



Empowering Farmers Through Innovation

**IFC's Inclusive Agritech Facility
Investments in India**

IN PARTNERSHIP WITH

Gates Foundation



IFC

**International
Finance Corporation**
WORLD BANK GROUP

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*Smallholder Swamy
K R built a new cowshed
to accommodate his
growing herd.*



Foreword

Agriculture remains a cornerstone of rural livelihoods and food security across South Asia. Smallholder farmers—who make up the vast majority of agricultural producers in India, Nepal, and Bangladesh—hold untapped potential to drive inclusive growth, enhance food security, and foster economic transformation. Yet persistent gaps such as limited access to finance, quality inputs, market linkages, and infrastructure, often constrain productivity and incomes.

This is where agricultural technology, or agritech, offers an opportunity. From digital tools and precision farming to resilience-building inputs and circular economy innovations, agritech has the potential to build more sustainable, productive, and inclusive food systems.

However, for early-stage ventures in underserved markets, capital remains scarce, especially for technologies seen as too risky or untested for commercial investment.

To fill this financing gap, the International Finance Corporation (IFC), with support from Gates Foundation, launched the Inclusive Agritech Facility (IAF)

in 2018. By using blended finance to de-risk equity investments, the facility enables IFC to back high-impact agritech companies across the value chain—including those focused on solar irrigation, post-harvest innovations, and waste-to-value startups. Collectively, they are transforming how food is produced, processed, and distributed, while also generating more and better jobs across rural economies.

IAF brings together the complementary strengths of IFC and Gates Foundation: deep sectoral expertise, patient capital, and a shared commitment to agricultural transformation. In doing so, the facility helps validate business models that unlock

These innovators are at the frontier of transforming value chains—reducing waste, enabling better pricing, and creating more equitable opportunities for women.

additional sources of capital and expand the agritech ecosystem.

This approach is fully aligned with the World Bank Group's strategy, which prioritizes job creation, food security, and poverty reduction. Through initiatives such as AgriConnect, the World Bank Group is working to transform farming and strengthen food systems by mobilizing private capital, building markets in challenging environments, and expanding access to finance for farmers and agribusinesses. IAF is a practical expression of this strategy—using blended finance to unlock investment in parts of the agrifood sector where risks are high, but the potential for impact is even greater.

As a result, IAF sits naturally within this broader framework, mobilizing private capital for solutions that connect farmers to technology, markets, and financial services, while accelerating the transition toward more resilient and inclusive food

systems.

In India, IAF's support has helped catalyze a strategic partnership with Omnivore, the country's leading agritech-focused venture capital firm. The partnership has enabled Omnivore to back startups such as Stellapps, which is digitalizing India's smallholding dairy supply chain; Ecozen Solutions, which offers solar-powered irrigation and cold storage; and altM and Fibmold, which are pioneering waste-derived packaging and feed. These innovators are at the frontier of transforming value chains—reducing waste, enabling better pricing, and creating economic opportunities for women.

In this report, you'll have the opportunity to meet some of the smallholder farmers whose lives and livelihoods have improved thanks to this partnership. These stories reflect the broader purpose of IAF: enabling agritech to deliver real-world benefits where they matter most. We are



Picking roses at the right stage and using cold storage help farmers earn more at market.

grateful to Gates Foundation for its continued collaboration.

As the global food system faces mounting pressure to deliver more with less—more nutrition, more resilience, more equity—innovative financing models are needed to unlock new pathways. IAF represents one such model: a demonstration of how blended finance can bridge risk and opportunity, and how targeted support at pivotal moments can help turn promising technology into impactful, scalable solutions.



Elizabeth Namugenyi
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About IAF

Investments in agriculture are critical to reducing poverty and boosting food security. Strengthening agriculture and food systems has the potential to improve the lives of millions of farmers. Agribusiness is diverse and complex, and the sector faces **significant challenges**, including resource scarcity, infrastructure gaps, and access to finance.

IFC is uniquely positioned to lead in agribusiness investment with private and blended finance solutions, as well as advisory services for large and small businesses. **Blended finance** allows IFC to support projects in the agricultural sector that would otherwise not attract commercial funding due to perceived high risks in this sector. It can provide affordable funding with less demanding terms, which allows IFC to invest in **early-stage or riskier projects** with high impact potential.

IFC's strategic objectives for agribusiness prioritize enhanced food security, economic development and inclusiveness, and sustainability as a driver of business. IFC continues to focus on **resilient investments** and **creating market initiatives**, particularly in fragile and conflict-affected countries.

The Inclusive Agritech Facility (IAF) aims to de-risk IFC's early-stage equity investments in agriculture technology (agritech) companies in **India, Nepal, and Bangladesh** and to develop solutions for smallholder farmers. The facility, launched in 2018 with support from **Gates Foundation**, helps demonstrate investment models that **balance sector risks, commercial success, and impact goals**, with the potential to attract additional investment capital. It also **strengthens the partnership** between the foundation and IFC.



At a Glance

\$5M

US\$5M for concessional blended finance investments



Support for equity investments in agritech companies to address market failures and constraints for smallholder farmers



First loss guarantee to IFC's and co-investment partners' early-stage equity investments

\$12M

IFC equity investment of **up to US\$12M** in Omnivore Agritech & Climate Sustainability Fund 3, a venture capital fund supported by IAF

\$75M

US\$75M in private capital unlocked

Transforming Agriculture in India

A Conversation with Srivalli Krishnan, Gates Foundation

We sat down with Srivalli Krishnan, Deputy Director, Agricultural Development–Asia at Gates Foundation, to discuss the partnership, its impact, and the future of agricultural technology.



“By investing in Omnivore, Gates Foundation amplified the impact of our initial \$5 million and unlocked \$75 million in private capital.”

What inspired Gates Foundation to partner with IFC on IAF and what makes this collaboration unique?

Gates and IFC have similar goals: Both organizations aim to use private capital to catalyze increases in productivity, nutrition, and incomes, while also prioritizing women’s economic empowerment and resilience in the face of extreme weather. We have these shared priorities, but we hadn’t yet partnered together and so we decided to launch this pilot, focusing specifically on agriculture, which would have the most impact on an estimated 126 million smallholders and those at the bottom of the pyramid.

Initially, the collaboration was structured as a first-loss guarantee to support IFC investments only into agribusiness companies and not funds. Over time, we adapted and restructured the model, which enabled IFC to invest in Omnivore, India’s leading agri-focused venture capital fund. They’ve done a great job

and have rigorous due diligence and deep agricultural expertise—which gave us all the confidence we needed. It was a marriage of like minds: IFC, Omnivore, and Gates Foundation.

By investing in Omnivore, Gates Foundation amplified the impact of our initial \$5 million and unlocked \$75 million in private capital. Our partnership became more than just a traditional public-private partnership and instead what we call a “P4”—a public, private, and philanthropic partnership. All this capital came together to further our shared goals and facilitate and catalyze capital at a stage when there’s not typically a lot of venture capital (VC) funding available.

Why are smallholder farmers central to IAF’s vision and focus?

In India and many developing countries, smallholder farmers contribute more than 60-70% of food production. In India, this figure is over 80%. They are the backbone of agriculture, yet they

remain the most vulnerable to challenges like extreme weather and have minimal access to resources—whether financial, technological, or otherwise.

For India to achieve economic transformation, the agriculture sector needs to be more productive. This efficiency will also put less pressure on natural resources.

How does this initiative align with Gates Foundation's broader mission in agriculture?

IAF is allowing us to test the hypothesis that agritech,

combined with the right business models, can transform the sector.

Success in agritech doesn't come from technology and innovation alone—it's about developing scalable models that deliver products and services efficiently to smallholders. The idea was to test various business models that work in this sector to enable and catalyze productivity gains. For instance, Stellapps doesn't need to work directly with farmers who produce milk, but rather works on a solution that allows a smallholder farmer to be more productive. That's our entry point: be in that intermediate level where we are

A digitized supply chain is helping streamline the processing of ghee—India's popular clarified butter.



“We sometimes forget that the largest private sector actors in agriculture are the farmers themselves. They produce food, but they also consume products and services.”

supporting a company that drives productivity across the entire dairy supply chain.

What progress has IAF achieved in advancing agritech innovation in India?

The facility is still in its early stages, and we're learning that it's been helpful to diversify the portfolio across multiple companies and sectors. It's also helping us to test various entry points and approaches: We still don't know if our entry point should be inclusive market-building, productivity enhancement, or post-harvest management, just as an example.

We are also nudging the entire ecosystem to really look at how patient capital and a facility like this can unlock potential in high-risk stages of startup development.

While not directly funded or supported by IAF, another achievement is the high-quality

technical assistance, alongside capital, that Omnivore is providing. Startups in the portfolio are finding it invaluable: They benefit not just from financial support but also learn from their peers' experiences and mistakes. The learning platform is really helping accelerate growth and innovation.

What is the role of the private sector in advancing agricultural solutions?

We sometimes forget that the largest private sector actors in agriculture are the farmers themselves. They produce food, but they also consume products and services. Agriculture needs open markets and cannot flourish in the absence of the private sector. A fully public sector-supported system becomes stagnant and flat, with no innovation or infusion of technology.

The private sector's role is two-fold: It brings capital, but it also brings the zeal to innovate and



For farmers like Sopan Pansare, modern agricultural technology is driving better yields and stronger harvests.

the whole idea to think differently, which in turn brings in the rapid adoption of technologies and innovations. Globally, we also see that the private sector drives efficiencies—it finds a way to develop and deliver a product that achieves a bottom line, which a public sector-financed system can't do. Having the private sector is critical to transforming the agricultural sector into becoming more productive.

How does blended finance play a role in fostering agricultural innovation?

Blended finance bridges critical gaps in the startup lifecycle,

particularly between Series A and Series B funding. This stage is the riskiest: Companies are burning capital as they refine their models, scale operations, and test market viability. That is where patient capital should be—but it's often not because investors traditionally look for safer entry points.

IAF provides patient capital during this “black box” phase and plugs in that gap, giving founders the freedom to experiment, iterate, fail, try again, improve, and learn from each other— without immediate pressure to churn out quick returns.

Are there standout companies in the Omnivore portfolio that exemplify the transformative potential of agritech?

All of the companies are really interesting, but there are a few that are really innovative and redefining what's possible in agriculture. For example, altM is converting crop residue waste into industrial inputs, which is addressing both waste and sustainability. I see huge potential in the future. Loopworm, another company in the portfolio, uses discarded silkworm to manufacture byproducts into pet food and other byproducts. It's a transformative approach to the circular economy. These sort of "out there" companies are really looking to change the

entire ecosystem. Another one is Ayekart Fintech, which is looking to make markets more inclusive by digitally empowering Farmer Producer Organizations and micro, small, and medium-sized enterprises (MSMEs) with access to finance, market linkages, and capacity-building across India's agri-value chains. And of course, models like Stellapps Technologies and Niqo Robotics are targeting a B2B entry point that could really change the dynamics and economics of the entire ecosystem moving forward.

How do gender and environmental considerations shape the facility's mission?

Women are the backbone of agriculture in India, comprising



With 80 million smallholder farmers, India is the world's largest producer and consumer of milk.

“Women are the backbone of agriculture in India, comprising more than 70% of the workforce.... So we really need to approach these high-potential sectors in more inclusive ways.”

more than 70% of the workforce. In sectors like dairy, it's over 80%, and so we really need to approach these high-potential sectors in more inclusive ways—whether it's drones that are designed for women operators, or setting up systems that are operated by women, like milk collection and chilling plants. These can really transform the rural economy and improve livelihoods.

Within Omnivore's portfolio, for example, we have seen entrepreneurs who are tackling specific challenges to catalyze impact. Varaha has done multiple successful carbon credit projects with women smallholder farmers; Ecozen, which builds solar-powered cold chain solutions, has piloted storage hubs managed by women self-help groups in perishable supply chains like fruits and vegetables, reducing food loss while creating clean energy-driven microenterprises for women. We know that agriculture is the

sector that is most negatively impacted by extreme weather, including erratic rainfall and rising temperatures. We need to be very intentional in understanding what the sector needs to adapt so that smallholders become more resilient. We cannot wait for another 15 years to start thinking. We need to start doing it now, and agritech is forcing us to address these urgent challenges with ingenuity and creativity.

What excites you about the future of this initiative?

I'm eager to see how the startups supported by IAF evolve in the coming years. This is an important learning platform for us to better understand what patient capital and blended finance can potentially accelerate in the sector. It's also helping us, as a foundation, refine our strategies going forward and helping us explore innovative ways to use philanthropy to scale and foster agritech. ■





Digitizing Dairy

How Technology Is Shaping India's Smallholder Farms

*Shyamala Ananthkumar takes
a break after a busy morning
milking her four cows.*

Before dawn each morning, Shyamala Ananthkumar steps into her modest cowshed, amid the faint smell of hay and dung and the loud moos of her four cows to begin a well-established routine: She begins by cleaning the stalls with a broom, then brings buckets of water and green forage for the cows to eat, and then finally pulls up a stool, sits low to the ground, and begins to milk her cows by hand, the milk squirting loudly into the bucket below.

When she's finished, Ananthkumar walks roughly 50 meters to the nearby milk-collection center, the milk bucket balanced atop her head. She repeats the same routine in the evening, when the sun sets and her cows' udders swell with milk, impatient for her return.

While Ananthkumar's routine may appear unmechanized, behind it runs an advanced digital dairy supply chain that is revolutionizing her farm, and thousands like hers across India.

Technology Powering India's Dairy Transformation

Ananthkumar's dairy farm is part of a complex supply chain called mooMark, which is powered by Stellapps, a pioneering agritech company that is working to digitize India's dairy supply chain.

As she enters the mooMark collection center in her village of Kuruburu in the Indian state of

Karnataka, collection center staff mark her unique farmer identification number. The moment milk from Ananthkumar leaves her can, it enters a digitized supply chain that processes roughly 15 million liters of milk a day from more than 3.5 million farmers across 17 states—accounting for about 10% of India's formal milk supply. Instantly, Ananthkumar sees the volume, quality, and value of her milk through real-time data. This milk traceability technology also monitors cow health and nutrition, improving efficiency and transparency.

Over three years with Stellapps, Ananthkumar accessed credit, high-quality inputs, and extensive advisory services—all of which have helped her to increase her milk production and double her herd size from two to four cows. With the extra income, she's easily paid her son's school fees and bought a much-coveted gold necklace.



Through its digitized supply chain, Stellapps processes about 15 million liters of milk daily, sourced from more than 3.5 million farmers across 17 states.

"I was impressed with the system when I first saw it and have been delivering all my milk here ever since," she said.

Why Is Digitizing Dairy Important for Smallholder Farmers?

India is the world's largest producer and consumer of milk. Its 1.45 billion people consume an estimated 600 million to 700 million liters daily, nearly all

produced by 80 million smallholder farmers, who average just two or three cows per farm. Smallholder farmers are critical to India's food production but often face limited access to inputs, finance, markets, and key information. Women farmers like Ananthkumar play a vital role in the sector, often managing livestock. Agriculture provides employment for nearly half of the country's labor force and supports rural livelihoods. While

it currently contributes 17% to gross domestic product (GDP), there is immense potential for growth. Empowering smallholder farmers can boost quantity, quality, and affordability of food for consumers in the country while reducing poverty and creating a more sustainable future.

Stellapps, which was founded in 2011, is working to make that happen. The company is supported by Omnivore and IAF as part of a broader IFC strategy to foster greater resilience in India's food market by diversifying markets and supply, while also strengthening the quality and



The system tracks milk quality and quantity at every stage, from collection to chilling to processing.

“Smallholder farmers don’t change overnight,” said Ranjith Mukundan, Stellapps CEO and cofounder. “It takes years of consistent intervention, patience, and support to build trust and drive adoption of new practices.”

safety of the food supply chain.

“Smallholder farmers don’t change overnight,” said Ranjith Mukundan, Stellapps CEO and cofounder. “It takes years of consistent intervention, patience, and support to build trust and drive adoption of new practices—and so you need folks like IFC, Gates Foundation and Omnivore who have the stamina and patience to stay with you slightly longer than typical financial investors.”

How Does Stellapps’ Dairy Farm Management App Work?

At the collection center, the company performs a quick milk test, assessing fat and water content, nutrition, and weight—all of which is uploaded digitally to the Stellapps cloud platform. Ananthkumar, for example, can check her phone seconds later to see her day’s earnings and compare them to her previous

deliveries through a mobile application. The data also helps her monitor the impact of recent changes in her cows’ diet.

Milk cans are moved to solar-powered chilling facilities serving rural villages, with IoT in dairy farming sensors monitoring freshness even in remote, off-grid areas. Data points throughout the process ensure traceability: If a cow received antibiotics, it’s automatically flagged in the system—keeping antibiotics out of the supply chain.

“Milk is the most perishable crop there is and so at every point—from the collection center to chilling units to processing plants—our system is able to trace the quality and quantity of our milk,” said Mukundan. “We aren’t monitoring at an aggregate level: A unique ID for every animal, farmer, and village means that if something goes wrong, we know exactly where to look.”

“When you give animals the proper nutrition and vaccinations, you shift the productivity lever from five liters to 12 liters—which means a 56% reduction in carbon load per liter.”

From Backyard Farms to Smart Dairy Enterprises

Stellapps provides more than just a marketplace for milk. Its dairy farm management app offers veterinary care, artificial insemination, and nutrition guidance. Farmers can order feed, purchase vaccinations, and plan their cows' breeding cycles, with costs seamlessly deducted from milk payments. Modern farm management systems can significantly boost dairy milk yield—and many of the 67,000 registered farmers who supply directly to the company have more than doubled their production since joining, according to company findings.

“We’re helping farmers transition from backyard farming to entrepreneurial ventures and trying to solve for productivity, quality, and traceability across the entire supply chain,” Mukundan said.

Stellapps' financial services arm, mooPay, leverages milk quality and quantity data to create a creditworthiness score called “mooScore,” which is integrated with Reserve Bank Innovation Hub's (RBIH) unified lending interface (ULI) platform. This alternative scoring system has unlocked access to formal credit for farmers traditionally excluded from financial services. The loan payments are automatically deducted from milk payments that farmers receive directly to their bank accounts every 15 days.

The result has been transformative: Farmers like Swamy K R, also from Kuruburu, have been able to access credit for the first time in their lives—and they're investing in their farms. “I never even tried through a local bank,” he said on a recent afternoon, motioning to his growing herd and a new cow shed he built to accommodate them. Swamy K R received his first loan in 2022 and

Video: Digitizing Dairy



a subsequent one the following year. He now has four cows—and the extra income has allowed the family to buy a refrigerator and a washing machine and to pay school fees for a son in Bengaluru.

Building a Sustainable Dairy Value Chain

Improving productivity is key to Stellapps' mission to build a resilient dairy value chain. Higher yields mean fewer cows can produce the same volume of milk, drastically reducing methane emissions. Solar-powered chilling

centers and energy-efficient cold chains minimize environmental impact further. Remote monitoring systems send real-time WhatsApp alerts for any drop in efficiency, ensuring swift action and reducing energy consumption.

“When you give animals the proper nutrition and vaccinations, you shift the productivity lever from five liters to 12 liters—which means a 56% reduction in carbon load per liter. When you apply that at scale, you need a fraction of the animals to produce the same

Farmers like Swamy K R, also from Kuruburu, have been able to access credit for the first time in their lives—and they're investing in their farms.

amount of milk, leading to a drastic reduction in methane emissions," Mukundan said.

Swamy K R, for example, said his milk production has increased by nearly 70%, simply by working with the company's nutritionists and animal-health specialists. Across India, with the support of Stellapps, farmers are making similar changes, laying the groundwork for a more sustainable and inclusive dairy industry.

"By streamlining and digitizing the supply chain, strengthening market linkages, and reducing the carbon footprint, Stellapps is empowering farmers," said Abhilash Sethi, Omnivore's investment director. "It's a great example of how our portfolio companies are driving innovative solutions to improve the lives of smallholder farmers across India." ■

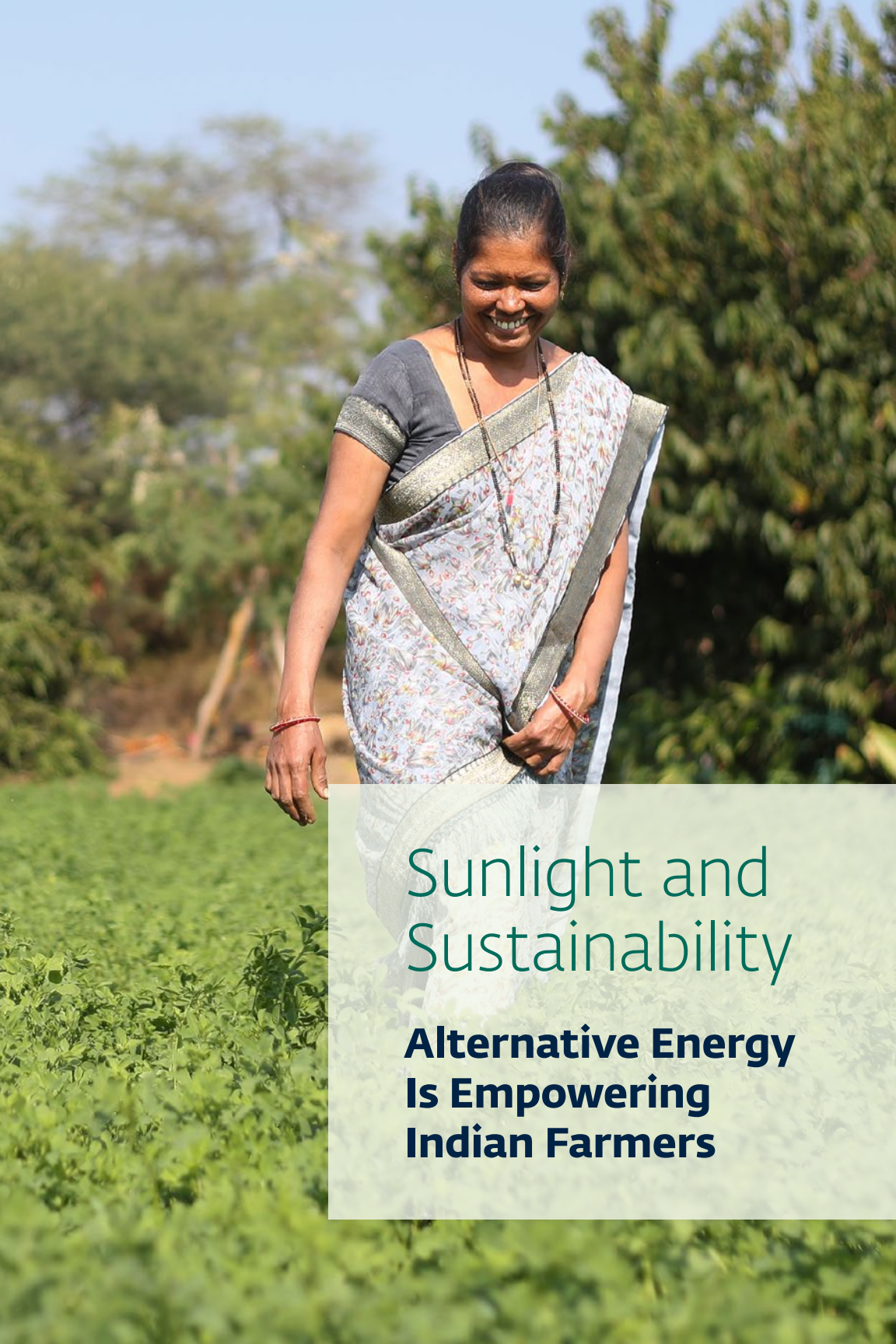




Swamy K R feeds
his growing herd.



With a new solar irrigation pump, Swati Somnath Dhumal's crops are now thriving.



Sunlight and Sustainability

**Alternative Energy
Is Empowering
Indian Farmers**

From parched fields to thriving farms, Ecozen's solutions are improving livelihoods, reducing waste, and boosting resilience.

As she crossed her fields to inspect her newly installed solar irrigation pump—thriving, verdant crops all around her—Swati Somnath Dhumal felt her feet sink into the damp, fertile soil below.

It wasn't always this way.

Just two years ago, the ground was so dry and parched that weeds and root vegetables clung stubbornly to the earth, which Dhumal said made pruning and harvesting nearly impossible. Crops such as corn and wheat would often wither and die.

The culprit—unreliable electricity—meant that the family's irrigation system worked only intermittently, sometimes for a few hours a day, but often not at all. Sometimes, power would come on in the middle of the night, and Dhumal would rouse her husband from sleep. He'd emerge bleary eyed to walk to the fields behind their home and turn on the pump, watchful for wild jackals and wolves that roamed the nearby jungle at night.

"We were forced to irrigate based on power availability and not what our crops needed," she

recalled on a recent afternoon. "Even if the crop didn't fail, the quality was not very good, which meant lower prices at the market."

That's since changed, thanks to Ecozen Solutions. The company's solar-powered irrigation system now ensures her fields get water whenever needed. "We are stress free now," she said at the family's home in Peth, Ambegaon a village near Pune. "We have a pump and with the press of a button, we have water for our crops. Even our cows can drink freely."

Electricity Alternatives

An estimated 9 million diesel and 21 million electric pumps are currently installed across Indian agricultural fields. Such pumps are often both polluting and expensive.

Power availability, meanwhile, has improved but remains a



With Ecozen's IoT-enabled solar irrigation system, farmers can adjust water flow from a mobile app.

challenge for many smallholder farmers relying on diesel to water their fields. With unreliable electricity grids, many smallholders rely on costly diesel pumps. As a result, only 34% of India's arable land is irrigated, said Devendra Gupta, Ecozen's cofounder and CEO.

"We realized that solar power could improve production, eliminate dependence on rain-fed agriculture, and also make

farmers less reliant on the grid," he explained.

Ecozen's IoT-enabled system combines solar-powered irrigation pumps, motors, and remote controllers that also enable data collection. Through a mobile app, farmers can adjust water flow and timing, while sensors provide reminders to clean or tilt solar panels for optimal performance.

So far, EcoFrost has prevented 660,000 metric tons of food waste and generated an estimated value of US\$754 million for farmers, according to Ecozen estimates.

The company, which was founded in 2010, is supported by Omnivore.

The investment is part of a broader IFC agritech strategy to support innovative agricultural technologies with deep tech and disruptive business models that have potential to (i) address food security by boosting productivity and supply chain efficiency, thereby increasing smallholder incomes, (ii) improve access to finance and market linkages for smallholder farmers, and (iii) reduce the impact of agribusiness on the environment and strengthen the sector's resilience.

From Solar Pumps to Cold Storage

As a young graduate in mechanical engineering, Gupta, along with his two cofounders, was excited to introduce the pump on small farms—and thought he had stumbled upon a critical solution for Indian smallholder farmers.

"We gave a solar pump to a farmer who had previously had barren land and after 12 months, his barren land had turned fully lush green," he recalled. "We were so excited because this was the change we really wanted to create. But when we investigated, we learned that increased production didn't always translate to increased income."

Indeed, the young engineers realized that farmers were selling at low prices because they lacked storage facilities to preserve their harvests until market demand improved. "The smallholders we talked to lacked infrastructure and storage facilities," recalled Vivek Pandey, another cofounder. "Once we identified the need, we ventured into solar-powered cold storage."

The company then developed EcoFrost, a solar-powered portable cold room using thermal energy for on-farm cold storage to reduce spoilage, enhance quality, and extend shelf life. So

**Ecozen founders (from left):
Devendra Gupta, Prateek
Singhal, and Vivek Pandey.**



Dhanlobhe said that his family income has increased by 30% since introducing the solar cold storage room—and said that their initial investment has already paid off.



In the cold storage room, Vishnu Vijay Dhanlobhe examines roses to ensure they remain fresh for transport.

far, it has prevented 660,000 metric tons of food waste and generated an estimated value of US\$754 million for farmers, according to Ecozen estimates. Solar panels create ice walls that surround the room during the day and though the ice slowly melts during the night, the stored produce stays cold.

The system is controlled by a mobile app, which is programmed with best practices for post-harvest management: Users can input the number and type of fruit, clicking on a mango icon for example to simplify the process. The app automatically monitors the temperature to ideal conditions—without farmers having to go through the literature on best practices for mango storage.

Transforming Livelihoods, One Rose at a Time

Vishnu Vijay Dhanlobhe, a farmer in Pait in Maharashtra, who cultivates eight different varieties and color of roses, says the technology has been transformative.

Before the family purchased an Ecofrost, electricity at the farm would go out about every two weeks—often the result of heavy rains, winds, or downed wires. The family had a cold room, but unreliable power would often cause it to malfunction, and they'd be forced to offload their

flower inventory at local markets, often for just a few rupees per stem.

“Flowers can last only four to five days outside,” he explained. “But with Ecofrost, I can store roses for up to 17 days, allowing me to sell when demand—and prices—are higher.”

Removing his phone from a pocket, Dhanlobhe gave a quick demonstration of how to control the temperature and humidity by clicking a few buttons on the screen. More often, though, he relies on the system and just inputs the number of flowers, allowing the unit to cool accordingly.

Ahead of auspicious dates on the calendar, when families look to decorate wedding ceremonies and banquet halls with roses of every color, he's able to charge 15 rupees for a single stem, triple the price at local markets on unfavorable days. The cold storage also helps preserve the flower buds, which allows him to ship roses all over the country just as the bud starts to open.

“Roses are delicate, and we need to be able to hold on to them until the time is right,” he said. “The Ecofrost gives me that stability.”

Dhanlobhe said that his family income has increased by 30% since introducing the solar cold

storage room—and said that the family’s initial investment has already paid off. “We want to keep growing,” he said, pointing toward the Ecofrost, “but first we need a bigger unit.”

Scaling Solutions for a Sustainable Future

Ecozen has distributed more than 350,000 solar irrigation systems and 1,100 cold storage units. And the company said that its solar solutions are boosting resilience for farmers amid unpredictable rainfall, soaring temperatures, and extreme weather.

“We are empowering farmers across the value chain to become more resilient,” Gupta said. “Temperatures continue to rise and so we see our role as continuing to pioneer renewable energy solutions that make our future more sustainable.”

“There’s a lot of work to be done,” he added, “and a lot of innovation and creativity required to take Indian agriculture to its full potential.” ■

Standing outside the Ecozen cold storage unit, Vishnu Vijay Dhanlobhe said that the technology has helped increase his sales.









Bridging Capital and Innovation

A Conversation with Abhilash Sethi, Investment Director at Omnivore

As one of India's leading venture capital firms focused on agriculture and rural economies, Omnivore has been at the forefront of driving innovation in agricultural technology. In this conversation, Abhilash Sethi, investment director at Omnivore, shared insights into the challenges and opportunities in Indian agritech, the transformative impact of blended finance, and the firm's vision for a more resilient and inclusive agricultural ecosystem.

“Unlike fast-paced sectors like consumer tech, agricultural technologies require years to demonstrate tangible results at the farm level. Patience and long-term commitment are key.”

What are some of the exciting opportunities you’re seeing to create positive change in the agriculture sector, and how is your approach helping shape a more sustainable and resilient future for smallholder farmers?

Omnivore has been a key player in driving innovation in Indian agriculture and we are committed to leveraging technology to address India’s most pressing agricultural challenges. With nearly 160 million hectares of arable land, the country has vast opportunities.

We focus on three areas: market access, cost of cultivation, and productivity enhancement—supporting startups that address these gaps to drive systemic change. We translate this focus into four investment themes—digital value chains, emerging technologies, inclusive fintech, and sustainable brands—each driving transformative impact for smallholder farmers. As

the preeminent fund in India focusing on agriculture and rural economies, we’re creating a more resilient and equitable agricultural ecosystem for smallholder farmers.

What key insights have you gained from both the successes and challenges in agritech, and how are these shaping your vision for the future of the industry?

A key lesson is that agriculture operates on a much longer timeline than other industries. Unlike fast-paced sectors like consumer tech, agricultural technologies require years to demonstrate tangible results at the farm level. Patience and long-term commitment are key—and in this regards, IFC support is critical. Unlike most commercial capital, IFC invests with a long-term, development-first lens. This enables it to de-risk early innovations, attract private investors, support critical infrastructure, and promote



inclusive models—especially for smallholder livelihoods, gender equity, and resilience—catalyzing transformational change in agriculture that traditional capital often overlooks.

Additionally, agritech companies face unique challenges, especially around working capital. The agricultural cycle is seasonal, while demand is year-round, which creates liquidity pressures.

Managing these cycles carefully is essential for sustainability—and that requires expertise and patience.

How is blended finance support helping Omnivore invest in innovative and game-changing technology?

Blended finance has been crucial in allowing us to invest in high-risk sectors like agri hardware,

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deep-tech, and agricultural biotech—areas where traditional VC funds are often hesitant.

For example, our investment in Niqo Robotics, which uses AI and other technologies to apply targeted treatments of herbicides and nutrients, reduces chemical use and input costs, and minimizes waste. The technology is very specialized and so it’s difficult for traditional venture capital investors to appreciate. As agriculture experts, we’re able to understand and underwrite these early-stage, high-risk startups and support their growth.

What key opportunities do you see for agritech to address critical gaps in India’s agricultural value chain, and how are Omnivore’s investments helping to unlock new pathways for growth?

A key challenge in Indian agriculture is market linkage, and

startups are pivotal in addressing this. Take Stellapps, for example. In India’s dairy sector, many farmers traditionally sold their milk to local collection agents. Stellapps is changing this by directly sourcing milk from farmers and linking them to larger corporations that buy in bulk—which cuts out intermediaries and ensures farmers get better prices for their milk.

Similarly, Agrizy is addressing another major challenge: the underdeveloped processing infrastructure. In India, only 18%–20% of agricultural produce is processed, compared to over 80% in countries like the U.S. This gap leads to postharvest losses of 20%–25%. Agrizy is working to change this by connecting small and medium-scale agriprocessors to large global food processing giants. This integration allows Indian produce to reach international markets, boosting revenue for processors,

which, in turn, benefits the farmers. It's creating value that is then passed down the supply chain to smallholders.

We're also investing in the pressing issue of agricultural waste management. India produces nearly 1,000 million metric tons of agricultural waste annually—and managing this waste is a critical challenge. That's why we've invested in two innovative companies, AltM and Fibmold, which are turning agricultural waste into high-value products. Fibmold is creating eco-friendly packaging materials from agri-waste, while AltM is transforming waste into petrochemical replacements, helping reduce environmental impact while creating new value chains for farmers.

What are the most exciting trends or innovations you see on the horizon, and how is Omnivore positioning itself to lead this next wave of transformation?

The agritech landscape is rapidly evolving, with new technologies and business models emerging constantly. We're especially bullish about resilient technologies, spanning hardware, digital tools, and biotechnology. We're tracking innovations in this space to remain at the forefront of solutions to challenges in agriculture. Early-stage technologies often struggle to

attract investment, and that's where catalytic capital—like that from IFC—plays a crucial role in helping these companies scale and unlock broader impact.

We're also focused on innovative logistics solutions, particularly in the cold chain space—particularly as the demand for better food storage and distribution grows. Additionally, we're exploring farmer-to-consumer brands and agri-fintech to bridge the gap between financial institutions and farmers.

As an impact fund, our primary goal is financial returns, but every investment we make must also improve the livelihoods of smallholder farmers and have a net positive impact on resilience.

How do you measure the impact of your work, and what are some of the key outcomes you've seen in terms of farmer livelihoods and environmental sustainability?

Measuring impact is a cornerstone of our approach. Before making an investment, we conduct a pre-investment impact survey to establish baseline metrics. Post-investment, we track progress annually on key indicators like pesticide reduction and productivity gains.

We have a lot to be proud of. Niqo Robotics, for example, has partnered with 32,000

“Over the past decade, Omnivore has contributed towards building a deep and impactful agritech ecosystem, supporting entrepreneurs shaping the future of agriculture and food systems in India.”

smallholder farmers, covering 19,000 hectares with sustainable farming practices. Finhaat, a rural insurance company, has provided coverage to one million farmers, half of whom are women, totaling \$275 million in insurance coverage. And Stellapps' tech layer is reaching an estimated 3.5 million farmers. These companies highlight ways in which technology-driven solutions are creating measurable benefits for rural communities, including increased productivity and financial resilience.

Looking ahead, what are some of the most exciting frontiers in agritech, and how is Omnivore preparing to be at the forefront of these developments to create lasting, positive change in agriculture?

Over the past decade, Omnivore has contributed towards building a deep and impactful agritech

ecosystem, supporting entrepreneurs shaping the future of agriculture and food systems in India. We believe the impact of the agritech sector will accelerate in the coming decade, with Omnivore playing a critical role in establishing India as an agritech superpower that positively impacts the lives of smallholder farmers worldwide.

Some key focus areas for us include resilient agriculture, AI-driven precision farming, agri-fintech solutions, deeptech and biotech products, sustainable food brands, and the global opportunity for Indian agritech. To stay at the forefront and create lasting and positive change, Omnivore is doubling down on investing in breakthrough startups, forging partnerships with research institutions, supporting policy advocacy, and building global connections for Indian agritech startups to scale globally. ■

The Inclusive Agritech Facility (IAF) aims to de-risk IFC's early-stage equity investments in agriculture technology (agritech) companies in India, Nepal, and Bangladesh and aims to develop solutions for smallholder farmers by investing in private sector-led agriculture technology and business models that have the potential to be deployed at scale.

The facility, which was launched in 2018 with support from Gates Foundation, helps demonstrate investment models that successfully balance sector risks, commercial success, and impact goals, with the potential to attract additional sources of investment capital. It also strengthens the partnership between the foundation and IFC, capitalizing on the shared vision of achieving inclusive agricultural transformation and the complementary strengths of agriculture teams in the two organizations. The IAF Program Manager is Vally Khamisani.

About IFC

IFC—a member of the World Bank Group—is the largest global development institution focused on the private sector in emerging markets. We work in more than 100 countries, using our capital, expertise, and influence to create markets and opportunities in developing countries. In fiscal year 2025, IFC committed a record \$71.7 billion to private companies and financial institutions in developing countries, leveraging private sector solutions and mobilizing private capital to create a world free of poverty on a livable planet. For more information, visit www.ifc.org.

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