

sustainability initiatives

EARTHFLUENCERS IMPRINT 06

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EDITORIAL TEAM

Interviews Conducted & Articles Written By: Priyanka Burange

Editor: Apoorva Kulkarni

Creative Design & Layout: Sayli Kumbhar

Printed By: Prayash Copiers & Print Services LLP

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SI: Team

Senior Coordinator: Amol Umbarje

Program Coordinator: Priyanka Burange

Jr. Program Coordinator: Sumit Kapse

Managing Trustee: Apoorva Kulkarni

Trustees:

Dr. Poorva Keskar

Ar. Hrishikesh Kulkarni

Ar. Anagha Paranjape-Purohit

Core Members:

Ar. Vijay Sane

Ar. Dwaipayan Chakravarty

Join US

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3rd Floor, Muttha Chambers II, Near Chatturshringi Temple, Senapati Bapat Road, Pune-411016

A Special Edition At
GRIHA Regional Conclave 2026

Sustainability Initiatives (SI) proudly presents **SI Imprint – Edition 06 : EARTHFLUENCERS**, unveiled at the **GRIHA Regional Conclave 2026**, held on 30 September 2026 at Hotel Conrad, Pune.

Themed ***"Pathways for a Low Carbon Future: Buildings to Infrastructure,"*** the conclave provided a meaningful platform to celebrate ideas, innovations, and initiatives shaping a more sustainable future.

This special edition of SI Imprint celebrates individuals, organisations, and changemakers who are turning sustainability aspirations into impactful action. Its unveiling at the conclave marks a significant milestone in our continued efforts to amplify environmental innovation and inspire collective action towards a low-carbon future.



EDITORIAL SPEAK



APOORVA KULKARNI

From Awareness to Action

There is a moment, often quiet, when a familiar thing begins to look different.

A discarded battery becomes a question. A heap of agricultural residue becomes a possibility. A construction site becomes a measure of what we choose to build and what we choose to leave behind.

Waste stops being the end of a journey and begins to look like the beginning of another. Perhaps this is where change begins: **Not with a grand declaration, but with the courage to look again.**

We live in a time when the limits of the planet are no longer distant ideas. They are woven around us in the resources we consume, the waste we generate, the energy we use, and the choices we make every day. The challenge before us is not simply to know that these limits exist. **It is to rethink what we do within them.**

That is the spirit of **Earthfluencing.**

An Earthfluencer need not have a vast audience or a platform. **An Earthfluencer is someone who changes the way a problem is seen and, in doing so, changes what happens next. In this issue of *Imprint 06 - Part 1 and 2* we meet people who are doing precisely that.**

Some are turning carbon data into a tool for better business decisions, recognising that what can be measured can also be understood, managed and transformed. Others are looking at agricultural residue not as something to be discarded, but as a starting point for new possibilities in battery technology. There are those rethinking waste at its source, challenging the idea that disposal is the inevitable conclusion of consumption. There professionals who are asking how sustainability can become part of the process itself, rather than an afterthought. And there are communities discovering that sometimes the most circular thing we can do is simply use, share, exchange and reuse what already exists.

Different questions. Different fields. Different approaches.

Yet beneath them runs a common thread: **the refusal to accept that things must remain the way they are.**

This refusal matters.

Because sustainability is not only about saving something far away or protecting a future we cannot yet see. It is about redesigning the systems of the present.

It is about asking better questions of our businesses, our technologies, our cities, our institutions and of ourselves. The stories in ***Imprint 06*** are not just questions more importantly; they are acted upon.

The real transformation happens when awareness becomes a decision; when a decision becomes a practice; when a practice becomes a habit; and when enough individual habits begin to reshape a culture.

That is why the idea of the ***Earthfluencer*** feels especially relevant today. Influence is often imagined as something loud: a voice amplified across screens, several followers, a moment that goes viral. But some of the most consequential forms of influence are quieter.

They happen when an entrepreneur changes a process, when a scientist pursues an uncertain idea, when a project team measures what it once ignored, when a community chooses reuse over disposal, or when one person asks a deceptively simple question:

Can we do this differently?

Perhaps that question is the beginning of every meaningful innovation.

This issue celebrates those who are asking it.

It also invites us, as readers, to ask of ourselves not as spectators of the sustainability conversation, but as participants in it.

The planet does not need more perfect people. It needs more people willing to notice, question, experiment, learn and act.

That is where influence begins.

And perhaps, one choice at a time, that is how change begins too.

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Climate in Code

Carbon Data as a Competitive Advantage: **Nilesh Bhattad** of **CleanCarbon.ai** is using AI to help Indian industry navigate the low-carbon economy.

For years, carbon emissions were largely treated as an environmental concern. For businesses, they were often another number in a sustainability report important, but rarely central to everyday commercial decisions.

That is changing.

As climate regulations increasingly shape global trade, the **ability to measure, verify and report carbon emissions** is becoming a business requirement. For Indian exporters, particularly those supplying carbon-intensive products to Europe, carbon data can increasingly influence compliance, costs and market access.

For **Nilesh Bhattad, Founder of CleanCarbon.ai,** this emerging challenge presented an opportunity. After spending more than two decades in enterprise technology first with Infosys and later with NTT DATA Nilesh had built large-scale systems and even earned a US patent for **AI-based industrial defect detection.**

Technology had always been his craft.

The question was where to point it next. When the **European Union's Carbon Border Adjustment Mechanism (CBAM)** began taking shape, he saw an entire generation of Indian exporters facing a new reality: their products would increasingly need to be accompanied by credible carbon data.



Nilesh Bhattad, Founder, Clean Carbon.ai

Many manufacturers had no practical way to produce it. For **Nilesh,** the problem was familiar. He had spent years turning complex industrial data into useful decisions.

Why not do the same for carbon?

CleanCarbon.ai was incorporated in **April 2023** with a clear ambition to make carbon compliance **something manufacturers could operationalise rather than fear.**

From Enterprise Technology to Climate Technology

Nilesh's transition into climate technology was not a complete departure from his past. It was an extension of it. His experience had taught him how to work with complex systems, industrial data and large-scale processes.



Award: National Conclave on Environmental Services (2nd NCES)

The challenge now was applying those skills to a problem that was becoming increasingly important for both business and the planet. His philosophy was straightforward:

"You cannot reduce what you cannot credibly measure."

But carbon accounting is rarely simple.

A manufacturer's emissions can originate within its own operations, from purchased energy and across its wider supply chain. For companies dealing with hundreds of suppliers and multiple factories, collecting, reconciling and validating this information can become an enormous task.

CleanCarbon.ai was built to simplify that complexity.

Today, its platform supports carbon accounting, CBAM reporting, ESG requirements and decarbonisation planning across sectors including **iron and steel, aluminium, cement, automotive, machinery and industrial manufacturing.** The company currently states that it is trusted by **200 exporters worldwide**.

The objective is not simply to produce another sustainability report. It is to create **carbon data that businesses can actually use.**

Turning Carbon Risk into Export Advantage

Even the company's name reflects this philosophy. Carbon is often spoken of as something that needs to be eliminated.

Nilesh sees it differently.

Carbon needs to be measured, understood, managed and reduced. And that is where the **".ai"** comes in. Artificial intelligence and digital systems can help organisations process enormous volumes of data involved in carbon accounting something increasingly difficult to manage through spreadsheets and manual processes alone.

CleanCarbon.ai's public positioning captures this philosophy in one line:
"Turning Carbon Risk into Export Advantage."

For Nilesh, sustainability should not be treated simply as a cost of doing business. If managed intelligently, it can become a competitive advantage.

When Compliance Becomes a Business Question

CBAM has changed the conversation.

For an Indian manufacturer exporting covered products to the European Union, carbon emissions are no longer simply an environmental metric. They are becoming part of the **language of international trade**.

CleanCarbon.ai helps organisations collect emissions data, prepare CBAM reports, work with suppliers and build a more defensible carbon position. Its platform says it provides tailored CBAM solutions within **12 hours**, including reporting, validation and consulting/software support.

The company's current website also highlights work across multiple CBAM-covered and related industrial sectors, including iron and steel, aluminium, foundries, fasteners and tractors. But for Nilesh, the most meaningful impact is not simply the number of reports generated.

It is the change in confidence.

Manufacturers who once worried about changing European regulations can increasingly approach their export markets with credible carbon information. **The journey is from uncertainty to preparedness.**



Award: Environmental Services (2nd NCES)

From Carbon Compliance to Carbon Infrastructure

What began as an attempt to help individual manufacturers navigate a changing regulatory landscape has grown into something larger.

CleanCarbon.ai says it is **now trusted by 200 exporters,** with a growing network across industries including iron and steel, cement and aluminium.

But Nilesh's ambition extends beyond helping companies prepare reports.

The company has partnered with the **Services Export Promotion Council (SEPC)** under the Ministry of Commerce and Industry to support exporters through its **Carbon Cell**, aimed at strengthening CBAM readiness and carbon accounting.

CleanCarbon.ai describes itself as an official CBAM partner of SEPC and EEPC India.

The company has also developed the **India CBAM Registry**, positioning carbon information as part of a wider ecosystem connecting Indian suppliers with carbon-conscious international markets.

The evolution is significant.

CleanCarbon.ai is no longer simply **helping businesses calculate carbon.** It is working towards an infrastructure in which carbon information can **influence trade, market access, competitiveness and decarbonisation.**



ET Now feature on CBAM tax from 2026

When Data Creates Measurable Business Value

The impact becomes clearer through the company's published case studies. For **Escorts Kubota**, CleanCarbon.ai reports successfully engaging **35 suppliers**, with **100% data submission** for the relevant exercise.

For **Jamshedpur Chlorochem**, the company reports 100% on-time submission of EU-compliant reports.

And in the case of **Jindal Aluminium**, CleanCarbon.ai reports that timely CBAM reporting helped the company reduce **CBAM tax by 40%** and pass EU audits with zero discrepancies.

Another published case involving **Grik Metal India** reports a **35% reduction in carbon-tax exposure/compliance costs**, alongside 100% on-time submission of compliant reports.

These are individual company case studies rather than company-wide impact statistics, but they demonstrate the commercial potential of getting carbon data right.

For Nilesh, this is precisely the point.

Climate action becomes more powerful when the sustainable decision is also the intelligent business decision.

Recognition for Building the Carbon Economy

Recognition has followed the journey.

CleanCarbon.ai's official platform identifies Nilesh and the company with recognition including **Best Innovator of the Year in Environmental Services** from the Services Export Promotion Council under the Ministry of Commerce & Industry.

The company also highlights recognition from the **European Union Delegation** to India, reflecting its work around CBAM and India's emerging role in low-carbon trade. For Nilesh, such recognition represents more than a personal achievement.

It signals a broader shift.

Carbon management is moving from the margins of sustainability conversations into the centre of **industrial strategy and international competitiveness.**

The Hardest Decision: Walking Away from Revenue

But the journey was not without risk.

One of Nilesh's most difficult decisions came when he deliberately chose to walk away from a reliable source of revenue. CleanCarbon.ai's earlier business involved building white-label software for an overseas company's customers. It was steady and comfortable.

But Nilesh could see that the future lay elsewhere. The carbon platform was growing. CBAM demand was increasing.

And the opportunity was becoming clearer.
Continuing with the established business would have been easier. Instead, he chose to wind it down while the new business was still finding its feet.

It was a frightening decision.

Revenue declined before the new model could fully take its place. What kept him going was not blind optimism, **but conviction supported by evidence.** The market was moving. Regulation was changing. And Indian exporters were beginning to need exactly what CleanCarbon.ai was building.

Today, according to Nilesh, the carbon-compliance platform has become **the company's primary and fastest-growing revenue driver.**

The Human Side of Building Climate Tech

Behind the technology is a team and behind the founder is a family. Nilesh credits his wife, **Rashmi**, with carrying much of the quiet cost of the early years the uncertainty, long working hours and difficult decisions.

His mentors, including members of his **IIM Ahmedabad network**, provided something he values deeply: honest disagreement when he needed it most.

And his founding team **Priti, Rohit, Shubam, Pawan and Bhavana** believed in the mission before there was proof that it would work. For Nilesh, entrepreneurship has therefore never been a solo achievement.

It has been a collective act of belief.

AI's Next Climate Frontier

Nilesh believes the next decade will fundamentally change the relationship between artificial intelligence and climate action. Millions of suppliers. Thousands of factories. Multiple products. Continuous emissions data. Different reporting requirements. No human team could reconcile all of this manually at the scale required.

AI can help.

CleanCarbon.ai's platform brings together carbon accounting, CBAM reporting, ESG requirements and decarbonisation planning, while its certification stack includes **ISO 14001:2015, ISO 9001:2015, ISO 14065:2020, ISO 27001:2022, ISO/IEC 17029:2019 and ISO 14064-1:2018**, according to the company's website. It also states that it is recognised by SEBI to operate as an **ESG Rating Provider, Category II**.

For Nilesh, however, the long-term vision is bigger than certifications or compliance. He expects carbon data to become as **routine, credible and auditable as financial data is today.**

CleanCarbon.ai aims to become part of that infrastructure, a trusted system where carbon is measured, verified and translated into decisions. He describes CBAM not simply as a carbon challenge, but **fundamentally as a data challenge.**

And the companies that learn to manage that data early may gain an advantage over those that wait until compliance becomes unavoidable.



MoU Signing with SEPC Partners

Beyond the Balance Sheet

The entrepreneurial journey has changed Nilesh personally too.

After more than two decades in corporate technology, he had become accustomed to structured environments where risk was distributed across organisations. Entrepreneurship changed that.

As a founder, the uncertainty is personal. There are no guarantees. The experience has made him more comfortable with ambiguity and more patient with long-term change.

It has also changed the way he measures success.

Revenue still matters. But when your work touches something as consequential as the planet, success begins to include another question:

What are we leaving behind?

Outside work, Nilesh reads widely about technology, markets and systems change.

Time with family, long walks and periods of quiet reflection help him step away from problems and return with new perspectives.

He also enjoys listening to talks on the **Ashtavakra Gita** and spending time in the **hills of Kasar in Uttarakhand.**

Perhaps that balance between systems thinking and reflection is reflected in his approach to entrepreneurship itself.

TRIVIA



A 2010 Journal of Industrial Ecology study found that producing 1 CD emits 240–300 g of CO_2e. Digital streaming can reduce emissions by 40–80%, while AI improves content discovery. A 2024 Nature Communications study estimates annual streaming emissions at 229 kg CO_2e per user.

TRIVIA



A 2023 University of California, Riverside study found that training GPT-3 consumed around 700,000 litres of clean freshwater for cooling enough to manufacture approx 370 BMW cars.

AN EARTHFLUENCER'S MESSAGE

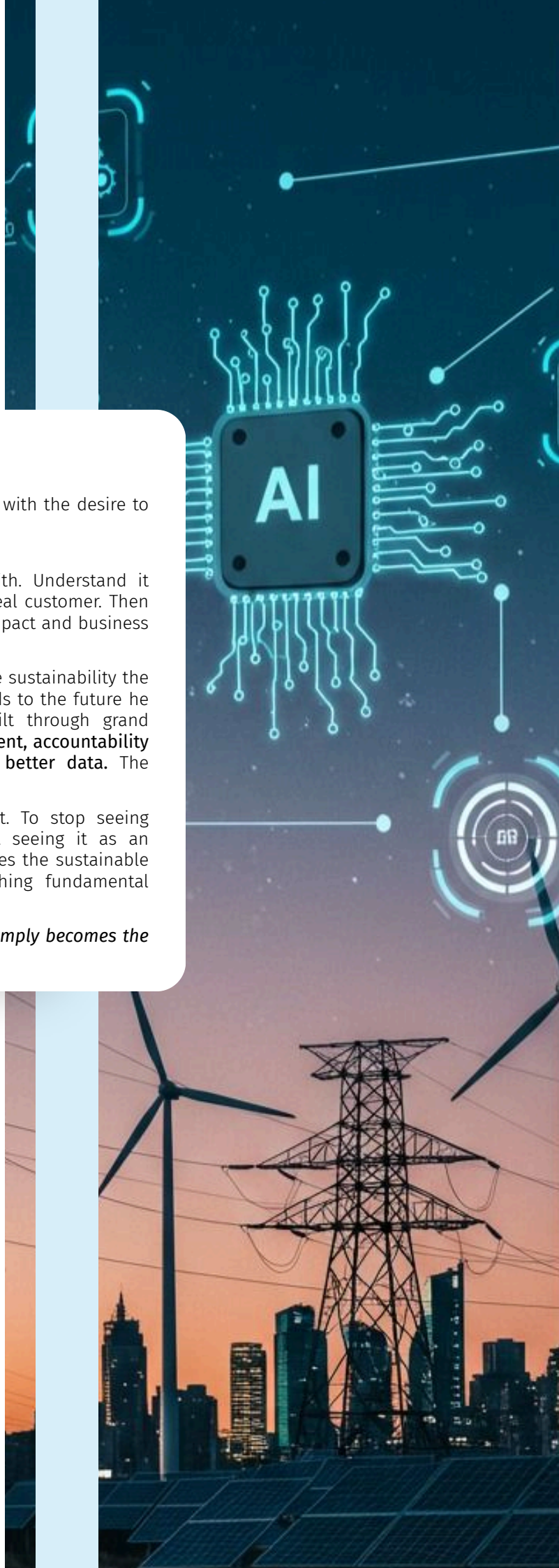
Nilesh's message to young innovators is not to begin with the desire to *"save the planet."*

Begin with a real problem.
Find something people are genuinely struggling with. Understand it deeply. Build something useful. Put it in front of a real customer. Then allow reality to teach you what comes next. or him, impact and business viability are not opposites.

The strongest climate businesses are those that make sustainability the **better business decision**. And that philosophy extends to the future he imagines. A low-carbon economy will not be built through grand declarations alone. It will be built through **measurement, accountability and thousands of practical decisions made with better data.** The opportunity, therefore, is not simply to reduce carbon.

It is to change the way businesses think about it. To stop seeing sustainability as a cost to be endured. And start seeing it as an advantage to be won. Because when technology makes the sustainable choice the commercially intelligent choice, something fundamental changes.

A cleaner economy stops looking like a sacrifice. It simply becomes the smarter way to do business.



Climate in Code

Building Sustainability Before the Building Exists: **Dr. Poorva Keskar** and **Ar. Hrishikesh Kulkarni** of **Green Score** are transforming construction sites into catalysts for sustainable development.

"Real transformation does not happen through commitments alone. It happens through consistent, measurable actions taken every day on every project site."

For decades, sustainability in the built environment has been judged by **what happens after a building is completed,** how much energy it saves, how efficiently it uses water or how healthy it is for its occupants.

But what about **everything that happens before the doors even open?**

Construction sites consume enormous quantities of materials, generate signifi cant waste, use vast amounts of water and energy, and become workplaces for hundreds of people over several months or even years. Yet this crucial phase of a building's lifecycle has often remained invisible in conversations around sustainability.

That unanswered question became the driving force behind **Green Score**, an innovative framework developed by **VK:e Environmental** to bring sustainability into the construction phase itself.

Looking Beyond Green Buildings

FFor over five decades, **Dr. Poorva Keskar** and **Ar. Hrishikesh Kulkarni** have worked closely with architects, builders, consultants and policymakers bringing extensive experience in the built environment sector in creating **Green Score app**.

Green Score App

Their collective expertise, along with **Animesh's** decade-long experience at the **Indian Green Building Council (IGBC),** promoting sustainable buildings across India, has helped shape their approach to sustainability.

During this journey, **Dr. Poorva Keskar & Ar. Hrishikesh Kulkarni** witnessed an encouraging transformation. **Sustainability** evolved from being viewed as a niche concept to becoming an **essential consideration in modern construction.** Green buildings successfully demonstrated how thoughtful design could reduce energy use, conserve water, and improve resource efficiency. Yet one important question continued to remain unanswered. **If buildings can be designed sustainably, shouldn't they also be built sustainably?**

That realisation laid the foundation for **Green Score, a SaaS-based framework** designed to measures and improves sustainability where



Dashboard of Green Score

construction actually begins. It marked a shift in thinking: sustainability should not start when a building is occupied; it should start from the very first day of construction.

Measuring What Matters

Traditionally, construction projects have been evaluated on three key parameters: **cost, quality, and timelines.**

Green Score introduces a fourth pillar: **Sustainability.**

The framework enables developers and contractors to assess, benchmark, and continuously improve construction practices across environmental performance, worker welfare, site safety, waste management, and resource efficiency.

"What gets measured gets improved."

By replacing assumptions with measurable performance indicators, Green Score helps organisations move beyond compliance and embrace a culture of continuous improvement. Rather than asking whether sustainability is important, Green Score asks a more meaningful question:

How do we measure it every single day?

Changing the Culture of Construction

Within just one year, Green Score has been adopted across **more than 40 active construction projects, including projects** by **Amar Builders, Cybage, Kolte Patil Developers, Kumar Corp, Panchshil Realty, Pharande Spaces, and the Public Works Department (PWD), Pune Division**, among others. The numbers, however, tell only part of the story. Its real impact lies in changing conversations across construction sites.

Project managers, engineers, contractors, and leadership teams are increasingly integrating sustainability into project execution, using measurable environmental data alongside quality and safety assessments.

The **Green Score Certified Training Program equips site engineers and project teams with an understanding of all 50 checklist parameters,** their environmental and social relevance and documentation requirements.

Through **hands-on demonstrations** of the Green Score platform, participants learn to navigate the tool, understand the **assessment process, and clarify queries**. Upon completion, they gain the **practical knowledge to integrate sustainable practices into their construction projects.**

Imagine Every Construction Site Doing This

Every construction project is temporary. Its environmental impact is not. Imagine if one project systematically reduced waste, improved worker welfare, conserved resources, and monitored environmental performance throughout construction.

Now imagine **10 projects. 100 projects. 10,000 construction sites** across the country follow the same approach. The cumulative impact would extend far beyond individual buildings.

It would reduce resource consumption, improve workplace safety, minimise construction waste, strengthen environmental accountability, and create a new benchmark for responsible urban development. That is where site-level improvements become city-level transformation.



GBC 2025 - With Mr. Rishab Kasliwal, MD - Kamal Cogent

Building a Movement, Not Just a Framework

For the founders Green Score is about far more than assessment.

It is about *creating lasting behavioural change within the construction industry.*

Every project that voluntarily adopts better practices influences future projects, inspires neighbouring developments, and encourages clients to demand greater transparency in how buildings are constructed.

Increasingly, stakeholders are no longer asking only how a building performs after completion. They are asking how it was built. That shift represents one of the most encouraging signs for the future of sustainable construction.

A Vision for the Next Decade

Looking ahead, **Dr. Poorva Keskar** hopes **sustainability becomes as fundamental to construction** as quality and safety are today.

Ar. Hrishikesh Kulkarni envisions every construction project measuring its environmental performance from groundbreaking to handover, enabling **data-driven decision-making throughout the project lifecycle.**

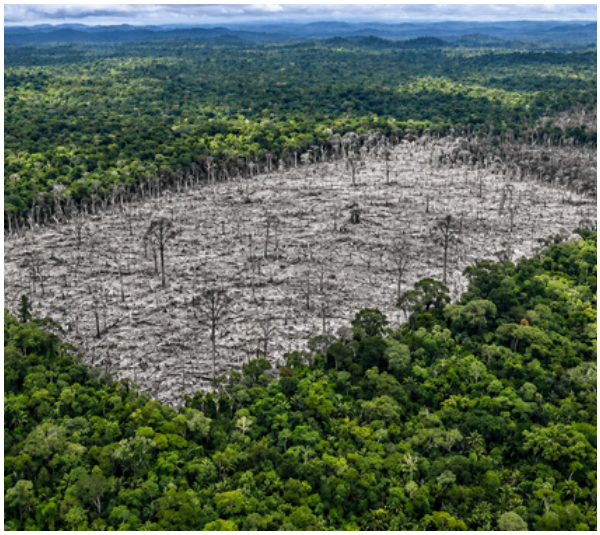


Ar. Hrishikesh Kulkarni Receives the Best Demo Award India PropTech Demo Day, RealtyNxt, Bengaluru

Green Score aspires not merely to improve individual projects but to make sustainable site monitoring an industry standard.

If, ten years from now, periodic sustainability assessments **become a routine part of construction across India**, Green Score's mission will have been fulfilled.

TRIVIA



The 2025 Global Forest Watch report found that forests equivalent to nearly 18 football fields were lost every minute in 2024, releasing 3.1 gigatonnes of greenhouse gases. AI-powered NASA Landsat and ESA Sentinel satellites enable near real-time forest-loss detection.

TRIVIA



FAO's 2022 State of Food and Agriculture report states that agriculture uses nearly 70% of the world's freshwater. AI-powered satellite imagery helps farmers optimize irrigation and conserve water.

AN EARTHFLUENCER'S MESSAGE

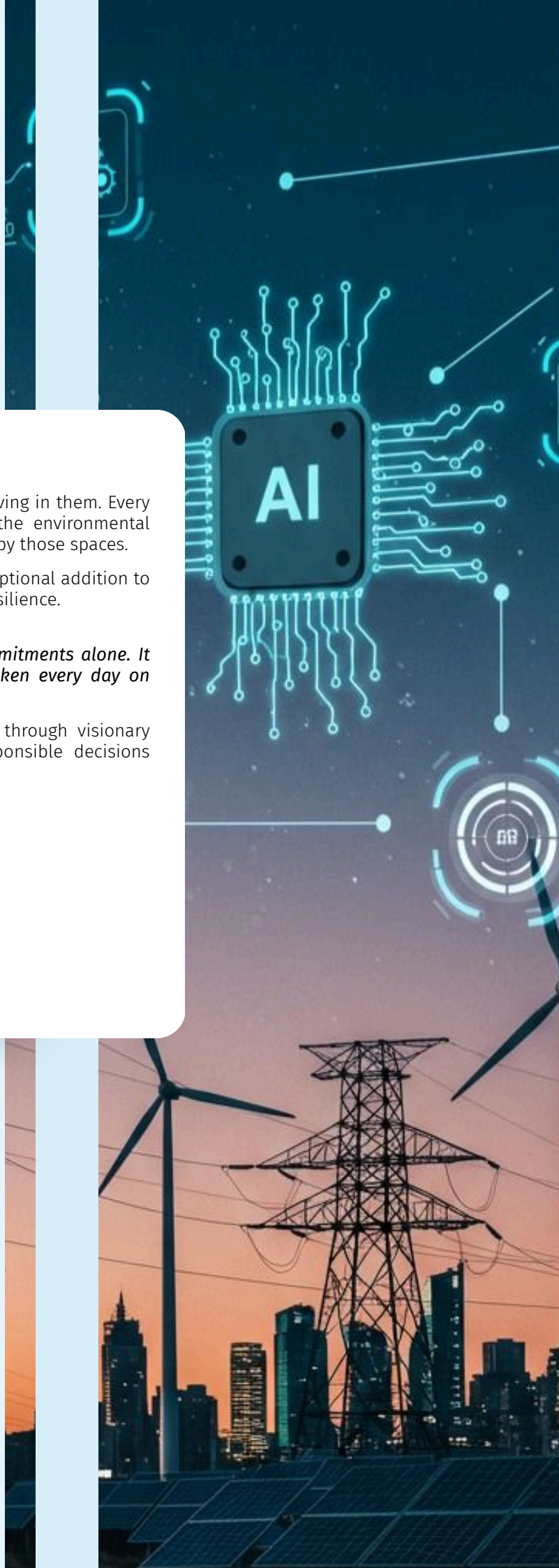
Modern cities are shaped long before people begin living in them. Every decision taken on a construction site infl uences the environmental footprint of the communities that will eventually occupy those spaces.

For Green Score Team, sustainability is no longer an optional addition to construction; it is becoming essential for long-term resilience.

His message is both practical and powerful:
"Real transformation does not happen through commitments alone. It happens through consistent, measurable actions taken every day on every project site."

Because truly sustainable cities are not built only through visionary designs. They are built through thousands of responsible decisions made long before the ribbon is cut.

Scan to Explore Green Score



Green Rebels

Powering Tomorrow, Naturally: **Nikita and Nishita** of **Nexus Power** are reimagining the future of sustainable energy.

' A ship in the harbour is safe, but that's not what it is built for. ' *says Nikita, Co-founder, Nexus Power.*

Every winter, millions of tonnes of crop residue are set ablaze across northern India, cloaking entire cities in thick smog and pushing air quality to hazardous levels. While most people saw agricultural waste, **identical twin sisters Nikita and Nishita** saw an opportunity waiting to be transformed.

What if the same crop residue polluting the air today could become the raw material for powering the clean energy systems of tomorrow?

That single question became the foundation of **Nexus Power, a deep-tech startup** developing biodegradable batteries from agricultural crop residue, challenging conventional battery technology while contributing to India's journey towards cleaner, greener and more self-reliant energy solutions.

For Nikita, however, the story was never just about building a better battery. It was about changing the way the world thinks about energy itself.



Nikita, Co-founder, Nexus Power

A Dream That Began Long Before the Company

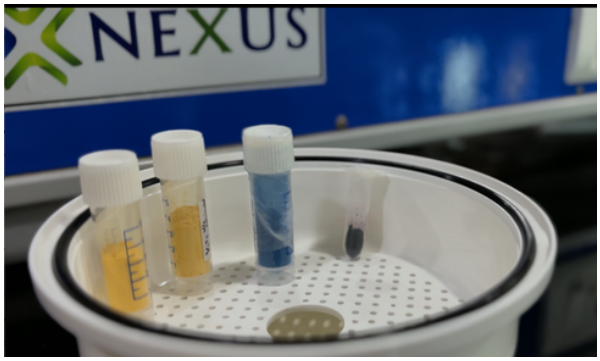
Long before Nexus Power was officially registered, entrepreneurship had already found a place in the sisters' imagination.

"I think we were around ten or eleven years old when we realised we wanted to build our own company," Nikita recalls.

Unlike many of their peers, campus placements were never part of the plan. The dream was always to create something meaningful that could solve a real-world problem.

While pursuing their MBA, classroom discussions on sustainability, environmental management, and innovation gradually shaped that dream into a purpose.

Around the same time, India's worsening air pollution, driven largely by stubble burning and the rapid rise of electric mobility sparked another question.



Electrode Material at Nexus Lab

Electric vehicles may represent the future of transportation but were the batteries powering them truly sustainable?

Conventional lithium-ion batteries rely heavily on imported rare earth metals such as lithium, cobalt, and nickel. Their extraction places enormous pressure on ecosystems, while their disposal presents long-term environmental challenges.

The sisters wondered whether nature itself already held the answer. A simple experiment almost like a school science project using agricultural crop residue as a battery material produced encouraging results.

That was enough.

In **2020,** at just **22 years of age**, they founded **Nexus Power**, determined to transform agricultural waste into one of tomorrow's clean energy solutions.

Turning Waste into Energy

Every innovation begins by challenging an accepted norm.

For Nexus Power, that norm was the belief that advanced batteries must depend on scarce and imported materials. Instead, the company is developing battery technologies **using bio-abundant agricultural residue**, creating an energy storage solution that is designed to be environmentally safer while simultaneously addressing the growing challenge of crop residue burning.

Their vision extends beyond producing greener batteries. It is about creating an ecosystem where waste becomes a resource, farmers become contributors to the clean energy economy, and India becomes less dependent on imported raw materials.

For Nikita, sustainability and self-reliance are deeply connected.

"When your raw materials are available within your own country, you don't just build batteries you build energy independence."

That philosophy has become one of Nexus Power's defining strengths. Every key raw material used in its technology is sourced domestically, reducing import dependence while contributing towards India's long-term energy security.

Building Deep Technology Without Being Engineers

Perhaps the most surprising aspect of the sisters' journey is that neither of them is an engineer.

Both are management graduates.

Leading a battery technology company meant stepping into a world of electrochemistry, material science, laboratory research, and scientific terminology that initially felt unfamiliar. Rather than allowing this to become a limitation, they became students once again.

They enrolled in specialised programmes offered by premier institutions, learnt battery chemistry, material sciences, laboratory systems, and energy storage technologies, equipping themselves with the knowledge required to lead a multidisciplinary research team.

Today, Nexus Power has grown into a team of around **30 professionals**, nearly **70% of whom are dedicated research scholars** working tirelessly on developing next-generation battery technologies.



Nexus Power at UN COP 28

Nikita often laughs while recalling how their research team still explains complex scientific concepts to the founders *"like teachers explaining lessons to students."*

For her, continuous learning remains one of the greatest strengths of entrepreneurship.

Taking Risks While the World Expected Stability

Deep technology is not an easy path. Years of research often pass before the first commercial product reaches the market. For a startup founded by two young graduates, this meant entering a journey filled with uncertainty.

Financial resources were limited.

Commercial revenues were years away.

Every decision demanded courage.

Fortunately, early support arrived through grants from the **Government of India** and the **Government of Odisha**, enabling Nexus Power to continue its research before eventually securing equity investments. Looking back, Nikita believes youth itself became one of their biggest advantages.

"When you're young, your responsibilities are fewer. That gives you the freedom to experiment, fail, learn, and start again."

Rather than seeing failure as something to avoid, she believes it is an essential ingredient of innovation.



Winners at NBEC (Aug 2025)

More Than Technology: Resilience and Breaking Barriers

For Nikita, building Nexus Power has been a journey that demands far more than a strong idea, funding, or technological innovation. It requires emotional strength, resilience, and the ability to keep moving forward when things do not go as planned. She believes founders must remain steady through both success and failure, drawing strength from their team and their shared belief in the mission.

The journey has also meant navigating a traditionally male-dominated deep-tech industry. As young women building a technology-driven company, Nikita and Nishita faced questions about marriage, future leadership, and their personal lives questions rarely asked of male founders. They chose to let their work, technology, and impact speak for themselves.

Their experiences have strengthened Nikita's commitment to encouraging more women to enter deep technology. For her, the message is simple: *"If you have an idea, don't hold yourself back. Plan it. Build it. Try. Something good always comes from trying."*

Recognition That Changed an Industry

Recognition came gradually, each milestone reinforcing the belief that sustainable battery technology could have a place in India's clean-energy future.

Being featured in **Forbes 30 Under 30 India and Forbes 30 Under 30 Asia in 2021** was a defi ning moment, placing Nikita and Nishita among some of the region's most promising young entrepreneurs. Their journey was further recognised through the **Shakti Award for Excellence in Entrepreneurship & Innovation by CII, the Power 100: Women in Innovation by PwC and CII,** and the **Green Startup of the Year Award by Entrepreneur Awards.**

But the most significant milestones were those that validated the technology itself. Successfully developing and deploying their fi rst battery cells for pilot testing transformed years of research into something tangible. Then, in **2025, Nexus Power won the National Bio-Entrepreneurship Challenge**, recognising the potential of its work at the intersection of agricultural residue, biotechnology and clean energy.

For Nikita, the recognition represents something larger than a collection of awards.

When Nexus Power began its journey, battery **technology and biotechnology were rarely spoken about together.** Today, their work is helping demonstrate how biological resources and agricultural waste can contribute to the development of next-generation energy technologies.

And the recognition continues. In 2026, Nexus Power received the **Yes City Innovation Award by Deloitte** and the **World Economic Forum**, followed by the **Business Excellence Award for Green Innovation by NTWB, Government of India.**

For the sisters, these milestones are not simply markers of success.

They are evidence that an idea born from agricultural waste can challenge conventional battery technology and that sustainable innovation can emerge from India and reach the world.

Made in India. Designed for the World.

While Nexus Power has already begun pilot deployments with leading organisations, public sector enterprises, and government bodies, the company is deliberately taking its time before entering commercial markets.

TRIVIA



"Too young to lead?" Deloitte's 2024 Gen Z and Millennial Survey says otherwise. 54% of Gen Z are encouraging their employers to take stronger climate action, while 64% are willing to pay more for sustainable products.

Commercial-scale manufacturing will begin after obtaining the required **BIS certifications**, ensuring that every product meets the highest quality and safety standards before reaching customers.

Looking ahead, the founders envision **Nexus Power evolving into a global battery technology company** that manufactures in India while serving the world. Their ambition is not simply to build one successful battery chemistry.

It is to develop multiple sustainable battery technologies for multiple applications, while eventually licensing Indian innovations across global markets.

For Nikita, **the real dream is to see the world importing battery technology from India** not the other way around.

AN EARTHFLUENCER'S MESSAGE

Before concluding the conversation, Nikita paused to leave readers with one final thought. Not everything labelled **"green"** is truly sustainable.

She encourages **people to question, research, and make informed decisions** instead of accepting environmental claims at face value.

Sustainability, she believes, should never become a burden or a forced responsibility. It should become a habit.

A part of everyday life. ***"As natural as breathing."***

Just as **we instinctively protect our homes, careers, and dreams, we must also learn to protect the environment** that makes all of them possible.

Because every innovation, every business, and every future ultimately begins with the planet we call home.



Earthpreneur

Beyond the Bin: From Automobile Engineer to Pioneer of Zero-Waste Communities, **Anil Gokarn** of **ProEarth ZeroWaste** is Building India's Circular Future.

"Waste is not the problem. The real challenge is how we think about waste." says Anil Gokarn, Founder, Pro Earth Zero Waste

Every morning, thousands of tonnes of waste leave our homes. Most of us assume that once the garbage truck disappears around the corner, the problem disappears with it.

For Anil Gokarn, that assumption has defined one of India's greatest environmental challenges. More than a decade ago, he chose to question it.

Today, as the **Founder of Pro Earth Zero Waste,** Anil is helping cities rethink one of society's most overlooked resources.

"Waste is not something to be thrown away. It is a resource waiting to be returned to nature," he says.

That simple belief has shaped more than twelve years of his work towards building cleaner, healthier, and more circular communities one neighbourhood at a time.



Anil Gokarn, Founder, Pro Earth Zero Waste

When Engineering Found Its Purpose

Before entering the sustainability sector, Anil spent several years in the automobile industry, working with organisations including **Tata Motors** and the **German multinational ZF** as an application engineer for commercial vehicle transmissions.

His work required extensive travel across India's industrial landscape. As factories expanded and cities developed, he also witnessed another side of progress: disappearing green spaces, mounting waste, degrading ecosystems, and increasing environmental damage. Those experiences stayed with him.



Waste Awareness with Locals

"I kept asking myself whether development had to come at the cost of the environment," he recalls. Searching for answers led him to the farm of renowned environmentalist **Dr. Vandana Shiva** in Dehradun.

It was there that he encountered composting for the first time. Watching organic waste transform into healthy soil completely changed his perspective.

"I realised that cities generate enormous quantities of organic waste, and yet that very waste has the potential to improve our soils instead of filling our landfills."

Inspired by that idea, Anil returned to Pune and, in 2014, founded Pro Earth Zero Waste with a vision of decentralising waste management and helping cities treat waste where it is generated.

Treat Waste Where It Is Created

For Anil, one of the biggest flaws in conventional waste management is transporting waste across cities before treating it. Instead, he believes communities should process organic waste within their own premises.

"The real impact lies not just in installing waste management systems, but in ensuring they continue to function efficiently every single day."

That philosophy became the foundation of Pro Earth Zero Waste. The organisation designs, installs, operates, and maintains decentralised composting systems for residential communities, offi ces, educational institutions, hotels, industries, and commercial establishments. Recognising that infrastructure alone cannot create lasting change, the organisation also built a long-term service model supported by trained personnel who oversee day-to-day operations and maintenance.

At the same time, Anil chose to create another impact.

Local unskilled youth were recruited, trained, and transformed into skilled waste management professionals, creating meaningful green employment alongside environmental impact.

Today, Pro Earth Zero Waste manages more than **120–150 decentralised waste management projects across Pune,** serving communities ranging from **10-flat residential societies to townships of nearly 1,500 homes,** supported by a dedicated team of around **30 trained professionals.**

Changing Mindsets Before Changing Waste

Ask Anil about the biggest challenge in waste management, and his answer comes instantly *"Technology is not the biggest challenge. Behavioural change is."*

According to him, India already possesses the technologies required to process waste effectively.

What remains difficult is encouraging people to segregate waste correctly and accept waste management systems within their own communities.

Residents often worry about unpleasant odours, insects, hygiene, aesthetics, or the space required for composting. Their composting systems are completely odour-free, aesthetically integrated into landscaped gardens, require minimal space, and eliminate flies, pests, and rodents through carefully designed biotechnology.



Awareness Camp with Kalpataru

"Once people experience that waste can be managed cleanly and effi ciently, their perception changes completely."

By making sustainability visible, practical, and beautiful, the organisation transformed hesitation into participation.

When Communities Begin to Believe

Among all the initiatives undertaken by Pro Earth Zero Waste, one project remains especially close to Anil's heart.

In collaboration with **Kalpataru**, the organisation designed a CSR initiative to encourage residential communities to begin composting organic waste within their own premises.

Instead of asking societies to invest immediately, composting units were installed on a pilot basis at no cost. Residents participated in awareness programmes, learnt proper waste segregation, and experienced the process firsthand.

The outcome exceeded expectations. Within a year, the initiative engaged **11 housing societies, covering approximately 5,600 households, while directly training 250–300 residents.**

Most significantly, **7 of the 11 participating societies voluntarily invested their own resources to scale up composting systems after witnessing their effectiveness.**



Waste Segregation Session with ZP School Students

"If we train people, handhold them, and allow them to experience doing the right thing, they respond positively."

That positive experience creates a ripple effect across the entire community. For him, the project demonstrated that meaningful environmental change begins with trust, participation, and lived experience not compulsion.

Designing Circular Cities, Not Just Composting Systems

As cities continue to expand, Anil believes waste management can no longer remain an afterthought.

Instead, it should become an integral part of urban planning itself. Over the past few years, Pro Earth Zero Waste has collaborated with leading developers including **Godrej Properties, Mahindra Lifespaces, Pride Group, Vilas Javdekar Developers, and Naiknavare Developers**, working to integrate waste management infrastructure into residential developments from the design stage itself.

"We need to design spaces where waste management is planned right from the drawing board instead of trying to fit solutions later."

Alongside composting, the organisation is now expanding into garden waste management, introducing high-speed composting technologies and developing biochar solutions for branches and woody biomass that cannot be composted conventionally.

"Every innovation, every experiment and every new service model becomes another steppingstone towards creating larger impact."

What Keeps Him Going

Building a sustainable future is rarely easy. Yet after more than twelve years, Anil's motivation remains remarkably simple.

Transformation.

"When residents see that waste can be managed without odour, when they hold the compost in their hands and watch their gardens flourish, that is my biggest motivation."

Every successful project reminds him that another community can also transform.

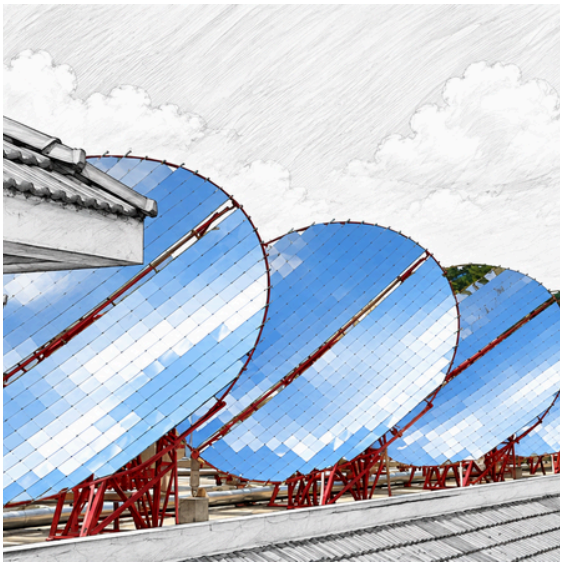
"Every new project becomes the motivation for the next one." For him, sustainability is not measured only through tonnes of waste diverted from landfills.

It is measured through changing perceptions, healthier neighbourhoods, thriving gardens, and communities that begin to believe in the circular economy.



Waste Segregation Session with ZP School Students

TRIVIA



The Shri Saibaba Temple in Shirdi operates one of the world's largest solar steam cooking systems, serving up to 50,000 meals daily. According to MNRE, the system saves around 100,000 kg of LPG each year, proving that clean energy can feed thousands.

TRIVIA



Following the International Year of Millets (2023), Indian startups have launched hundreds of millet-based products. The FAO reports that millets can require up to 70% less water than rice, making them a climate-resilient choice for sustainable agriculture.

AN EARTHFLUENCER'S MESSAGE

Before concluding the conversation, Anil leaves readers with a thoughtful reminder.

"Our waste has a damaging impact on the environment if it is mishandled."

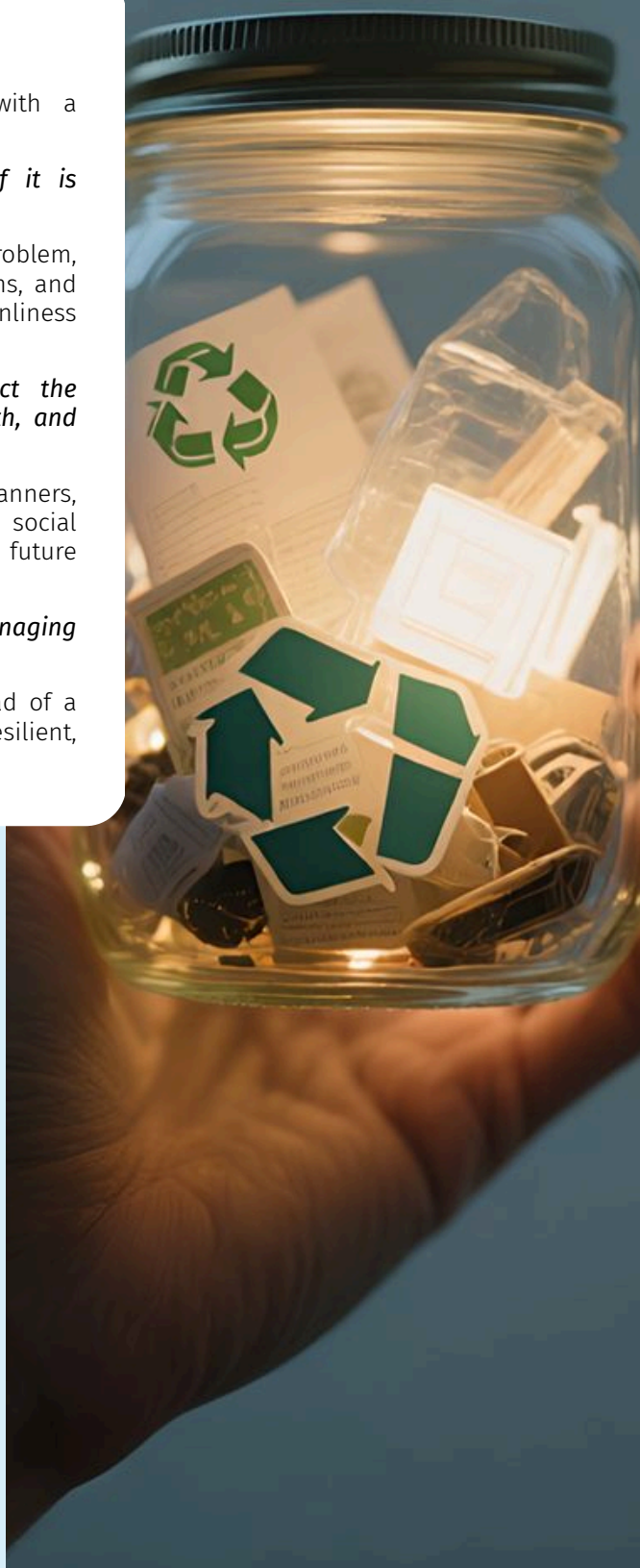
He believes every citizen has a responsibility to understand the problem, segregate waste correctly, support scientifically managed systems, and invest in sustainable solutions that improve the health and cleanliness of our cities.

"Professional waste management systems don't just protect the environment. They also create green jobs, empower local youth, and build stronger communities."

He also calls for greater collaboration between urban planners, architects, developers, environmental organisations, and social enterprises to mainstream sustainable waste management into future city planning.

For Anil Gokarn, the *circular economy is not simply about managing waste. It is about changing mindsets.*

Because when people begin to see waste as a resource instead of a burden, cities don't just become cleaner. They become more resilient, more responsible, and more sustainable for generations to come.



Pre-Loved Eco Haat

An Unique Initiative of Building a Circular Culture at **VK Group** through **Pre-Loved Eco Haat.**

"The greatest environmental revolution may not begin with a breakthrough technology or a global policy, it may begin with someone deciding not to throw something away."

Every home has a cupboard filled with things that are perfectly usable but rarely used: a shirt worn only once, a novel gathering dust, an extra coffee mug, an old board game, a decorative piece that no longer fits the décor. Individually, these objects appear insignificant. Collectively, they represent one of the biggest challenges of modern consumption.

In today's world of fast fashion, instant deliveries and disposable lifestyles, products often reach landfills long before they reach the end of their useful life.

Yet sustainability has never been only about recycling waste. It is about preventing waste from being created in the first place. Sometimes, sustainability begins not with grand innovations but with a simple question:

What if someone else could use what we no longer need? That simple question became the foundation of one of Sustainability Initiatives' most meaningful initiatives for VK Group.



Inauguration of Pre-Loved Eco Haat

When Sustainability Begins with Behaviour

Sustainability is often associated with green buildings, renewable energy, electric mobility, and advanced technologies. While these innovations are essential, they represent only one side of the sustainability journey. The other begins much closer to home with people.

It begins when individuals choose to repair instead of replace, borrow instead of buy, exchange instead of discard, and recognise that every product has value beyond its first owner.

VK Group has always believed that creating sustainable cities also requires creating sustainable lifestyles. The challenge was not simply reducing waste. It was changing the way people think about consumption.



Employees at the Pre-Loved Eco-Haat

Rediscovering India's Circular Economy

Long before the phrase Circular Economy entered boardrooms and policy discussions, Indian households had embraced its principles. The familiar ***bartanwala or bhandiwala***, exchanging utensils for old clothes and household items, reflected a culture where reuse and repurposing were part of everyday life.

Over time, changing lifestyles shifted this culture towards convenience and disposal, leaving many usable products forgotten or discarded.

Recognising this shift, VK Group asked: ***What if a workplace embraced the culture of exchange once again?***

Could sustainability become a shared habit rather than an individual responsibility?

This idea gave birth to the **Pre-Loved Eco Haat**. Its name captures the initiative's spirit: **"Pre-Loved"** celebrates items that still have value, **"Eco"** reflects its environmental purpose, and **"Haat"** evokes a traditional marketplace centred on community and exchange. Together, they create a space where belongings find new homes while reducing waste.

Preloved Eco-Haat: More Than an Exchange Market

Launched in August 2024 by VK Group in collaboration with Sustainability Initiatives (SI), the Preloved Eco-Haat was envisioned s much more than an internal exchange programme.It was designed as a living demonstration of the circular economy.

Employees were invited to donate, exchange, sell, or purchase pre-owned items including books, clothes, electronics, stationery, toys, home décor, kitchenware, and countless other useful belongings that still had years of life remaining.

Every exchanged product represented more than a transaction.

It delayed the need to manufacture a new product, reducing the demand for raw materials, energy, packaging, transportation, and ultimately landfill waste.

The initiative proved that sustainability does not always require producing something new. Sometimes, it simply requires extending the life of what already exists.

Small Choices. Measurable Impact.

What began as a workplace experiment gradually evolved into a growing community movement.

To date, the initiative has successfully organised **9 Preloved Eco-Haats**, **collected 856 reusable items** and facilitating the **exchange of 468 products**, ensuring that hundreds of useful items found new homes instead of becoming waste.

During the **10th Preloved Eco-Haat**, organised from 29 June to 1 July 2026, employees **collected 331 items**, with **175 products successfully exchanged** over three days. Perhaps even more encouraging was the initiative's expanding influence.



Finding New Value in Pre-Loved Clothing

Neighbouring organisations and workplaces began participating, demonstrating that sustainable behaviour has the power to spread organically when communities witness its value firsthand.

Consumers became contributors to the circular economy. Colleagues became collaborators in sustainability.

Creating Earthpreneurs

One of the most inspiring outcomes of the Eco-Haat was something nobody had initially anticipated. **It did not merely encourage reuse. It encouraged entrepreneurship.**

Employees who pursued **creative hobbies outside working hours began displaying handcrafted jewellery, macramé products, paintings, décor pieces, upcycled accessories, and handmade gifts** created from recycled paper, wool, thread, fabric and other reclaimed materials.

For many, **it became their first opportunity to present their creations to a wider audience.** For others, it became the beginning of a small entrepreneurial journey.

These individuals came to represent a new kind of changemaker. They remind us that environmental leadership can emerge from everyday passions and ordinary workplaces.



A Platform for Budding Entrepreneurs: From crochet keychains to handcrafted creations.

When Communities Become Earthfluencers

The greatest success of the Preloved Eco-Haat cannot be measured solely through the number of items exchanged. **Its real achievement lies in changing mindsets.**

Employees who once viewed unused belongings as clutter began seeing them as resources. Consumers became contributors to the circular economy. Colleagues became collaborators in sustainability.

Perhaps most importantly, **the initiative demonstrated that 'Earthfluencers' are not always scientists, innovators, policymakers or climate activists. Sometimes they are ordinary people making extraordinary everyday choices.**

Every individual who chooses to exchange instead of discard, repair instead of replace or create instead of consume becomes part of a larger environmental movement.

The Ripple Effect of Everyday Choices

What if this wasn't limited to one workplace?
If 300 employees can prevent hundreds of usable items from becoming waste, imagine the **impact of 3,000 people, 30,000 people, or even 3 million citizens embracing the same habit.**

Every exchanged product represents **one less item manufactured, one less package shipped, and one less contribution to our growing landfills.** Scaled across communities, these everyday decisions become more than responsible consumption; they become climate action. The **greatest environmental revolutions** often begin not with sweeping policies, but with **ordinary people making extraordinary choices.**



A Second Life for Every Find

Sustainability Begins With People

Modern cities need green buildings, renewable energy, and innovative technologies but lasting sustainability begins with people.

The greatest lesson from the **Preloved Eco-Haat is that meaningful change does not always require revolutionary inventions.** Sometimes it begins by opening a cupboard, choosing to share instead of discard, and believing that someone else's unused possession can become another person's new beginning.



10th Pre-Loved Eco-Haat: Employees Browsing

Because the future of sustainability will not be built only by architects, engineers, or policymakers. It will also be built by ordinary citizens making extraordinary choices one conscious step at a time.

Scan to Explore VK Group

TRIVIA



The National Innovation Foundation (2024) has documented over 3,75,000 grassroots innovations across 730+ districts in India. More than 1,145 grassroots and student innovators have been recognized, while 1,478+ patent applications have helped transform local ideas into scalable innovations.

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Have We Crossed Earth's Operating Limits?

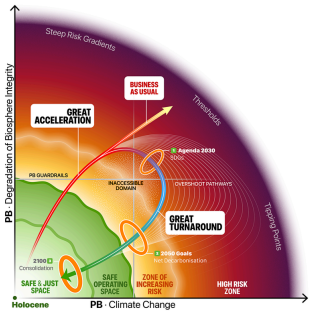
"Every system has limits. Earth is no exception."

Imagine driving a car without ever checking the fuel gauge, engine temperature, or speedometer. You might enjoy the ride for a while, but ignore the warning signs long enough, and the engine will eventually fail.

Earth works in much the same way.

For nearly **11,700 years**, during the **Holocene Epoch,** our planet remained within a remarkably stable range of environmental conditions. Temperatures were relatively balanced, freshwater was naturally replenished, forests and oceans absorbed carbon, biodiversity thrived, and ecosystems remained resilient. These conditions created the foundation for agriculture, the rise of civilizations, expanding cities, and unprecedented human innovation.

Today, however, humanity has become one of the most powerful forces shaping the planet. Every forest cleared, river diverted, fossil fuel burned, and tonnes of waste generated places increasing pressure on the Earth's life-support systems. As populations grow, economies expand, and resource demands intensify, scientists warn that we are pushing the planet beyond the environmental conditions that have sustained human civilization for millennia.



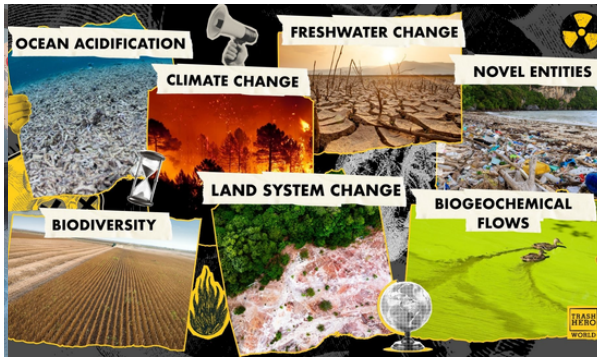
Past and Possible Future Earth System Trajectories. Source: Nature Reviews Earth & Environment (2024)

How much pressure can Earth withstand before its natural systems begin to lose their balance?

This question lies at the heart of the Planetary Boundaries Framework, a scientific model that helps us understand Earth's ecological limits and the safe operating space within which humanity can continue to thrive.

What Are Planetary Boundaries?

Introduced in 2009 by an international team of **28 Earth-system** scientists led by **Professor Johan Rockström**, and later refined by researchers at the **Stockholm Resilience Centre**, the Planetary Boundaries framework identifies **nine critical Earth-system** processes that regulate the stability and resilience of our planet. Together, these boundaries define the **"Safe Operating Space for Humanity"** the environmental limits within which societies can continue to develop without triggering large-



Source: Trash Hero World, "Planetary Boundaries 2025."

scale or irreversible changes to Earth's life-support systems. Think of these boundaries as Earth's operating manual.

Just as every machine has recommended limits for safe performance, our planet also has ecological thresholds. Staying within them helps maintain a stable climate, healthy ecosystems, clean water, fertile soils, productive oceans, and balanced natural cycles. Crossing them does not mean immediate collapse, but it significantly increases the risk of reaching **tipping points,** where environmental changes become increasingly difficult or even impossible to reverse.

Unlike conventional approaches that address climate change, biodiversity loss, or pollution as separate issues, **the Planetary Boundaries framework recognises that Earth functions as one interconnected system.** Forests regulate rainfall, oceans absorb carbon dioxide, wetlands filter water, and healthy soils sustain agriculture. When one system is disrupted, the effects ripple across many others.

The framework identifies nine interconnected planetary boundaries:

1. **Climate Change**
2. **Biosphere Integrity** (Biodiversity)
3. **Land-System Change**
4. **Freshwater Change**
5. **Biogeochemical Flows** (Nitrogen & Phosphorus)
6. **Ocean Acidification**
7. **Atmospheric Aerosol Loading**
8. **Stratospheric Ozone Depletion**
9. **Novel Entities** (plastics, synthetic chemicals, pesticides, radioactive materials, and other human-made substances)

Rather than limiting development, the framework provides a scientific foundation for responsible progress. It challenges governments, businesses, researchers, and communities to ask one simple yet profound question:

How can humanity continue to prosper without compromising Earth's ability to support future generations?

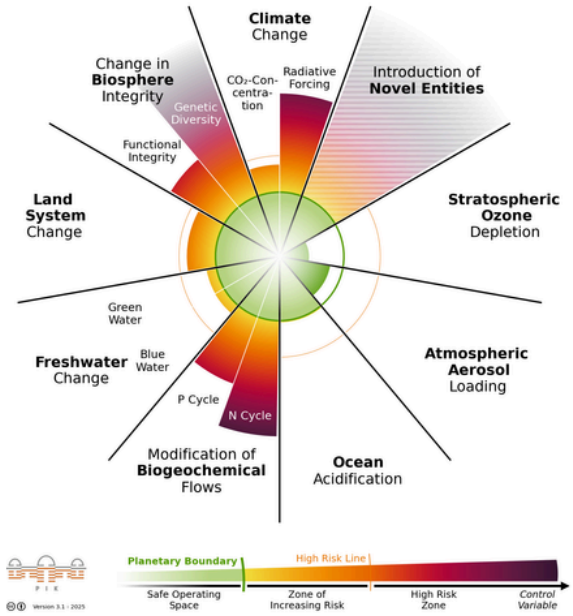
Today, the Planetary Boundaries framework underpins climate policy, biodiversity conservation, ESG strategies, and global sustainability planning. Its central message is clear: **true progress is not measured by how much we consume, but by how wisely we live within the ecological limits of the only planet we call home.**

How Close Are We to the Edge?

Understanding **Planetary Boundaries** is only the beginning. The more pressing question is: *Where do we stand today?*

The **answer is both sobering and urgent.**

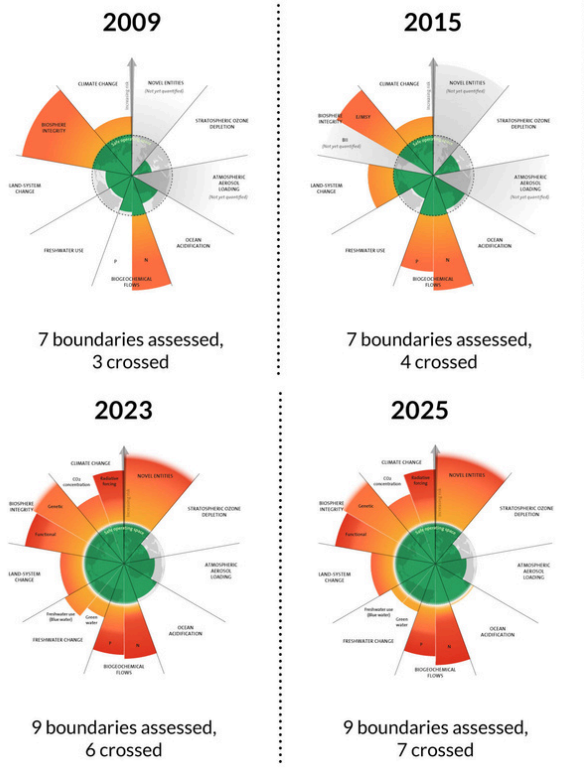
Over the past two centuries, rapid industrialisation, population growth, urban expansion, deforestation, intensive agriculture, excessive resource extraction, and widespread fossil fuel use have fuelled unprecedented economic progress.



Status of the nine planetary boundaries, based on the Planetary Health Check 2025. Wedges show boundary status and risk levels, with fading and dashes indicating uncertainty and unquantified conditions.
Source: Planetary Boundaries — PIK Potsdam

According to the latest **Planetary Boundaries Assessment (Richardson et al., 2023), six of the nine planetary boundaries have already been transgressed Climate Change, Biosphere Integrity, Land-System Change, Freshwater Change, Biogeochemical Flows, and Novel Entities. Ocean Acidification** is nearing its safe threshold, **Atmospheric Aerosol** Loading remains a regional concern, while **Stratospheric Ozone Depletion** is one of the few environmental success stories, recovering through the **Montreal Protocol.**

This transition has unfolded over centuries. The **Industrial Revolution** marked the beginning of large-scale fossil fuel use, while the **Great Acceleration** of the 1950s dramatically increased humanity's demand for land, water, energy, and natural resources. In 2009, scientists introduced the **Planetary Boundaries Framework** to identify these growing pressures. By **2015**, four boundaries had been crossed; by **2023,** that number had increased to six.



The 2025 update to the Planetary boundaries. Licensed under CC BY-NC-ND 3.0.
Source: "Azote for Stockholm Resilience Centre, based on analysis in Sakschewski and Caesar et al. 2025

The further we move beyond these limits, the greater the likelihood of reaching **ecological tipping** points, where gradual pressures can trigger rapid and potentially irreversible change.

Yet the framework offers more than a warning; it provides a **roadmap for action.** By identifying where Earth's systems are under greatest stress, it enables governments, businesses, researchers, and communities to take informed action before today's environmental pressures become tomorrow's irreversible crises.

Why Boundaries Matter

Understanding **Planetary Boundaries is not just about knowing Earth's limits** it's about recognising how closely everything is connected.

Earth's natural systems function as one interconnected network, where changes in one process often trigger consequences across many others. This **ripple effect** means that crossing one planetary boundary rarely affects **only a single environmental issue.**

The same chain reaction is evident in climate change. Rising temperatures intensify extreme weather, alter water cycles, and place growing pressure on ecosystems. The **Intergovernmental Panel on Climate Change (IPCC, 2023)** estimates that 3.3–3.6 billion people already live in regions highly vulnerable to climate change, demonstrating how environmental instability quickly becomes a challenge for food security, public health, and economies.

The consequences extend well beyond nature. The **World Health Organization (WHO)** estimates that climate change could cause **250,000 additional deaths annually between 2030 and 2050,** while the **United Nations** projects that **more than 5 billion people could experience water shortages by 2050** if current trends continue.

Fortunately, ripple effects can work in our favour too. Protecting forests, restoring wetlands, and adopting sustainable agriculture simultaneously strengthen biodiversity, improve water security, store carbon, and build climate resilience.



Anantam IAS | Source: CSE & Down to Earth

Ultimately, the **Planetary Boundaries Framework** reminds us that Earth functions as one living system. Protecting one boundary strengthens many others, while neglecting one increases risks across the entire planet. The future of humanity depends not only on protecting individual ecosystems, but on safeguarding the delicate connections that keep Earth in balance.

Planetary Boundaries in India's Context

Although the **Planetary Boundaries** framework is assessed globally, its consequences are felt locally. For India home to **over 1.4 billion people**, nearly **18% of the world's population, but with only around 4% of the world's freshwater resources** living within Earth's ecological limits is no longer just an environmental concern; it is a development imperative. As one of the world's fastest-growing economies, India must balance economic growth with protecting the natural systems that sustain its people and livelihoods.

The impacts of crossing planetary boundaries are already becoming evident. According to the **State of India's Environment Report 2026**, India experienced **extreme weather events on 331 out of 334 days in 2025**, including heatwaves, fl oods, cyclones, landslides, lightning, and heavy rainfall. These events disrupted agriculture, damaged infrastructure, affected millions of people, and highlighted how climate change, freshwater stress, biodiversity loss, and land degradation are interconnected rather than isolated challenges. Climate variability continues to intensify these risks. The **India Meteorological Department (IMD)** projected a **below-normal southwest monsoon for 2026**, influenced by developing **El Niño conditions**.

With nearly **52% of India's net sown area dependent on rainfall**, weaker monsoons threaten food production, groundwater recharge, rural livelihoods, and water security, while prolonged heatwaves increase electricity demand and place additional pressure on already stressed water resources.

India's biodiversity is equally vital to planetary resilience. Although the country occupies just **2.4% of Earth's land area, it supports nearly 8% of global biodiversity** and is recognised as one of the world's **17 megadiverse countries.** Ecosystems such as the **Western Ghats, Himalayas, Sundarbans, and Northeast India** regulate climate, recharge groundwater, protect coastlines, support agriculture, and sustain millions of livelihoods, yet they continue to face mounting pressures from habitat loss, pollution, unsustainable land-use change, and climate change. Yet India's story is not defined by challenges alone.

According to the **Ministry of New and Renewable Energy (MNRE),** India achieved **more than 50% of its installed electricity capacity from non-fossil fuel sources in 2025**, five years ahead of its **2030 climate commitment**, while adding **over 44 GW of renewable energy capacity in a single year.** Alongside initiatives promoting ecosystem restoration, water conservation, sustainable lifestyles, and climate-resilient infrastructure, these achievements demonstrate that environmental stewardship is becoming an integral part of India's development journey.

India's experience reflects the essence of the Planetary Boundaries framework: the impacts of exceeding Earth's ecological limits are becoming increasingly visible, but so are the opportunities to respond through **science, policy, innovation, and community participation.** The choices India makes today will shape not only its own future but also contribute significantly to the resilience of our shared planet.

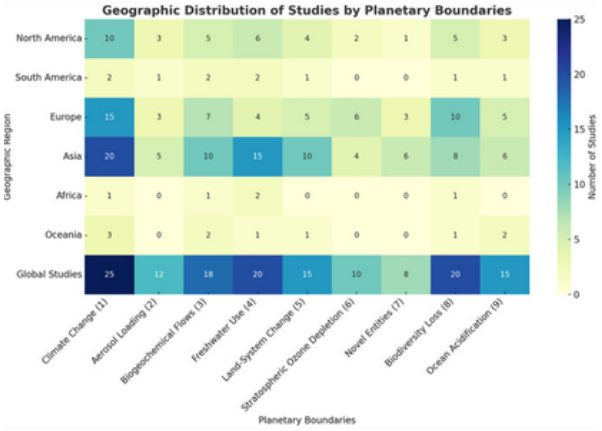
Future Within Limits

After understanding the risks of crossing planetary boundaries, one question naturally follows:
"Can we still change the story?"

The answer is **yes**. The Planetary Boundaries framework is not a prediction of collapse but a scientific compass, showing how humanity can continue to prosper within Earth's ecological limits. Across India, innovation is proving that sustainable development is not just possible it is already happening.

Artificial Intelligence is transforming sustainability from reactive conservation to predictive action. Across India, AI-powered satellite imagery,
GIS, remote sensing, drones, and machine learning are being used to monitor forests, forecast floods and droughts, optimize irrigation, improve crop productivity, and strengthen renewable energy forecasting.

Reflecting this momentum, the **IndiaAI Impact Summit 2026** identified **"Planet"** as one of its three strategic pillars, bringing together representatives from **100+ countries, 300+ exhibitors, and 500+ AI startups.** Complementing this, the IndiaAI Mission is expanding **AI infrastructure with 20,000+ additional GPUs**, accelerating research in climate science, agriculture, disaster management, and environmental monitoring. AI is no longer just making systems smarter it is making sustainability more proactive and impactful.



The 2025 update to the Planetary boundaries. Licensed under CC BY-NC-ND 3.0. Credit: "Azote for Stockholm Resilience Centre, based on analysis in Sakschewski and Caesar et al. 2025

With nearly **65% of its population below the age of 35**, India has one of the world's youngest populations and one of its greatest sustainability assets. Gen Z is driving climate action through startups, sustainable innovation, citizen science, and digital advocacy. According to the **India Skills Report**, green jobs are among India's fastest-growing sectors, fuelled by renewable energy, electric mobility, ESG, sustainable infrastructure, climate technology, and the circular economy.

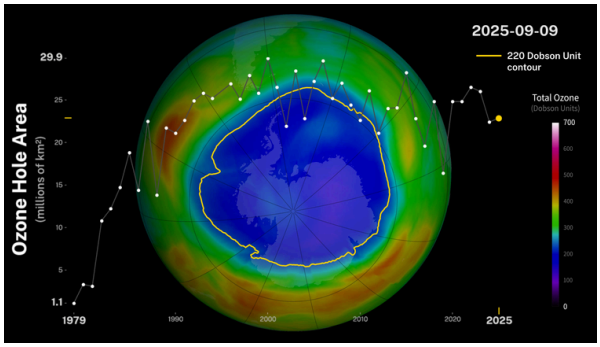
Sustainability is becoming not just a responsibility, but a career and a movement. Technology is only part of the solution. Across India, communities are reviving rainwater harvesting, regenerative farming, wetland restoration, and circular economy practices. According to the **Department for Promotion of Industry and Internal Trade (DPIIT), India has more than 2 lakh recognised startups, with nearly 50% based in Tier-II and Tier-III cities.** Many are creating locally relevant solutions for water conservation, clean energy, waste management, and sustainable agriculture, proving that lasting change often begins at the grassroots.

Together, technology, science, youth leadership, and grassroots innovation represent a new model of development, one that seeks not to exceed Earth's limits, but to thrive within them.

There Is Still Time

The story of Planetary Boundaries is not one of inevitable decline, it is one of informed choice. Science has helped us understand the Earth's limits. Innovation is providing the tools to live within them. Communities are providing that local action creates global impact, and a new generation is redefining what progress looks like. The future will not be shaped by those who consume the most, but by those who innovate the wisest.

Every restored forest strengthens biodiversity. Every drop of water conserved protects future generations. Every renewable energy project reduces pressure on the climate. Every sustainable decision creates a ripple effect that extends far beyond ourselves.



NASA Scientific Visualization Studio (NASA SVS), 2025. Description: Visualization of the Antarctic ozone hole and total ozone levels from 1979 to 2025, highlighting changes in ozone hole area and ozone concentration over time.

Perhaps the most important lesson of the Planetary Boundaries framework is this: **we are not separate from nature, we are part of it.** Protecting Earth's life-support systems is ultimately about protecting our own future. The question is no longer whether we know the solutions. The question is whether we will choose to act.

Because **there is no Planet B**. There is only one Earth and our greatest **achievement will not be pushing its limits, but learning to prosper within them.**

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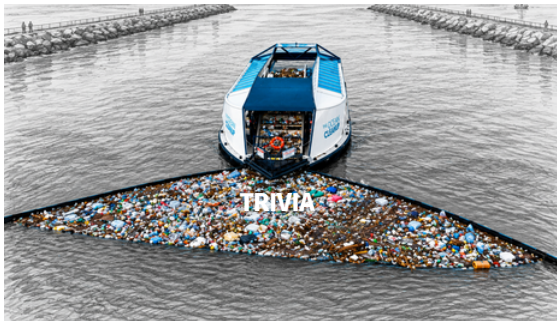
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TRIVIA



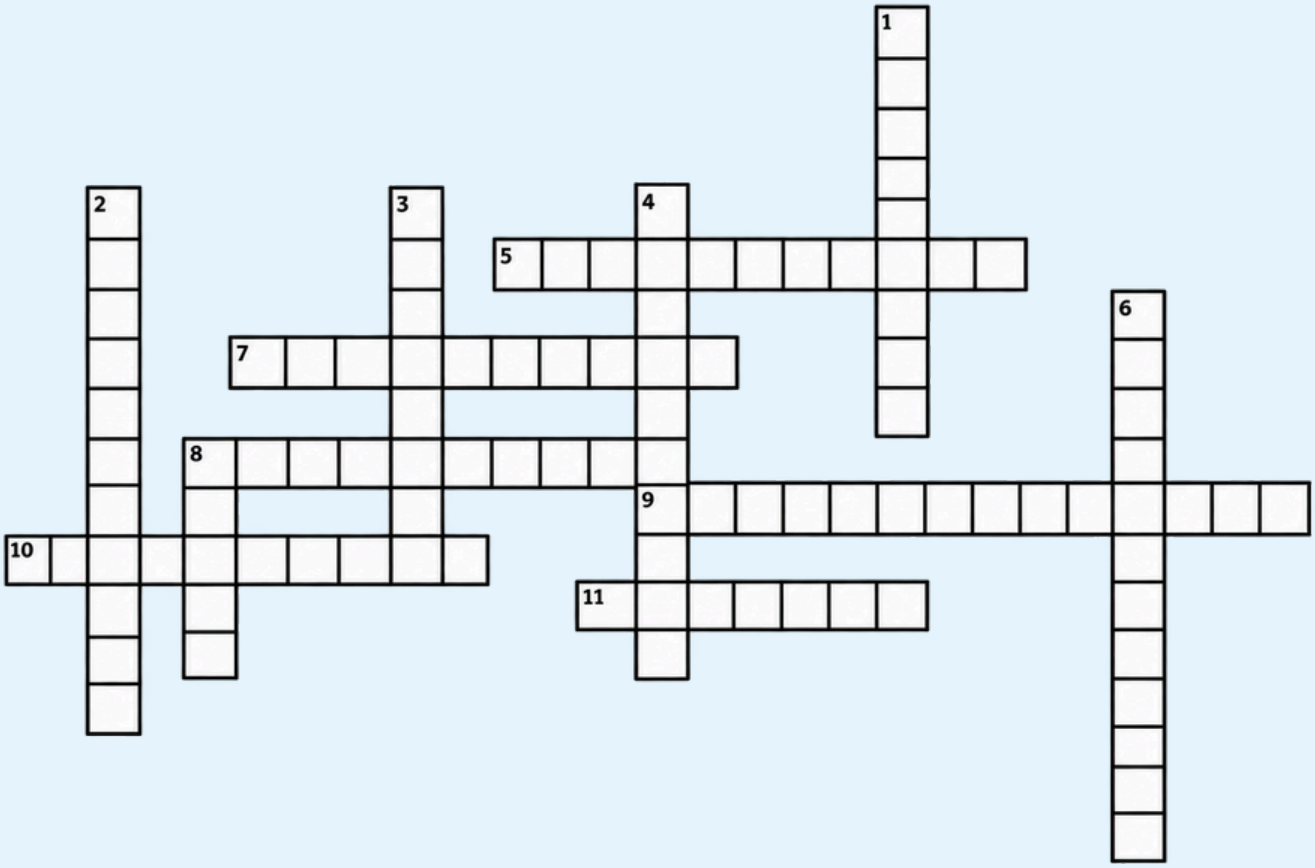
Climate Cardinals (2024) highlights that nearly 6.5 billion people don't speak English, while up to 98% of climate information has historically been available only in English. Youth volunteers have translated over 4 million words into 105 languages, breaking language barriers and empowering communities worldwide to understand climate change and take informed climate action.

TRIVIA



A 2021 Ocean Cleanup study found that over 1,000 rivers contribute nearly 80% of the plastic entering the world's oceans. AI-powered river interceptors now help stop plastic before it reaches the sea.

CLUE-MATE GRID



ACROSS

8. Distress caused by concerns about climate change.

9. Textile certification ensuring environmentally responsible production.

10. Farming approach that treats the farm as a self-sustaining ecosystem.

11. Eating insects as a sustainable source of protein.

DOWN

1. Designing products by learning from nature.

2. Māori concept meaning guardianship and protection of nature.

3. Eating mostly plant-based foods while occasionally consuming meat.

4. Natural systems like forests and oceans that absorb carbon dioxide.

5. The balance between greenhouse gas emissions produced and removed from the atmosphere.

6. Recycling material into a product of lower quality or value.

7. Financing offered for environmentally sustainable projects.

12. A certification awarded to businesses meeting high social and environmental standards.

ANSWERS

1. Biodynamic 2. Flexitarian 3. Bluesign 4.Downcycled 5.Entomophagy 6.Kaitiakitanga 7.Green Loans 8.Biomimicry 9.Climate Anxiety 10.Carbon Sink 11.Net Zero 12.B Corp

PAGES FOR THE PLANET

What if a story could change the way we see our planet? Pages for the Planet is a curated collection of **Indian storybooks and illustrated books for diverse age groups**, exploring climate change, biodiversity, conservation, and sustainability. Through storytelling, these books spark curiosity, foster environmental awareness, and inspire a deeper connection with nature.



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