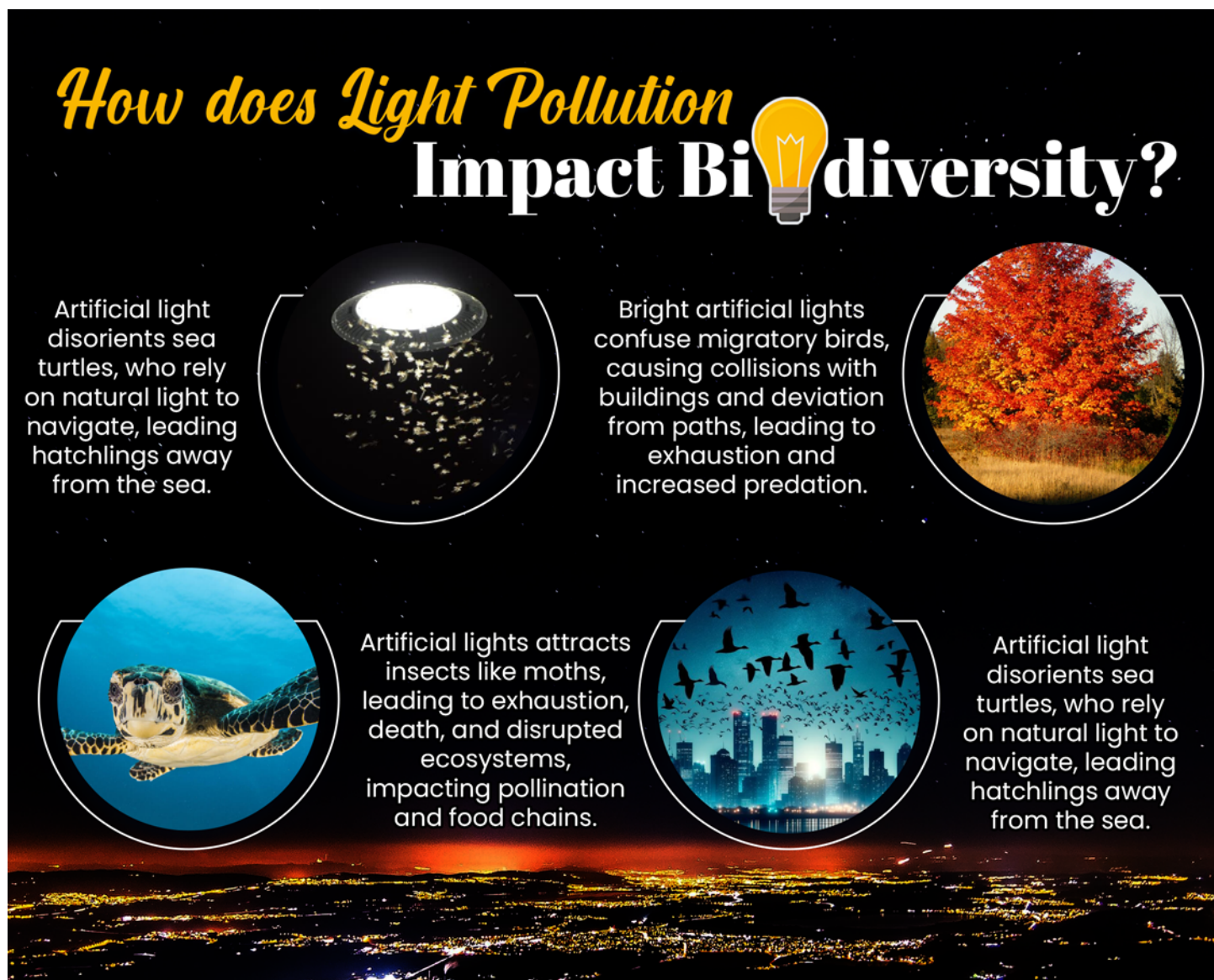
Our biological clock, or circadian rhythm, syncs with the natural day-night cycle, regulating sleep and hormone production. Artificial light at night disrupts this rhythm, suppressing the production of sleep hormone 'melatonin' and affecting the body's rejuvenation process. Studies link nighttime light exposure to serious health risks, including sleep disorders, obesity, heart disease, and even Alzheimer's. Moreover, excessive light at night wastes energy and money, contributing to climate change.

Skyglow from light pollution also hampers telescope observations for researchers and communities alike, disrupting scientific and cultural ties to the night sky. For instance, New Zealand's Māori people view astronomy as vital, influencing spiritual practices, farming, fishing, navigation, and seasonal rhythms.

Light pollution disrupts natural ecosystems, confusing animals and interfering with their natural rhythms, while also affecting plants' growth and natural cycles. ■■



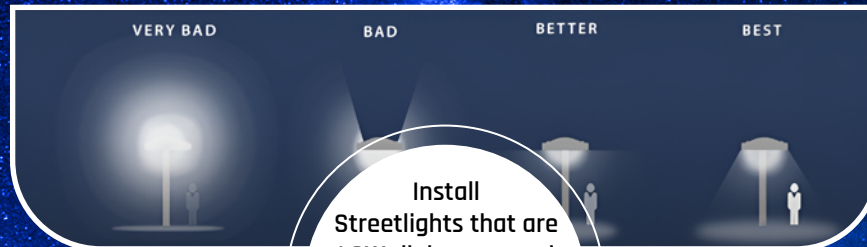
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But don't worry, the good news is that light pollution is reversible, which sets it apart from many other types of pollution. Let's take a look at some actions that can help address it.

CLEARING THE SKY

ACTIONS TO MINIMIZE LIGHT POLLUTION



Light only the area needed.

Consider how the use of light will impact the area, including wildlife interactions and habitats.

For instance,

reflective paint or self-luminous markers can be used for signs, roads etc. in sensitive regions.



COOL WARM

Minimise blue & violet spectral components, i.e. use warm-white, yellow, or amber light.



Use light only where needed.

Turn lights off after use or use controls such as timers and motion detectors.



Establish more "dark-sky places"- areas independently certified to have a management plan to minimise light pollution.



In India, you can visit the Hanle Dark Sky Reserve in Ladakh, the country's first Dark Sky Reserve, or the Pench Tiger Reserve in Maharashtra, India's first Dark Sky Park, for exceptional star-gazing experiences.

Light pollution is a growing issue with significant effects on both the environment and human health. By taking simple yet effective measures such as reducing excessive lighting, using more efficient technologies, and considering wildlife impacts, hopefully we can help restore the natural nightscape.

7 Eco-Terms Demystified: Your Friendly Guide to Environmental Jargon



Knowledge blooms with nature and the Earth [Representative Image]

Ever found yourself lost in the maze of environmental terms? Do you find yourself wondering about what certain terms mean? You're not alone! With the ongoing discussions around the 16th Conference of Parties (COP16) to the Convention on Biological Diversity, several 'technical' terms are popping up every day in the news. Let us guide you through some key concepts that are shaping our planet's future.

1. Planetary boundaries

Think of Earth as a giant game board with specific rules that keep everything balanced. Planetary boundaries are the rules of the game that define the Earth's limits of resources and protective systems. These limits create a safe operating space, ensuring humanity's survival. They represent nine environmental processes that regulate Earth's stability, like climate, biodiversity, freshwater, and nutrient cycles. Crossing these boundaries means risking the collapse of systems we depend on for food, water, and safety. Alarming news: as of 2023, we've crossed six boundaries, including climate change, biosphere integrity, and land use change.

2. Rewilding

Remember how magical an untended garden becomes, with wildflowers popping up everywhere? Rewilding is like that but on a grand scale. It's about giving nature the space to heal itself, sometimes with a little help from us. Imagine returning wolves to their ancestral territories or letting rivers flow freely again. These actions kick-start a chain reaction of positive changes. When wolves were reintroduced to Yellowstone, they didn't just control deer populations - they changed river patterns, brought back birds, and transformed the entire landscape!

3. Indigenous Knowledge

Think of Indigenous communities as Earth's original environmental scientists. Their understanding of nature isn't just knowledge - it's wisdom passed down through generations of careful observation and sustainable living. These communities noticed climate change long before it made headlines, and their traditional practices often hold solutions to modern environmental challenges. From fire management in Australia to sustainable farming in the Amazon, indigenous knowledge isn't just history - it's a blueprint for our future.

4. Blue Economy

The blue economy is about seeing our oceans as more than just beautiful seascapes. It encompasses everything from sustainable fishing and eco-tourism to innovative technologies like wave energy and sustainable aquaculture. Imagine an economy where protecting our oceans is as important as profiting from them. That's the blue economy in action - ensuring that maritime activities benefit both people and the planet.

5. Green Jobs

Want to make a living while making a difference? Green jobs are your answer! These aren't just jobs in solar panel installation or wind farm maintenance. They include urban farmers growing food on rooftops, architects designing energy-efficient buildings, scientists developing new recycling technologies, and educators teaching the next generation about sustainability. It's an entire job sector dedicated to healing our planet while providing meaningful employment.

6. Access and Benefit Sharing

Here's a concept of fairness that often gets overlooked. Imagine a plant used in traditional medicine by an indigenous community becoming the basis for a best-selling drug. Access and benefit sharing ensures that the community receives fair compensation and recognition for their knowledge. It's about respecting the rights and knowledge of communities that have preserved these resources for generations.

7. Nature Positive

Nature Positive is like being a good neighbour to Planet Earth. Instead of just trying to reduce our negative impact, it's about actively contributing to nature's recovery. This could mean creating wildlife corridors in cities, restoring wetlands, or supporting regenerative agriculture. It's a shift from just minimizing damage to actually helping nature thrive.

Understanding these concepts isn't just about expanding your vocabulary - it's about seeing how we can all play a part in creating a more sustainable future. Whether you're considering a career change, making lifestyle choices, or just wanting to understand environmental news better, these terms represent different paths toward the same goal: a healthier planet for all of us.



India

PM Inaugurates First International Solar Festival in Delhi



International Solar Festival to boost solar energy efforts

Source: PR Newswire

Prime Minister highlighted India's achievements in solar energy during his virtual address at the inaugural International Solar Festival in Delhi. Over the past decade, India's solar energy capacity has grown 32-fold, supporting its target of 500 GW non-fossil capacity by 2030. As the first G20 nation to meet its Paris commitments, India continues to lead renewable energy efforts. Prime Minister Modi praised the International Solar Alliance (ISA), established in 2015, for its growth to over 100 member countries and its vision of "one world, one sun."

The festival celebrates solar energy's global impact and its potential to advance sustainability and energy access. Hosted at Bharat Mandapam, it features expert-led sessions, exhibitions, and cultural performances, showcasing solar technologies and their transformative power.

Jal Hi Amrit Initiative: Driving Water Sustainability



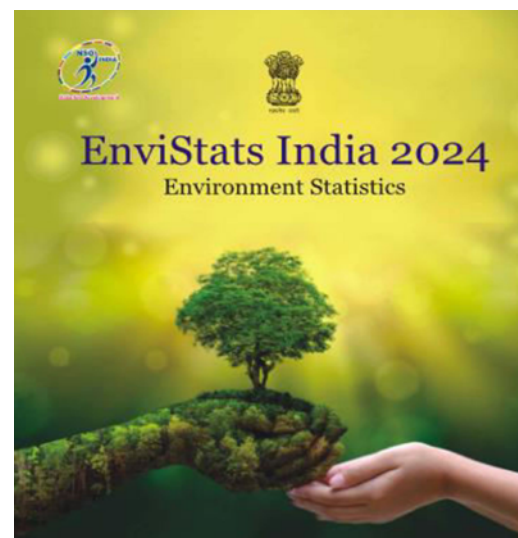
Jal Hi Amrit launched under AMRUT 2.0

Source: Ministry of Housing and Urban Affairs

As part of AMRUT 2.0's vision for "Water-Secure Cities," the Jal Hi Amrit initiative was recently launched under the government of India's 100-day agenda. This program incentivizes states and Union Territories to improve sewage treatment plants (STPs), now termed Used Water Treatment Plants (UWTPs), for sustainable water recycling and reuse.

The initiative promotes a circular water economy by enabling treated water reuse for construction, industry, and irrigation. A unique star-based rating system will award Clean Water Credits, providing incentives to urban local bodies based on performance. By fostering competition and improving treatment capacities, Jal Hi Amrit aims to reduce stress on freshwater resources while ensuring efficient water resource management.

MoSPI Releases "EnviStats India 2024: Environment Accounts"



7th edition of EnviStats India 2024: Environment Accounts

Source: MoSPI

The Union Ministry of Statistics and Programme Implementation (MoSPI) has unveiled the 7th edition of EnviStats India 2024: Environment Accounts, compiled using the SEEA (System of Environmental-Economic Accounting) Framework. This publication provides key data on environmental changes and factors influencing them, covering four major areas: Energy Accounts, Ocean Accounts, Soil Nutrient Index, and Biodiversity.

Key highlights include India's emergence as a global leader in energy transition, a 72% rise in the number and 16% expansion in the area of Total Protected Areas since 2000, and an 8% increase in mangrove coverage from 2013 to 2021. EnviStats emphasizes sustainable resource management, balancing economic growth with environmental conservation, and enabling data-driven policymaking to redefine progress beyond GDP.

NGT Directs Zoning and Lake Rehabilitation for Sustainable Nainital



NGT focus on environmental sensitivity in Uttarakhand
[Representative Image]

The National Green Tribunal (NGT) has ordered the classification of Nainital town into prohibited, regulated, and development zones based on its carrying capacity and environmental sensitivity. This directive aims to curb unchecked development, including illegal tree felling and over-construction, which have harmed Naini Lake's ecosystem. The Uttarakhand government must implement catchment area treatment plans for lake rehabilitation and create a monitoring mechanism involving officials, experts, and local representatives.

The tribunal emphasized the urgent need to assess Nainital's carrying capacity, considering hydrology, sanitation, and tourism trends. Recommendations include creating master plans and addressing waste management issues linked to the unregulated growth of hotels and resorts. A compliance report is expected by December 15, 2024.

Central Team Begins GLOF Early Warning Efforts in Sikkim

National Disaster Management Authority (NDMA) initiated on-ground assessments under Glacial Lake Outburst Flood (GLOF) Early Warning System (EWS) Mission, starting with Tenchungkha Lake in Sikkim. This follows the October 2023 GLOF disaster in Sikkim that claimed over 40 lives.



Sikkim's Glacial Lakes Under GLOF Risk Assessment
Source: NDMA

The mission aims to monitor 16 lakes in Sikkim this year and is part of a broader plan covering 188 critical lakes across the Indian Himalayan Region.

The region's glacial lakes, expanding due to rising temperatures, pose significant flood risks. NDMA, alongside ISRO and state authorities, is implementing advanced monitoring systems to mitigate hazards. These efforts underline the importance of proactive measures to safeguard vulnerable ecosystems and communities.

Rare Herpetofauna Discovered in Mudumalai Tiger Reserve Survey

A groundbreaking herpetofauna survey at Mudumalai Tiger Reserve (MTR) identified 33 new reptiles and 36 new amphibian species in the region. Among these, critically endangered amphibians like the cave dancing frog (*Micrixalus spelunca*) and Indraneil's Night Frog (*Nyctibatrachus indraneili*) were discovered. Other notable finds included the endemic Nilgiri Bush Frog and Beddome's Leaping Frog. The survey also recorded rare reptiles, such as the striped coral snake, King cobra, and Nilgiri Dwarf Gecko.

Spanning diverse habitats from 300 to 2,000 meters altitude, the survey involved experts, herpetologists, and MTR staff. Its findings significantly expand MTR's herpetofauna catalogue and provide valuable data for conservation strategies, highlighting the region's ecological richness and vulnerability.



Micrixalus spelunca and *Nyctibatrachus indraneili*
Source: Aranyakam Nature Foundation

Global

EU Deforestation Regulation to Take Effect Despite Protest

European Union will implement the EU Deforestation Regulation (EUDR) from December 30, 2024, despite objections from nations like India, Brazil, Indonesia, and the US at the WTO. The regulation requires exporters to prove that identified goods, such as palm oil, soy, cocoa, coffee, and timber, are not linked to deforestation post-December 2020. Aimed at curbing deforestation and forest degradation, the EUDR has raised concerns about the lack of clarity in the EU's assessment methods and its potential impact on exporters, particularly small-scale producers.



Forest landscape reflecting concerns tied to the EU Deforestation Regulation (EUDR) [Representative Image]

India's annual exports worth \$1.3 billion to the EU could be affected, posing challenges for farmers and industries unprepared for stringent traceability requirements. This may hinder India's ambitions for broader market access, including through the proposed India-EU free trade pact. Protesting nations have sought fairer implementation measures, including third-party involvement in assessments.

MIGA-ISA Solar Facility Launched to Boost Global Solar Projects

Multilateral Investment Guarantee Agency (MIGA) and International Solar Alliance (ISA) have launched the MIGA-ISA Solar Facility, a multi-donor trust fund aimed at accelerating solar energy adoption. Combining ISA's technical expertise and MIGA's financial mobilisation capacity, the facility will focus on concessional financing tools such as first-loss instruments and reinsurance to enhance the bankability of projects and reduce costs. Initially targeting Sub-Saharan Africa, it aims to expand globally, addressing the energy access gap in underserved regions.



Solar facility to enhance solar energy adoption [Representative Image]

With a seed fund of \$2 million from ISA, the facility aims to raise \$10 million and scale up to \$200 million under ISA's Global Solar Facility. This initiative is expected to mobilize private capital, mitigate risks, and support decentralized solar projects, starting in Africa, where millions remain off-grid.

Green Climate Fund Approves \$134 Million for Climate Resilience Projects

Green Climate Fund (GCF) has approved \$134 million to support Food and Agricultural Organisation (FAO) led projects aimed at enhancing climate resilience in Somalia and Iraq. The Ugbaad project in Somalia, with \$95 million in funding, focuses on building sustainable agricultural systems, restoring degraded lands, and training farmers in climate-smart techniques. It aims to directly benefit 1.2 million people while promoting food security, gender equality, and peacebuilding in the region.

In Iraq, the \$38.95 million SRVALI project will improve water-use efficiency and climate-adaptive agriculture across three vulnerable governorates. Benefiting 2 million people, it includes irrigation upgrades, solar installations,



GCF approved funds to enhance climate resilience
Source: Food and Agricultural Organisation of the United Nations

and farmer training, empowering women and fostering sustainable agricultural policies to address water scarcity and food security challenges.

Global Framework on Chemicals (GFC) Fund Launches First Project Call

The GFC Fund, established at fifth International Conference on Chemicals Management (ICCM5) in 2023 in Bonn, Germany, has initiated its first call for projects to promote safe and sustainable management of chemicals and waste. The fund focuses on supporting low- and middle-income countries, including small island nations, to strengthen their capabilities in handling chemicals and waste in alignment with international standards.

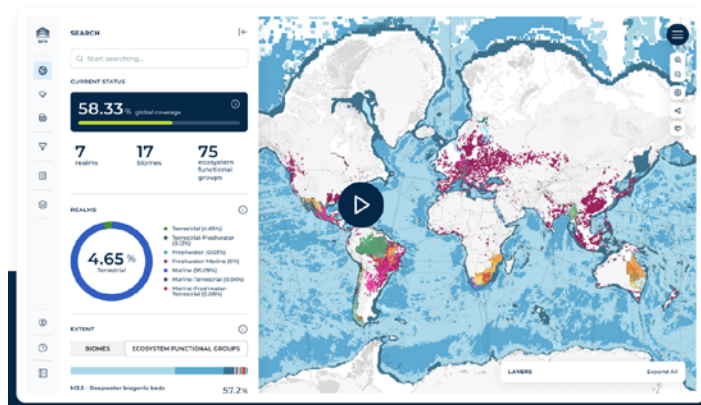
Selected projects will receive financial support ranging from \$300,000 to \$800,000 over three years, funded through voluntary contributions. The GFC Fund complements existing mechanisms like the Global Environment Facility and targets medium-scale initiatives to minimize environmental and health risks. Linked to the Bonn Declaration, the framework also sets ambitious global targets, including eliminating highly hazardous pesticides in agriculture by 2035.

Global Ecosystems Atlas Launched to Revolutionize Conservation Efforts

The Global Ecosystems Atlas, unveiled at COP16 to the UN Convention on Biological Diversity, is a groundbreaking tool designed to map and monitor ecosystems worldwide. Developed by the Group on Earth Observations (GEO), the Atlas consolidates national ecosystem maps with advanced technologies like AI and Earth observation. It provides crucial data to tackle biodiversity loss, climate change, and land degradation, guiding governments, businesses, and communities in sustainable ecosystem management.



Source: UNEP



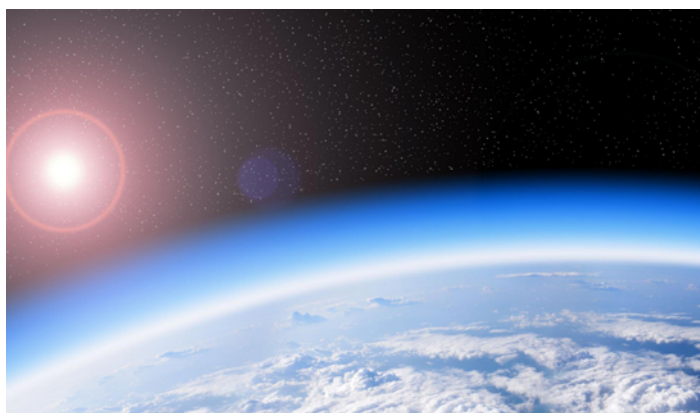
Global Ecosystems Atlas launched at COP16
Source: Global Ecosystems Atlas

A key example of its impact is in South Africa and Mozambique, where shared ecosystems like savannas and coral reefs benefit from coordinated conservation efforts. By aligning data and prioritizing protective actions, Atlas facilitates compliance with international biodiversity goals and empowers local communities and researchers.

Ozone Recovery and Air Quality Insights Mark Global Observances

Coinciding with World Ozone Day 2024, the World Meteorological Organization (WMO) released its 2nd Edition Ozone and UV Bulletin. The bulletin highlights the recovery of the ozone layer due to reduced ozone-depleting substances (ODS), projecting full restoration by 2066 over Antarctica and earlier for other regions. The Kigali Amendment, aimed at phasing down hydrofluorocarbons, is expected to lower global temperatures by 0.5°C by 2100. These findings celebrate the Montreal Protocol's success in advancing climate action.

Separately, the WMO Air Quality and Climate Bulletin for Clean Air Day underscores the interplay between air pollution and climate. It emphasizes the urgent need to address emissions that degrade ecosystems, exacerbate climate change, and impact human health, causing 4.5 million annual premature deaths.



2nd Edition Ozone and UV Bulletin released by WMO
Source: World Meteorological Organization

India's updated NBSAP: 'Whole-of-Government' and 'Whole-of-Society' approach



Source: X account of Shri Kirti Vardhan Singh
(Union Minister of State for Environment, Forest and Climate Change; and External Affairs)

On 30th October 2024, India launched the updated National Biodiversity Strategy and Action Plan (NBSAP) at the 16th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD COP16) in Cali, Colombia. The document was released during a special event called 'Roadmap for achieving the Kunming-Montreal Global Biodiversity Framework (KMGBF) targets and the release of India's updated NBSAP'.

At COP15, parties were asked to submit updated NBSAPs aligned with the new KMGBF. With this release, India has become one of the 44 countries that have submitted updated NBSAP, highlighting India's commitment to tackle biodiversity conservation in the coming years. First, let's understand NBSAPs and their importance for global action under the CBD.

NBSAPs: The Backbone of Global Biodiversity Action

During the negotiations of the overarching CBD framework, the idea of addressing implementation challenges

through an integrated, multi-sectoral, and participatory approach to national biodiversity planning took shape as the concept of the NBSAP. Article 6 of the Convention mandates contracting Parties to develop an NBSAP (or a comparable instrument) and to incorporate biodiversity conservation and sustainable use into sectoral and cross-sectoral activities. They essentially serve as the primary tools for implementing the Convention at both national and global levels.

India's first plan was created in 1999, followed by the National Biodiversity Action Plan (NBAP) in 2008, and an updated NBAP in 2014. In line with Article 6 of the Convention on Biological Diversity, India followed 'a whole of government and a whole of society approach' in updating its NBSAP by making the process highly participative. The National Biodiversity Authority set up a high-level Working Group comprising experts and representatives from various Ministries, State Biodiversity Boards and public institutions, culminating in the updated Action plan.

India's NBSAP: A Roadmap for Conservation of India's Biodiversity

The new NBSAP outlines India's efforts towards the conservation of biodiversity while highlighting achievements and identifying gaps and threats. It also describes strategies and result-oriented action points to achieve the 23 National targets set up and adopted in accordance with the Global Biodiversity Targets.



Representatives from around 24 Central Ministries, International Conservation Organizations, scientists, corporates, industries, State governments, local governments, and civil society organizations from all the states and Union territories participated in the process of updating India's NBSAP.

Targets

The updated NBSAP outlines 23 national targets in line with the 23 global goals under the KM-GBF. Following the structure of the Global Biodiversity Framework Targets, India's National Biodiversity Targets have been segregated into three categories: Reducing Threats to Biodiversity, Meeting People's Needs through Sustainable

Use and Sharing Benefits, and Tools and Solutions for Implementation. India also commits to protect at least 30% of its terrestrial, inland water, and coastal and marine areas by 2030, in line with global biodiversity targets under KM-GBF. Under India's NBT, emphasis has been given to urgent management actions such as DNA profiling, the creation of national databases, and the strengthening of conservation measures to maintain species and genetic biodiversity.

Approach

The NBSAP emphasises a transformative, ecosystem-based approach to conservation, ensuring it's not just top-down directives but involves grassroots actions where conservation can truly take root. This is further supported by the Biological Diversity Act of 2002, which has established a multi-tiered governance structure. The implementation process thus focuses on strengthening State Biodiversity Boards at the state level and Biodiversity Management Committees at the local level. It envisages cooperation at all levels including inter-ministerial, regional cooperation and multilateral collaborations.

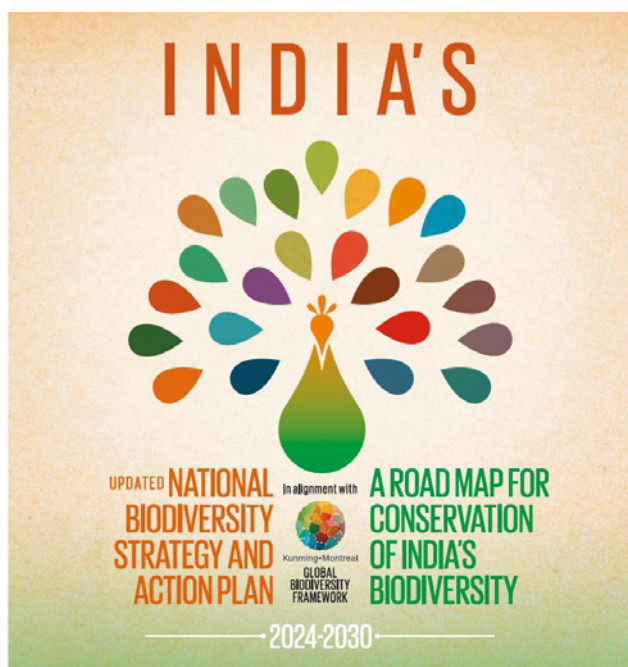
A holistic capacity-building roadmap has also been prepared to upgrade capacities on cross-sectoral issues such as conservation, protection, sustainable use of resources, traditional knowledge, etc. The objectives are to empower all the stakeholders, mainstream the idea of biodiversity cooperation, and promote scientific cooperation, transfer of technology and innovation.

Financial plan

Data from FY 2017-2018 to 2021-2022 sourced from The Biodiversity Expenditure Review and Biodiversity Finance Solutions were used to project the total cost of the implementation of the NBSAP. An annual average financial requirement of Rs 81,664.88 crore at the central government level was estimated. A variety of new and innovative finance solutions such as green bonds, Access and Benefit Sharing (ABS) have been outlined as tools to be implemented for financial mobilization.

Further, an overarching framework called the National Monitoring Framework has been created to monitor biodiversity in the country through a consultative process. It incorporates new indicators and aligns with the requirements of KM-GBF.

As the world deals with the triple planetary crisis of climate change, pollution and biodiversity loss, India moves ahead with an action plan to treat the root cause which is the widespread destruction of nature. The updated NBSAP does so by not just aligning India's policies with the global outlook and current needs, but also striving to mend the broken relationship between humans and nature by mainstreaming conservation efforts.



The cover of the Updated NBSAP displays India's national bird the 'Peacock' incorporating 23 National Biodiversity targets (NBTs) in coloured feathers

Government Launches Mission Mausam to Bolster India's Climate Resilience



Launch of Mission Mausam at MoES Headquarters
Source: PIB

In a landmark development for India's meteorological capabilities, the Union Cabinet has approved Mission Mausam, an ambitious Rs 2,000 crore initiative that promises to revolutionize the country's weather and climate forecasting infrastructure. The mission, scheduled for implementation between 2024-2026, marks a significant step towards enhancing India's resilience against extreme weather events and climate change impacts.

The multi-faceted program, spearheaded by the Ministry of Earth Sciences (MoES), will establish an extensive network of advanced monitoring systems, including 50 Doppler Weather Radars, 60 Radio Sonde/Radio Wind stations, and 100

disdrometers. This technological upgrade addresses India's current forecasting challenges, particularly notable when compared to countries like China, which operates 217 radars and 128 wind profilers.

Cutting-edge technology and Innovation

A distinctive feature of the mission is its emphasis on hyper-local forecasting, extending predictions down to the Panchayat level with a lead time of 10 to 15 days. "Mission Mausam represents a paradigm shift in our approach to weather forecasting," stated Dr. M Ravichandran, Secretary, MoES. The initiative will improve Nowcast frequency from 3 to 1 hour, enabling

“
Union Cabinet has approved Mission Mausam, an ambitious Rs 2,000 crore initiative that promises to revolutionize the country's weather and climate forecasting infrastructure
”

better tracking of rapid weather events like thunderstorms.

The mission introduces several groundbreaking elements, including a cloud-simulation chamber at the Indian Institute of Tropical Meteorology (IITM) for testing weather interventions. It integrates Artificial Intelligence and Machine Learning models for enhanced prediction accuracy while establishing urban testbeds and ocean research stations for comprehensive environmental monitoring. High-performance computing systems will power advanced data processing capabilities, ensuring more accurate and timely weather predictions.

Collaboration is the key

Three premier institutes under MoES—the Indian Meteorological Department (IMD), the National Centre for Medium-Range Weather Forecasting (NCMRWF), and the Indian Institute of Tropical Meteorology—will collaboratively implement the mission. This coordinated effort aims to address current limitations in local forecast capabilities, which are restricted to 12 km x 12 km areas, by providing more precise, location-specific predictions.

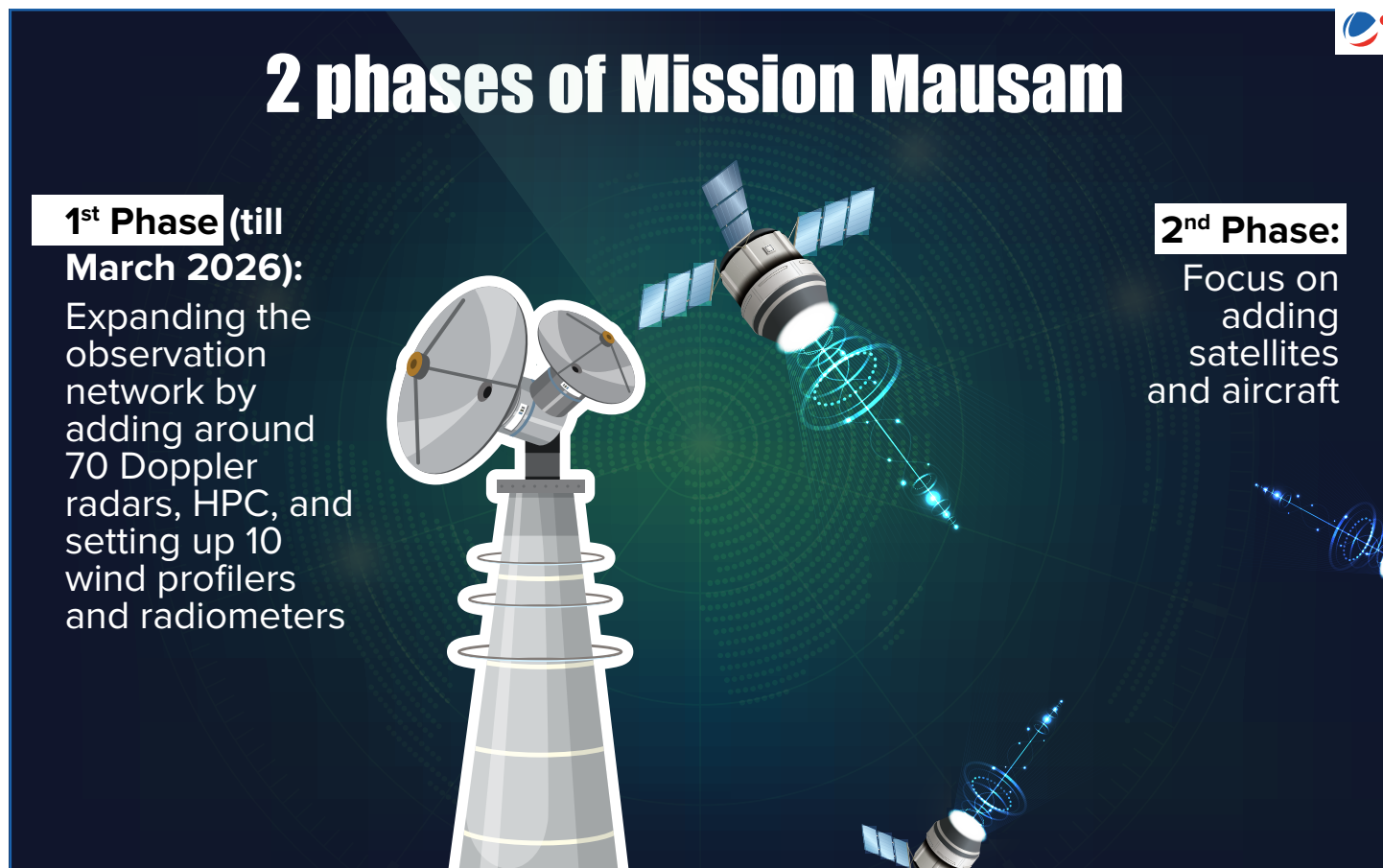
The mission aligns with several existing weather-focused initiatives, including the Monsoon Mission (2012) and the PRITHvi Vgyan (PRITHVI) scheme. This integration creates a comprehensive framework for meteorological advancement in India particularly, given the increasing

challenges posed by climate change-induced weather pattern irregularities and the complexity of tropical atmospheric processes.

The benefits of Mission Mausam will extend far beyond weather forecasting, impacting multiple sectors from agriculture and disaster management to urban planning and transportation. The initiative will help farmers make informed decisions about crop management, enable better disaster preparedness, and support urban planners in developing climate-resilient infrastructure. By positioning India as a leader in weather and climate sciences, Mission Mausam represents a crucial step toward building a more resilient and climate-prepared nation, ensuring that communities and industries can better anticipate and respond to environmental challenges. ■■



Three premier institutes under MoES—the Indian Meteorological Department (IMD), National Centre for Medium-Range Weather Forecasting (NCMRWF), and Indian Institute of Tropical Meteorology—will collaboratively implement the mission.



Britain's Energy Revolution: From Coal Pioneer to Global Decarbonisation Leader



End of an Era: Closure of UK's last coal-fired power station
Source: Uniper

In 1882, a revolutionary spark at London's Holborn Viaduct birthed the age of coal-powered electricity. Now, 142 years later, Britain extinguished its final coal flame at the last coal powered power plant 'Ratcliffe-on-Soar'. The nation that taught the world to harness coal's power now demonstrates how to let it go, transforming from industrial pioneer to environmental leader in a single lifetime.

Historical Context and Energy Evolution

Britain's journey from coal dependency marks a pivotal moment in the global energy transition. The closure of the Ratcliffe-on-Soar plant represents more than just a national milestone- it demonstrates the feasibility of rapid decarbonisation. This transition began in 2015 when Britain pledged to phase out coal plants within a decade,

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The closure of Ratcliffe-on-Soar plant represents more than just a national milestone - it demonstrates the feasibility of rapid decarbonisation.
”

a period when coal generated 30% of its electricity. By 2023, this figure had plummeted to just 1%, showcasing one of the fastest energy transitions globally.

Key Developments in Clean Energy Transition

Britain's departure from coal has catalysed revolutionary changes in its energy landscape. With greenhouse gas emissions halved since 1990, the transition has driven innovations in storage, grid management, and renewables. Energy Minister Michael Shanks emphasizes that this shift, particularly in the North Sea, must accelerate from declining oil and gas towards sustainable green jobs, ensuring long-term economic security.

As the first G7 country to eliminate coal power, Britain's achievement contrasts with other major

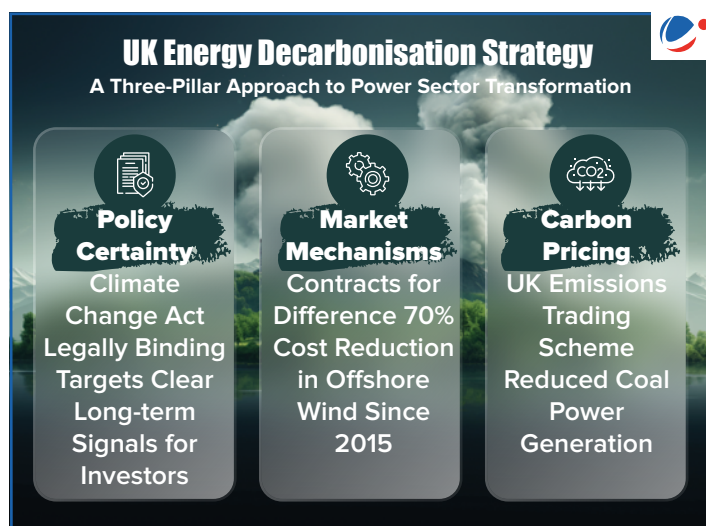


Energy Minister of UK Michael Shanks
Source: Michael Shanks

economies. Germany still relies on coal for over 25% of its electricity, planning a complete phase-out by 2038. Meanwhile, emerging economies face unique challenges - India's ambitious renewable targets must balance with rapid economic growth and increasing energy demand. The Powering Past Coal Alliance, comprising 60 national governments, demonstrates a growing international commitment to this transition.

Framework of Energy Decarbonisation

The UK's approach to energy decarbonisation represents a comprehensive transformation of its power sector. The framework rests on three key pillars. First, policy certainty through legally binding targets under the Climate Change Act has provided investors with clear long-term signals. Second, market mechanisms like Contracts for Difference (CfD) have successfully driven down renewable energy costs, with offshore wind prices falling by 70% since 2015. Third, carbon pricing through the UK Emissions Trading Scheme has made coal power increasingly uneconomical, accelerating the transition to cleaner alternatives.



This transition framework provides valuable insights for other nations. India, for instance, has adapted elements of this approach while accounting for its unique circumstances. Its renewable energy commitment of 500GW by 2030 is supported by innovative policies like solar parks and hybrid projects. However, India's framework necessarily differs, incorporating elements like grid stabilization measures for its vast renewable expansion and policies to manage the socio-economic impact on coal-dependent regions like Jharkhand. The contrasting approaches highlight how decarbonisation frameworks must be tailored to national contexts. While Britain focuses on replacing existing infrastructure, pivoting towards renewable energy is not that smooth for developing nations.

Decarbonization journey of developing countries

Developing countries must simultaneously expand energy access and achieve their developmental goals while transitioning to cleaner sources. This requires investments in infrastructure, grid modernization, and storage solutions, all of which are costly and hindered by limited international climate financing. Further, countries lack access to critical minerals like cobalt and copper, with its global trade controlled by a few.

Future Course of Action

It is evident that global energy transition requires differentiated approaches based on national circumstances. While Britain celebrates its coal exit, the focus shifts to sharing technological expertise and best practices. Success depends on continued investment in renewable infrastructure, innovation. India advocates for a gradual and 'just' transition, emphasizing that developed countries with higher historical carbon emissions should shoulder greater responsibility in the global climate effort. The International Energy Agency estimates that annual clean energy investment in emerging markets must triple by 2030 to meet climate goals.

By providing critical funding, technology transfer, and capacity-building support, developed countries can drive the global decarbonization efforts. A 'just transition' is essential, considering the communities whose livelihoods depend on coal. This requires policies to ensure alternative employment, social security, and support, which takes careful planning and time.

This historic transformation from coal pioneer to zero-carbon leader demonstrates that rapid decarbonisation is achievable while maintaining energy security and creating economic opportunities. As climate change concerns intensify, Britain's journey provides a timely example of how nations can successfully navigate the path to a sustainable energy future, while acknowledging that each country must find its own path based on its unique circumstances and capabilities.

“ This historic transformation from coal pioneer to zero-carbon leader demonstrates that rapid decarbonisation is achievable while maintaining energy security and creating economic opportunities. ”

Forest Ecosystem Restoration Initiative (FERI): A Decade of Forest Ecosystem restoration



Forest ecosystems are nature's lungs, purifying our air, guarding biodiversity, and weaving life into the planet's fabric.
[Representative Image]

Forests are home to 80% of the world's terrestrial biodiversity and are estimated to store 861 gigatons of carbon, soaking up around 30% of emissions from fossil fuels and industries. Forests also provide more than 86 million green jobs and support the livelihoods of 1.6 billion people globally, one billion of whom are among the world's poorest. However, the world is losing 10 million hectares of forests to deforestation and another 15 million hectares to degradation every year. In 2023, the world lost almost ten football fields of tropical forests per minute as per the data provided by the World Resources Institute.

In 2023, the world lost almost ten football fields of tropical forests per minute as per the data provided by the World Resources Institute.

Acknowledging the significance of the forest ecosystems and the concerning rate of degradation, various efforts have been made at international levels for their conservation and restoration. One such initiative is the Forest Ecosystem Restoration Initiative (FERI) which recently marked its tenth anniversary. In 2014, the FERI was launched as a partnership between the Korea Forest Service (KFS) and the CBD Secretariat with the purpose of assisting developing countries in achieving targets related to ecosystem restoration and forest rehabilitation

Restoring Green Giants: The Forest Ecosystem Restoration Initiative

FERI supports countries in achieving forest-related Aichi targets, which include reducing habitat loss, protecting ecosystems that provide essential services, restoring degraded ecosystems, and building resilience. A significant development in this area was the adoption of the Kunming-Montreal Global Biodiversity Framework (KMGBF) in 2022, which includes a key target of restoring 30% of the world's degraded ecosystems by 2030. FERI plays a vital role in implementation of the targets within the KMGBF.



FERI at 10 Years: A Decade of Forest Ecosystem Restoration
Source: 2024, Convention on Biological Diversity

Apart from direct support in implementation, FERI assists these countries by conducting workshops, developing decision making tools, and fostering partnerships and awareness on forest restoration. Few of its successful programmes supporting national target setting are the 'WePlan-Forests' platform and The Restoring Hope Project. The WePlan-Forests initiative provides planning solutions to countries by evaluating multiple restoration scenarios and their benefits, leading users to the optimal plan. The Restoring Hope Project provides geospatial data and other policy-related information to strengthen decision-making. Under direct implementation, FERI has provided funding and technical support to restoration activities in twelve developing countries including Bhutan, Chile, and Colombia.

Forest Ecosystem restoration: Beyond planting Trees

These efforts reflect the broader concept of forest ecosystem restoration, which involves recovering degraded forest lands to their original state and safeguarding healthy forests. Restoration is not limited to tree planting—it also includes practices such as removing invasive species, managing natural regeneration by protecting areas from forest fires and grazing, and adopting better land management techniques.

For instance, the Great Green Wall initiative, supported by the Food and Agriculture Organization (FAO) of the United Nations, has restored 63,000 hectares of land, positively impacting 1 million people. Similarly, India's Haritha Haram programme in Telangana exemplifies large-scale people-driven efforts, having planted nearly 273 crore saplings over nine years. The programme's success is evident from the 7.7% increase in greenery across the state.

These restoration efforts should be viewed in the light of the forest landscape as a whole, including the people, the biodiversity, and various land uses. Successful case studies of community-led initiatives such as the Sarmoli-Jainti Van Panchayat in the State of Uttarakhand show the benefits of this holistic approach in implementation as well. Ecosystem restoration works by the Van Panchayat have reportedly led to significant improvements such as the rejuvenation of the Mesar Kund water body, development of nature-based tourism, improvement in soil fertility, water supply, and increased biodiversity.

“ These restoration efforts should be viewed in the light of the forest landscape as a whole, including the people, the biodiversity, and various land uses. ”

As humanity grapples with interconnected crises like biodiversity loss, climate change, and land degradation, restoring forest ecosystems emerges as a vital solution with transformative potential. Global assessments reveal that over two billion hectares of deforested and degraded land can be restored or rehabilitated, offering immense opportunities for ecological recovery and sustainable development. However, the success of restoration policies hinges on their social acceptance, ecological soundness, and alignment with other land uses such as agriculture, urban development, and forestry. By integrating scientific insights with community needs and fostering cross-sectoral collaboration, forest restoration can serve as a cornerstone for building a resilient and sustainable future for both people and the planet.

COMIC STRIP

Ghost Fishing: Threat for Marine Organism



The Department of Aquatic Biology and Fisheries, University of Kerala is looking to collaborate with with local and foreign agencies for the removal of fishing nets (Ghost nets). Marine Monitoring Lab (MML) under the department recently performed the survey off the Thiruvananthapuram coast with the support of Project Ecomarine, co-funded by the European Union's Erasmus Programme. In the survey, it was found that several rocky reefs and other marine organisms are facing threats due to ghost nets.

SEPTEMBER						
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1	2	3	4	5	6	7
8	9	10	11	12	13	14
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29	30					

OCTOBER						
SUN	MON	TUE	WED	THU	FRI	SAT
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27	28	29	30	31		

Green Days Diary



7 SEPTEMBER

International Day of Clean Air for Blue Skies

Under "The Air We Share" theme of 2024, this worldwide movement is turning the dream of clean, healthy air into reality.

World Ozone Day

Marking "Montreal Protocol: Healing Ozone, Cooling Earth," this day celebrates humanity's greatest environmental cooperation success story.



16 SEPTEMBER



21 SEPTEMBER

Zero Emissions Day

A powerful pause in fossil fuel use, showing how a cleaner, greener world is possible through simple daily choices.

World Environmental Health Day

Bridging the gap between planetary and human health, sparking solutions for cleaner, healthier communities worldwide



26 SEPTEMBER



Energy Efficiency Day

Showcasing smart energy choices that save money and our planet, proving that small changes create big impacts.

International Day for Disaster Risk Reduction

Empowering communities to face nature's challenges through better preparation, understanding, and resilience strategies.



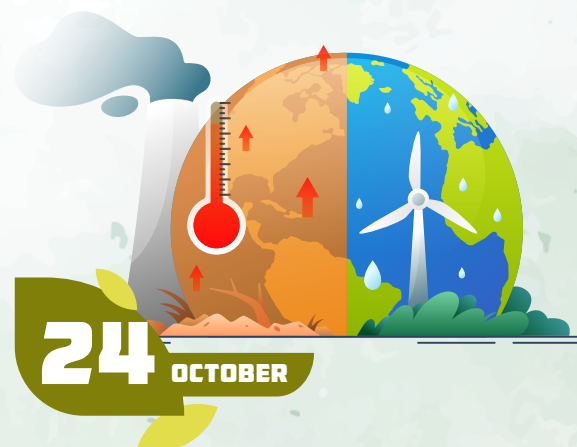
International E-Waste Day

Tackling our growing tech waste challenge by inspiring smarter ways to buy, use, and recycle electronic devices.



International Day of Climate Action

Uniting voices worldwide in a powerful call for climate action, proving that together we can create positive change.



"WORD OF THE MONTH!"

Ecocide

Ecocide refers to deliberate or reckless actions that are taken with the awareness that they will likely cause severe and lasting harm to the environment. These acts result in widespread damage to ecosystems, wildlife, and natural resources, often with long-term consequences for the planet.

The International Convention for the Regulation of Whaling



International Convention for the Regulation of Whaling being signed in Washington DC on 2nd December 1946.
Source: International Whaling Commission (IWC)

The history of whaling spans over four millennia, but the 20th century marked a critical turning point when technological advances led to unprecedented exploitation of whale populations. This crisis prompted the creation of the International Convention for the Regulation of Whaling in 1946, establishing the International Whaling Commission (IWC). The IWC's most significant action came in 1982 with the implementation of a commercial whaling moratorium in 1986, representing a fundamental shift from exploitation to conservation.

International Whaling Commission (IWC)

Currently, the IWC comprises 88 member nations and operates through a legally binding 'Schedule' that governs whaling activities. The commission has expanded its focus beyond whaling regulation to address modern threats like ocean pollution, ship strikes, and marine debris. While the IWC has achieved notable successes, such as the recovery of the eastern Pacific gray whale and preventing species extinction, challenges persist. The voluntary nature of enforcement remains problematic, with countries like Norway and Iceland continuing commercial whaling outside the moratorium and Japan's withdrawal in 2019.

The recent IWC-69 meeting in Lima (2024) demonstrated progress through new partnerships with global conservation frameworks, including the High Seas Treaty and strengthened Antarctic protection measures, showing an evolving commitment to marine conservation.

India and the IWC

India joined the IWC in 1981 and has consistently voted for conservationist measures such as the moratorium on commercial whaling, the inclusion of small cetaceans under the ambit of the IWC, and the Berlin initiative on strengthening the Conservative Agenda of the International Whaling Commission.

Quiz Zone

1. The recently concluded COP16 to the Convention on Biological Diversity (CBD) was held at:

- (a) Nairobi, Kenya
- (b) Cali, Colombia
- (c) Montreal, Canada
- (d) Kunming, China

2. The “Golden Ratio,” often denoted by the Greek letter ϕ (phi), is a special number that appears in art, nature, and architecture. What is the approximate value of this famous ratio?

- (a) 1.618
- (b) 3.141
- (c) 2.718
- (d) 1.414

3. The tribal community in India shown in the image has recently banned hunting, trapping, and killing of wild animals and birds within their territory. Which tribe is it?

- (a) Bhil Tribe
- (b) Gond Tribe
- (c) Poumai Naga Tribe
- (d) Khasi Tribe



4. Which of the following statements about environmental DNA (eDNA) is incorrect?

- (a) It can be collected from water, soils, and aerosols to monitor biodiversity.
- (b) Its analysis can confirm the presence of organisms and provide detailed information on their size, number, and life stage.
- (c) It is particularly effective for tracking invasive species and assessing the impacts of climate change and pollution.
- (d) The non-invasive nature of eDNA makes it a cost-effective and environment-friendly tool for studying ecosystems.

5. What is the key focus of the recently approved Mission Mausam initiative, scheduled for implementation between 2024-2026?

- (a) Reviving ancient maritime routes and cultural heritage
- (b) Revolutionizing India's weather and climate forecasting infrastructure
- (c) Promoting international collaboration on oceanic studies
- (d) Enhancing agricultural productivity through improved irrigation systems

6. Which G7 country has become the first to end coal power with the closure of its last coal plant?

- (a) Germany
- (b) Canada
- (c) Japan
- (d) Britain

7. What does the term “ecocide” refer to?

- (a) The deliberate destruction of cultural heritage sites
- (b) The intentional or reckless destruction of the environment, causing severe harm to ecosystems
- (c) The extinction of species due to natural causes
- (d) The large-scale development of urban areas in forested regions

8. What is the primary objective of the Cali Fund?

- (a) To support the development of renewable energy technologies
- (b) To enable companies to pay for the commercial use of digital sequence information
- (c) To fund global health initiatives and pandemics prevention
- (d) To invest in technological innovations in agriculture

9. Which of the following is not part of the “sister conventions” related to environmental conservation?

- (A) Convention on Biological Diversity (CBD)
- (B) United Nations Framework Convention on Climate Change (UNFCCC)
- (C) Convention on International Trade in Endangered Species (CITES)
- (D) United Nations Convention to Combat Desertification (UNCCD)

10. The Kunming-Montreal Global Biodiversity Framework (KMGBF), a landmark agreement for biodiversity conservation, was adopted in which year?

- (A) 2010
- (B) 2000
- (C) 2022
- (D) 1972

Answers
1. - B, 2. - A, 3. - C, 4. - B, 5. - B, 6. - D, 7. - B, 8. - B, 9. - C, 10. - C



Crossword



Across

4. City where the Protocol was signed with mandates prior and informed consent from Indigenous and local communities, before accessing their knowledge
7. Use of biological material and traditional knowledge without the consent of communities and for commercial gain
8. Phenomenon of emitting of light by an Organism
9. Home of Tribe Lepchas
11. Hormone responsible for the sleep
13. Continent on whose coast the Great Barrier Reef is located
14. The genetic material left by organisms in the environment.

Down

1. Name the Indian state where Pench Tiger Reserve is located
2. Country which hosted the 16th meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD COP16)
3. India's National Bird
5. Deliberate or reckless actions that are taken with the awareness that they will likely cause severe and lasting harm to the environment
6. Part of the triple planetary crisis along with Climate Change and Biodiversity loss
8. Becomes the first G7 country to end coal-fired power production
10. Indian state which implemented a successful Jal Sanchay initiative
12. Union Territory in India in which Hanle Dark Sky Reserve is located.

ANSWERS
Across: 4. Nagoya; 7. Biopiracy; 8. Bioluminescence; 9. Sikkim; 11. Melatonin; 13. Australia; 14. eDNA
Down: 1. Maharashtra; 2. Colombia; 3. Peacock; 5. Ecocide; 6. Pollution; 8. Britain; 10. Gujarat; 12. Ladakh





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'The Planet Vision' aims to educate and inspire individuals about the importance of individual actions for a sustainable future. It presents uplifting narratives, highlighting local conservation efforts and community initiatives.

We also provide regular updates on the latest environmental technology and groundbreaking projects, aiming to raise awareness of the environment, nature, and the planet. The goal is to encourage eco-friendly behaviours and promote sustainable practices.

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