BiofuelCircle

Greenfields

Co-Creating the Bio-energy Future

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FOREWORD

India's rural landscape holds the key to a greener future, with over 235 million metric tonnes of Agri-biomass available each year—enough to meet 17% of the country's energy needs.

BiofuelCircle is driving India's shift from fossil carbon to bio carbon, building a reliable supply chain for Agri biomass, biofuels, and carbon-rich soil nutrition. The company mission is to empower farmers, support manufacturers, and create a trustworthy, digitally enabled ecosystem for green fuels.

The company's operating model has now matured to include Rural Biomass Banks, Envira franchises alongside the E-Commerce platform for biofuels.

With Biomass Bank a digitally enabled, community-driven hub that aggregates, stores, and delivers biomass efficiently. With real-time tracking, direct farmer engagement, and a growing network of local markets, BiofuelCircle is creating new income opportunities for rural communities, supporting industrial decarbonisation, and delivering measurable carbon reduction. As of September,'25, 65 Biomass Banks provide direct connectivity to >150,000 farmers and helps channelize 650,000 MT Biomass annually to the industry. The number of Biomass Banks will grow to 100 by March 2026. The BiofuelCircle model has now made biomass aggregation at scale possible.

We celebrated 5 years of BiofuelCircle by inviting our customers, along with industry experts to talk with your team. This issue of Greenfields provides a peek into the conversation we had with >15 industry experts across 3 sessions.

As we scale up across India, our mission remains clear: empower the green economy, create social impact, and build a sustainable future for all. **At BiofuelCircle, customer centricity, innovation, integrity, and empathy shape our values and culture.** We are committed to delivering exceptional experiences and making every stakeholder feel valued and inspired. Together, we are building a sustainable legacy one step at a time. And through our Greenfields newsletter, we promise to spread the message around India's green energy momentum.

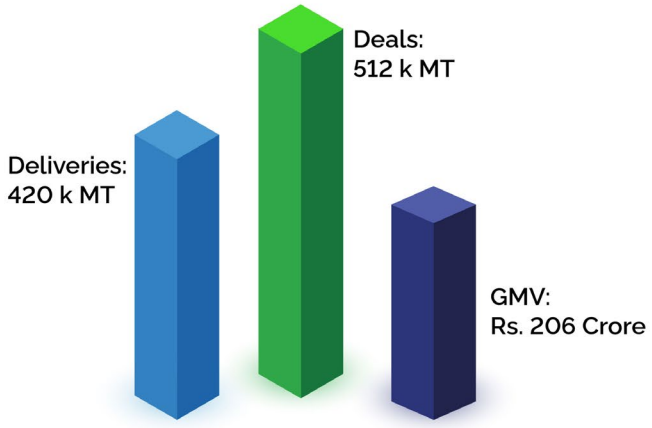
Suhas Baxi
Co-Founder and Chief Executive Officer

PLATFORM INSIGHTS

Since Inception

- Total GMV: Rs 520 Crore
- Total Deals: 1.2 million MT
- Total Deliveries: 600 K MT

Last 12 Months



- Subscribers: 1,710
- Buyers: 354
- Sellers: 1,356
- Farmers: 160,0000

COVER STORY

Future-Ready Bioenergy Ecosystem

A future-ready bioenergy system begins with trust. Trust that every unit of work, from a farmer's leftover biomass on his field to a boiler operator fueling his boiler, connects smoothly into something bigger than itself. Farmers need predictable routines, with clarity on post-harvest schedules, collection timelines, and payment cycles. Processors need assurance that volume will keep coming even during lean months. Industrial users need fuel they can schedule confidently. When everything works in sync, the entire system becomes dependable.

India's bioenergy opportunity is no longer about proving whether the model works, it's about making it work everywhere, for everyone. That means widening the geographic base so more districts can participate. It means backing rural partners with working capital and fair contracts. It means building a layer of skilled rural workforce who can manage aggregation, processing, quality, and logistics with the same confidence that today's energy markets demand. When participation is easy in villages, when consistency holds in the mid-stream, and when fuel behaves as expected in factories, bioenergy becomes greener and truly scalable.

THE PROMISE OF BIOENERGY IN INCLUSIVE RURAL GROWTH

Rural participation starts with ease and trust. A clear collection process, simple checks, and timely payments turn residue into income that families can plan around. When these foundations are steady, choosing to participate becomes a natural decision.

Collective models give this work scale. Farmer Producer Organisations (FPOs), village clusters and local rural enterprises can bring scattered supply together, arrange storage and primary processing, and organise transportation. With proper records of deliveries and rejections, buyers and lenders can read seasonal activity and support it with the working capital that villages need for storage & transport. These are seasonal businesses, so short-cycle credit, timed to harvest and collection windows keeps the chain moving.

"A strong value chain creates enterprises across processing, transformation and supply. It gives farmers not just better prices, but new business opportunities that can transform rural areas. With nearly 20% of India's GDP coming from agriculture, we must create income pathways beyond crop production." - Girish Sohani, Principal Advisor & Trustee, BAIF

Keeping value on the land matters as much as moving residue out of fields. Fermented organic manure (FOM) and other carbon-rich inputs improve soil nutrition and create a second stream of value close to the farm. Where feasible, biochar adds a longer-term soil benefit and can sit alongside energy projects without competing for attention.

Organised participation, accurate records of daily activity, and dependable payments will make rural bioenergy practical. These habits are the base on which larger district-level scale can be built.

This section draws on insights shared by: Girish Sohani (BAIF), Prema Jaiswal (Caspian Debt), Prof. Subhasis Ray (XLRI), and Vishu Shankar Mishra (Raghuwadeeh Agro FPO).

SOLID BIOFUELS AND INDUSTRIAL GREEN TRANSITION

Switching from coal to biomass in an industrial boiler depends on whether the fuel can support the plant's operations. Plants need fuel that meets their thermal load, combustion profile and equipment constraints. This requires a fuel that behaves consistently, shift after shift.

In the last decade, biomass fuel has shifted from trial stock to scheduled feed. The transition has been led by advances at two points in the chain: pre-processing standardisation and contract-based assurance.
Briquetting and pelletisation reduce variability in bulk density and gross calorific value (GCV), making it possible to forecast emissions and ash ratios with reasonable certainty.

"The market is still evolving, with no single clear solution or winner. Much depends on the specific application and supplier capabilities. India produces about 50 million tonnes of briquettes annually against a demand of nearly 200 million tonnes. The demand exists. The real question is whether we can aggregate and manufacture at that scale."
- Khushboo Bhatia, CEO, Thermax Onsite Energy Solutions Limited (TOESL)

Procurement risk falls further when both sides agree on quality windows before dispatch. Moisture, GCV, ash content and expected slagging behaviour should be validated: first in field tests under portable rig conditions, then in controlled burn trials that mimic furnace turbulence, grate speed, and induced draft. When this routine is in place, fuel stops being an experiment and starts behaving like a scheduled input.

Cost visibility still depends on geography and logistics. Transportation accounts for roughly 30% of landed biomass cost, so procurement works best when factories are within 25–30 km of aggregation and processing nodes.
This district-level clustering is now being reinforced by the use of digital procurement platforms, reflecting the maturing role of e-commerce in Indian B2B markets where buyers track characteristics, supplier history, and delivery timing. This transparency is central to shifting from "best effort" buying to performance-linked sourcing.

Finance holds the supply chain together. Basic improvements such as small conveyors and short-term storage help processors handle seasonality and keep fuel moving. These upgrades require affordable credit, because most processors cannot invest large amounts upfront. Blended finance, equipment loans and concessional credit lines allow them to expand without taking on too much risk.
The same applies to boiler retrofits, where flexible combustion systems reduce uncertainty and make industrial buyers more confident about committing to biomass.
When quality parameters are shared, logistics are short, and real contracts replace provisional MOUs, the shift from coal to biomass becomes as predictable as any other procurement shift.

This section draws on insights shared by: Charan Singh Ahuja (Pal Fashions), Khushboo Bhatia (TOESL), Siddharth Lulla (Intellecap), Pallav Harishbhai Chandrani (Pioneer Agro Industries), Hardik Patel (Maruti Enterprise), and Professor Subhasis Ray (XLRI, Jamshedpur)

The next phase connects modern conversion technologies with soil and carbon benefits. Biomethanation, pyrolysis and biochar systems do more than generate energy; they create multiple useful outputs from the same residue.

When projects are designed around the amount of residue that nearby farms can actually supply, they work in sync with the local farming calendar and do not create extra burden on people or land.

EMERGING BIOENERGY LANDSCAPE IN INDIA

The next phase connects modern conversion technologies with soil and carbon benefits. Biomethanation, pyrolysis and biochar systems do more than generate energy; they create multiple useful outputs from the same residue. When projects are designed around the amount of residue that nearby farms can actually supply, they work in sync with the local farming calendar and do not create extra burden on people or land.

A practical pattern is emerging. Mid-sized plants handling about 70 to 100 tonnes per day and sourcing within roughly 20 to 25 km keep logistics tight and feedstock visible. This size allows steady conversion cycles and makes it easier to channel co-products like biochar and bio-oil into real markets.

"India has the potential to remove up to half a billion tonnes of CO_2 through biochar. While that may seem substantial, global targets require 5-10 billion tonnes of CO_2 removal annually by 2050 to stay within the 1-2°C pathway. For India, this represents a $90-billion opportunity." - Rohit Nagargoje, Co-founder & CCO, MashMakes

Measurement, reporting, and verification should be built in from the start. Clear data on feedstock use, product outputs, and soil benefits help them qualify for carbon credits and comply with policy incentives. Policy mechanisms and carbon frameworks that reward verified long-term carbon storage, including carbon credits and carbon border tools (CBT), make projects bankable and reduce risk.

Advanced biofuels and biomaterials need aligned policy and finance, and the sector needs more trained people — technicians, operators and project developers — to run plants well. With those pieces in place, energy, soil value, and climate outcomes can grow together.

A future-ready bioenergy ecosystem rests on everyday reliability. What stands out across conversations is not only the scale of the opportunity but the simplicity in getting started: begin where you are, link hands locally, and grow what works. Each new Biomass Bank, each reliable feeder route, each well-trained operator adds weight to the belief that something durable is being built.

The coming years will test how fast we learn from each other. More partners, more states, more everyday logistics. That's how a future-ready system takes shape.

This section draws on insights shared by: Ashish Kumar (VERBIO India), B C Mahesh (TOESL), and Rohit Nagargoje (MashMakes)

GLIMPSE OF THE FUTURE

Prakriti, an embodiment of rural empowerment

Subhasis Ray, Professor - XLRI

Professor Subhasis Ray co-leads XLRI's Centre for Global South Studies and heads the institute's BRICS outreach.

He brings close to thirty years of blended corporate and academic experience. His industry work includes strategy and business development roles at Fosroc and Hilti and technology sales with CMC and TCS. His research interests lie in sustainability, CSR and social entrepreneurship, and his teaching covers courses such as Sustainability Marketing, International Marketing, and Innovation in Circular Economy.
In this conversation he reflects on Prakriti, BiofuelCircle's mascot and AI, and on how a carefully designed public figure and virtual assistant can strengthen rural participation and rural women leadership.

What does the unveiling of a Mascot that's meant for an Inclusive Bioenergy Rural growth mean to you?

You see, mascots are made to humanise a brand. All brands have logos and slogans, but when you put a figure, you try to show the human characteristics of the brand. In the rural bioenergy space, the sector is still evolving. Producers, processors and local partners are finding their feet. A mascot condenses that into a single character that farmers and processors can recognise. That familiarity helps to converge different actors into a shared supply movement.
A mascot is not a substitute for work. It can attract attention and start a conversation, but the organisation must back it with services and market linkages. If it is supported by credible procurement, predictable payments and visible training, it can make a practical difference to behaviour at scale.

What's the significance of portraying a woman clad in a sari and posing like a superhero with the cape in this landscape?

The imagery is deliberate and layered. The sari is traditional and also practical. It signals rural identity and everyday work. Presenting Prakriti as a sari-clad woman who is strong and purposeful recognises the central role rural women play in community labour and local management. If India aims for inclusive development, engaging rural women is essential. They are the fastest route to widespread, bottom-up change.

This figure is both traditional and future-facing. Traditional through dress and cultural reference, and future-facing because it positions women as leaders of new economic activity, from collection and aggregation to processing and enterprise. The visual message is that women can lead these green businesses, and in doing so can transform local livelihoods.

What possibilities does it open us to, in a rural landscape?

There are strong precedents. Brands like Amul and Lijjat show how organised, women-led collectives can convert local surplus into reliable livelihoods and scale into national brands. Prakriti can perform a similar function for bioenergy. The mascot becomes a recognisable sign for women-led enterprises that aggregate residue, supply feedstock and add value through processing such as pelletisation and briquetting. It can also signal the value in returning carbon-rich inputs to the soil.

This requires thinking through incentives and enterprise design from the start. The mascot can point to what success looks like,nd it can help identify local leaders who already show those traits, so they can be trained and scaled.

What does empowerment mean to you? Is technology empowering, especially in Bioenergy growth context?

Empowerment to me means the ability to self-determine. To reach that point people need three things. First, awareness of the opportunities around them. Second, in-depth knowledge of what those opportunities do and do not do. Third, a skill to apply that knowledge for their benefit.

Technology does empower, but it is a tool with limits. What we can do on a phone today was unthinkable a decade ago, and platforms such as BiofuelCircle would not exist without that change. Yet technology must be combined with training and local mentoring. Prakriti can create awareness and provide knowledge, but skills training and hands-on support are the scaffolds that turn that knowledge into income.

Do you envisage role of AI in this context? Prakriti is an AI herself on the platform. Will she be able to connect with the rural audiences?

AI can help, but deployment must be careful. Outside urban centres, familiarity with advanced AI is limited. An avatar must be designed with local expectations in mind. It should speak plainly in local languages, it should be approachable, and it should be integrated into existing workflows rather than offered as a standalone novelty.

Prakriti should have traits that build trust, such as clarity and empathy. She can give precise, actionable prompts, for example when to collect residue, how to reduce moisture during stacking, or where to report a delivery. She can support local agents and FPO staff, act as a knowledge aid in local languages, and nudge participation. She will work best when paired with training, human verification and clear operating procedures

How far can Prakriti take us in the context of rural empowerment? Do you have any such examples from other brands?

A mascot can become a powerful public persona, but only when the organisation commits to the work behind it. I think of brands whose mascots became household faces in other markets. They did not become icons by themselves. The organisation converted attention into services, recognition and repeated practical value.

Prakriti can light a fire, but it is BiofuelCircle that must make something meaningful of that spark. When that happens, the mascot is not just an image, it is a bridge to enterprise and social capital.

One great example that comes to my mind is KFC. Their largest market is in China and their mascot is the founder, Colonel Sanders. He has become so popular that consumers refer to him as Grandpa Sanders. People relate to him as a person rather than a symbol of a brand. The mascot has become an endearing personality to KFC's consumers, and that shows what a mascot can do when backed by consistent value and familiarity.

What pathway do you recommend for Mascot Prakriti given that we expect it to drive more participation, be it biomass collection, enterprise creation or bring circularity with FOM?

Start with clarity. Define the traits you want Prakriti to embody in practical terms. Then, identify women leaders who already demonstrate those traits. Promote them as local Prakritis through awards, training and small grants. Link the mascot to measurable milestones, such as aggregate volumes, basic quality thresholds and timely payments. Recognise the people who mirror the mascot. Give them incentives and visibility. That way the mascot becomes more than a figure. It becomes a tool for building human capital, social capital and cultural capital in the districts you want to scale..

Prakriti is a useful device, and she can help the idea of rural bioenergy become more familiar. But long-term change depends on credible services, predictable payments and clear paths to skill and enterprise development. The mascot can bring people together and start conversations, and if those conversations are followed by action, the figure can help cultivate a durable movement rather than a single moment.

THE INSIDE SCOOP

Stories And Lessons From Our Growing Team Of Passionate Professionals

BiofuelCircle

BRIDGING THE RURAL AND INDUSTRIAL GAP CULTURALLY AND TECHNOLOGICALLY.

Ashish Gillurkar heads Supply Operations at BiofuelCircle. He works closely with processors, ground teams and local entrepreneurs, strengthening the routines that keep their units running every day. In this role he leads the standardisation of processes across Envira plants and Biomass Banks, turning field learnings into simple, structured SOPs that bring safety, consistency and reliability to the biomass supply chain

After more than two decades in structured manufacturing environments, he has chosen BiofuelCircle to anchor his experience in a sector that is still learning its rhythm.

Mr. Ashish Gillurkar, Vice President Supply Operations.

What was the core idea behind creating a network for biomass entrepreneurs — and how has it evolved over time?

The core idea was simple. We wanted to connect with local and small rural partners. There are many small biomass processors who work in an unorganised manner without visibility or continuity. Through our initiative, we wanted to move this sector from unorganised to organised, so industries can receive continuous, high-quality material from reliable sources throughout the year.
The intent is to build a dependable ecosystem that supports processors and ensures steady supply for industries.

Do you see industries demanding this? Is it a need for them?

Yes, industries are demanding this, and the drivers are clear.
The first is the government push to shift away from coal towards bio-based products. The second is companies working towards their green sustainability goals.

When we bring structure into this sector, industries receive quality products from certified and reliable partners instead of uncertain spot buys. The biggest challenge today is procurement during the monsoon. Once processors collaborate with us, either as Envira or Green Channel partners, feedstock availability becomes consistent because of the Biomass Banks. Industries ultimately benefit from three things: continuous supply, consistent quality and complete traceability.

Can you give a little background about where you come from, and through your extensive experience in well-established setups, how do you see this movement proceeding?

PI come from a completely organised manufacturing background. I have worked in core manufacturing since 2003, starting as an engineer and eventually leading an entire plant for a crane manufacturing company. Those environments are evolved, with safety systems, SOPs, and clear operational discipline.
Bioenergy is a new sector for me, but it is evolving very fast because of green energy and sustainability needs. The biggest shift for me is engaging with people at the grassroots, meeting processors in small towns, understanding their challenges and helping them build something stable. It is fulfilling and inspiring.
When I compare the two worlds, our sector is still at a very early stage. We are just introducing basic systems like SOPs, safety practices and simple processes that are normal in established industries. It is challenging, but the potential is very high.

How would you describe your role in connecting biomass entrepreneurs through Envira and the Green Channel initiative?

My role is to act as a bridge between farmers, processors and consumers.
Farmers provide residue to Biomass Banks, Biomass Banks supply feedstock to processors, and processors convert it into finished bio-products for industries. My work is to ensure quality, reliability and productivity at every step.
In simple words, my role is to connect the dots, improve standards and build dependable processes so industries receive consistent material and processors get predictable business.

What are the biggest challenges you have seen these biomass entrepreneurs face, and how do you or BiofuelCircle help address them?

Feedstock availability remains the biggest challenge, especially during the monsoon, and transportation adds another layer of difficulty. This is why distributed processing and dependable storage matter. At the Biomass Banks, raw material is stored for the full year so processors have something to work with even when the season turns difficult. The banks follow all the proper SOPs for safety and upkeep, and fire protection systems are in place.

Once material moves into processing, we help partners maintain consistency by running daily quality checks through the BiofuelCircle GCV Testing Kit. Every batch is tested before dispatch so industries receive a predictable product. Processors also gain visibility to a larger customer base through the marketplace, which reduces uncertainty in demand. Together, these elements close the gap between what processors can produce and what industries expect, making the supply chain more reliable.

Can you give some more examples of operating practices we follow at our Biomass Banks?

During the 45 to 60-day aggregation window, we collect material and store it based on moisture levels. Higher moisture bales are stacked in pyramid shapes so water drains out. Low-moisture bales are arranged separately and are consumed first.
We also dig trenches near each stack to channel rainwater away. Every biomass bank has fire tankers, and we create proper internal roads so fire brigade vehicles can reach any point. These practices ensure the material stays protected from moisture and fire hazards across the year.

Similarly, can you tell us the highlights of what we do at the biomass processor level?

Many processors begin their journey with basic briquette or pellet machines. However, without preprocessing, it becomes harder to deliver the quality that industries expect.
At our partner units, we insist on preprocessing lines, which include hammer mills, separators and dust control. We also follow daily quality checks through BiofuelCircle's GCV test kit, monitor production and maintain records on the platform. These steps bring consistency to what processors produce and help reduce rejections.

Can you share a moment or a story that captures the spirit of entrepreneurship growth within this community?

Recently I visited a processor near Pune who had started his unit in 2012. He struggled for years due to inconsistent feedstock and lack of steady demand. After understanding our model, he saw the value of partnering. We committed to booking his full capacity and aligning feedstock supply through Biomass Banks. He is now getting on board and sees stability in his business.
Another example is from Haryana, and the processor there, who used to run only one line, now wants to set up five more plants. When people get assured supply and demand, they are ready to expand.

The theme for this edition is "Co-creating the bioenergy future." How does that connect with the work you do?

For me, co-creating the bioenergy future means working together across the chain. Farmers, aggregation rural partners, processors, transporters, consumers and BiofuelCircle all contribute to building this future.
We are building reliable bio-products that benefit farmers, create local income, support processors and help industry shift towards cleaner energy. Working together is the only way this ecosystem can grow.

What are the challenges or resistance you face from processors when you ask them to adopt new practices or invest in equipment?

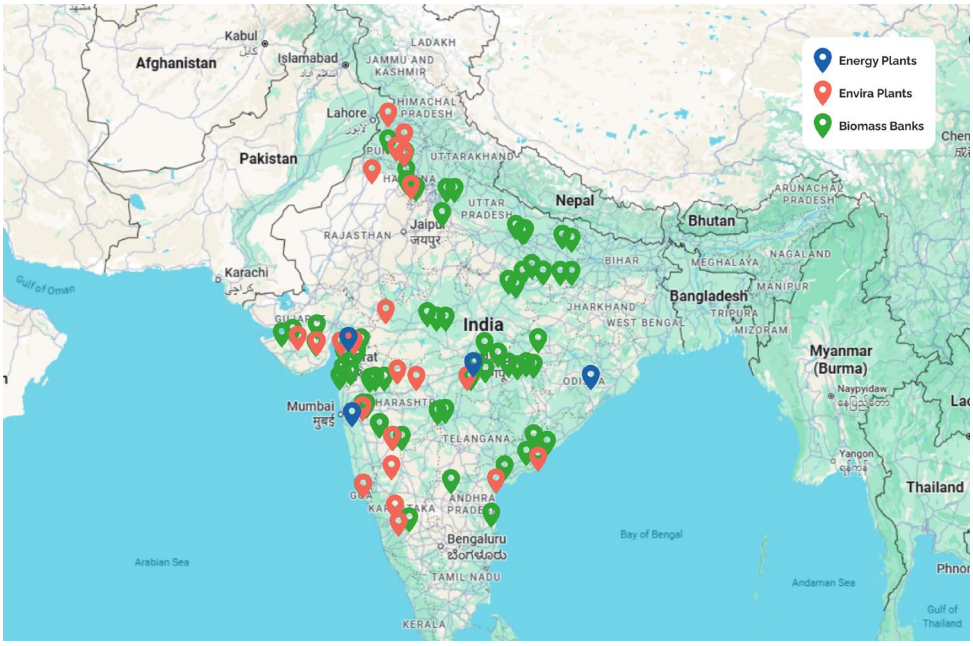
We do encounter hesitation. Processors often seek clarity on how partnerships will operate, especially regarding ownership and decision-making. Many also express concerns about the investment needed for preprocessing equipment and the capability required to manage more structured operations.
Many rural entrepreneurs also struggle to find skilled manpower to operate equipment or use the BiofuelCircle platform. We handle this by training their teams, sometimes deploying our own resources on-site, and handholding them until they become comfortable.
There are also concerns linked to government policies and financing. Many rural entrepreneurs are not aware of subsidies or investment schemes, even though the government offers good incentives. Policy implementation is uneven across states, so awareness becomes important. We try to explain these opportunities whenever possible.

Do you see yourself as a coach or mentor to many small manufacturing managers coming up from rural areas?

Yes, in some ways I do. Because of my experience in manufacturing, I can guide people on SOPs, safety and plant practices. Most of the supervisors we work with come from agriculture backgrounds, not engineering. I help them understand processes, documentation and discipline.
At the same time, I am learning from them too because this sector is new for me. If I can help create a culture of safe, reliable and productive operations in rural areas, then the whole ecosystem benefits.

EXPANDING OUR FOOTPRINT

India Map with all Biomass Banks Locations and first Comic Story of Prakriti



The India map highlights our growing footprint through an extensive network of Biomass Banks and Envira Plants spread across multiple states, creating a reliable supply for industrial and energy applications and strengthening the circular bio-economy.

Prakriti Comic Story

The Prakriti comic brings our mission to life through a relatable, grassroots narrative. Set in a rural farming context, the story follows Prakriti as a change-maker who bridges the gap between farmers and sustainable solutions.

Prakriti represents awareness, innovation, and trust.