

GREENFIELDS

Value Creation in the Biomass Supply Chain

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Foreword

It's been a little more than 2 years since the start of commercial operations on BiofuelCircle platform. Our focus so far has been 'agricultural residue biomass'. And thus, it is as good a time as any to look back at the data over last 2 years.

We saw trades totalling to 3.8 Million MT published on the platform. The volume for 1st year was 1 million MT; the 2nd year saw a 2.8X growth in trade volumes. A trade represents intention to buy/sell, and a typical trade on the platform is 500 MT; and our 1,000+ subscribers have published a total of 7,600 trades so far. BiofuelCircle subscribers can either publish buy/ sell trades or respond to existing open trades to make a deal. The platform has clearly emerged as one of the reliable purchase and sales options in the industry.

Since October'2021, BiofuelCircle platform concluded 1,200 deals totalling to a gross transaction value (GTV) of Rs 160 Crores. The 1st year GTV was Rs 42 Crore, which grew to Rs 118 Crore in 2nd year. A total of 243,000 MT of biomass was delivered through 25,000+ deliveries. An open interest of >200,000 MT of biomass products at any given time, access to historical price and availability patterns and trade alternatives for near term as well as long term contracts is clearly attracting more and more participants to the platform.

More than the numbers, we are indeed proud of the trust that we were able to create and do believe that the platform has created a new way of doing 'biomass' business.

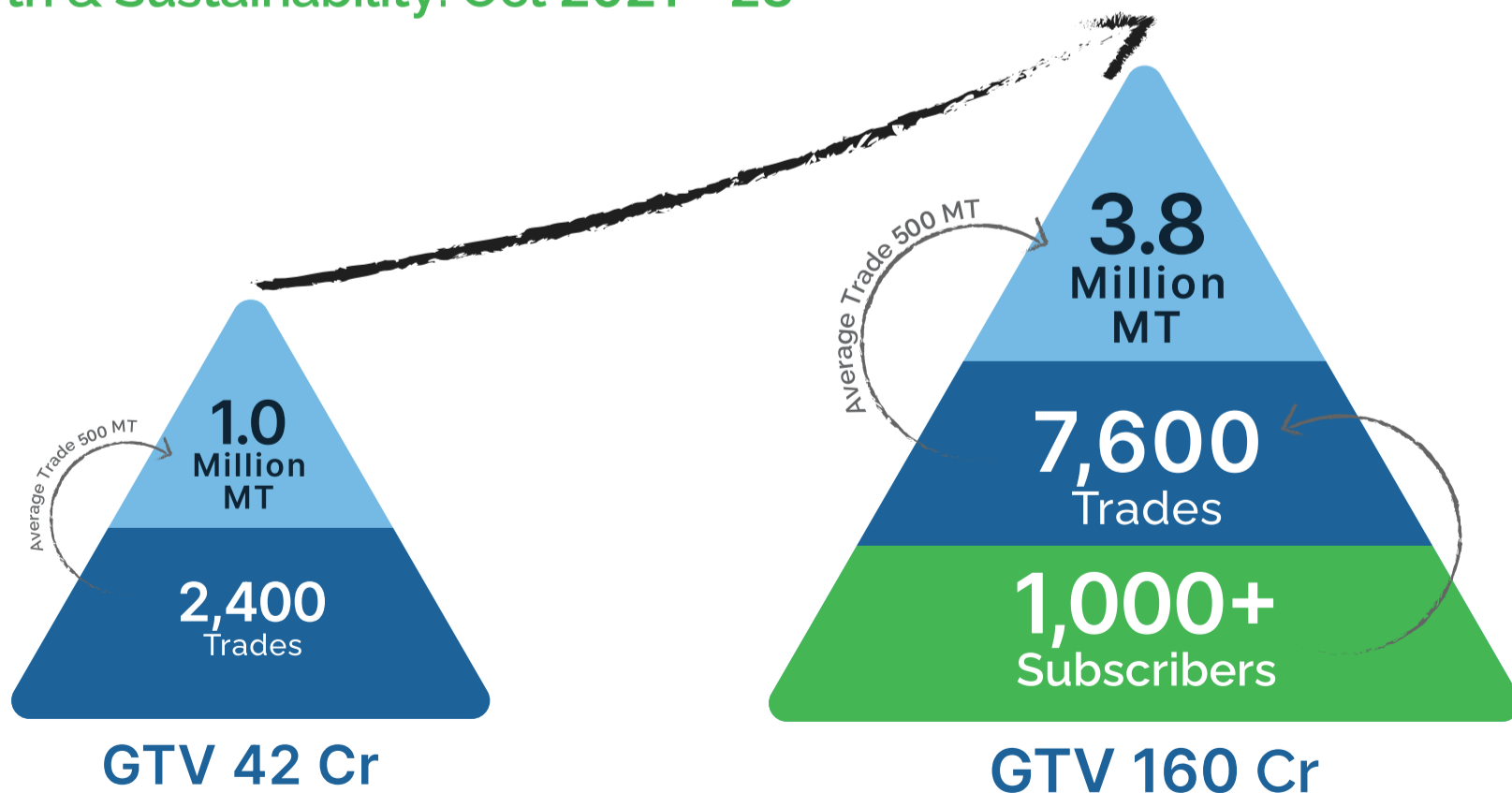
Extending the model to connect individual farmers to the supply chain, BiofuelCircle is now actively running seasonal aggregation campaigns for direct procurement from farmers. In one recent campaign, we connected 4,000+ farmers to channel >7,000 deliveries of Agri-waste. Direct procurement from farmers is not only socially and environmentally efficient but can also lead to traceability right to the source. This is the starting point of value creation in the supply chain. A large bouquet of innovative services to assure quality, provide reliability and predictability is offered by BiofuelCircle to both supply side and buy side customers of the platform.

We are now getting ready to extend the geographical reach and innovate the engagement model further.

Regards,
Suhas Baxi
 Co-founder and CEO, BiofuelCircle

Platform Insights

Growth & Sustainability: Oct 2021 - 23



The Cover Story

Creating Value in India's Biomass Supply Chain



India's biomass supply chain as it exists today, is needlessly wasting away its potential. The main reason has to do with the incorrect perception of agricultural residue as waste. But it equally has to do with the fact that the supply chain has not been effectively developed. Inconvenience and uncertainty plague all stakeholders in the supply chain, blocking them from unlocking opportunities for themselves and the larger community

As a result, every year, we lose a huge amount of wealth, the opportunity for significant rural development, and the chance to bolster India's renewable energy targets.

For the biomass supply chain to work effectively, many dynamic players and elements have to come together. It is not enough simply for various links in the chain to be connected. The success of the supply chain depends on much more - the way that the various links in the chain are organised in relation to each other, the ease with which they establish connections, and the extent to which each of their individual needs, however small, are met. In this issue, we explore how these dynamic aspects can be organised to increase value at every step of the biomass supply chain. We follow the stories of three entities at different points on the chain to understand how having their needs met and their businesses eased can strengthen the entire supply chain.

01 Value through discernment and aggregation

The first step to injecting value into the biomass supply chain is when farmers recognize that they have mislabelled their agricultural residue as waste. The next step is figuring out how to access this value in a way that consistently benefits them.

Ram Phalke from Panand FPO has been working to do this by achieving economies of scale through aggregation. For over two years, he has worked to collect agri-residue from farmers in Maharashtra to supply briquette makers. He uses the BiofuelCircle platform to register other farmers, coordinate collections of raw materials, make payments to the farmers, and organize deliveries to briquette manufacturers.



I want to give farmers the share they deserve from their raw material, which will have high industrial demand in the coming years. One way is through aggregation but we don't want to just stop here - next year, we will start making the briquettes ourselves."

Ram Phalke

Director, Panand Agro Farmer Producer Company

For a basic initial investment, the FPO plans to acquire a briquetting machine that can generate 200-300 metric tonnes of briquettes every month. Although the venture is rife with challenges, Phalke is proceeding confidently based on the assured connection to briquette consumers through the BiofuelCircle platform.

The platform enhances the ability of farmers to participate effectively in the biomass supply chain. Once registered on the platform, the FPO can coordinate payments, schedule

delivery of agri-waste to briquette makers, aggregate material for warehouses, and perform all their accounting and financial requirements in just a few simple steps.

The value of raw biomass can only be accessed within the right context; the digital platform offers this context for farmers by combining the simple act of aggregation with an assured connection to the market. And just like that, farmers earn significant income from what was previously just a seasonal annoyance.

02 Value through ease and convenience

Briquette manufacturers enable a crucial step in the biomass supply chain, by transforming raw biomass into usable fuel for industries. To do this, they need to establish two important connections - at one end with raw material suppliers and, at the other end, with consumers for their briquettes. Most briquette manufacturers, big or small, struggle to handle both ends of these connections.



It's a challenge to run the plant successfully while also marketing my products, finding reliable buyers and then setting up long-term relationships."

In 2022, Sagar Bioenergy joined BiofuelCircle for a chance at a superior market connection. Most small sellers struggle to connect with large industrial buyers who are less willing to entertain a range of small players when trying to fulfil their huge energy demand. However, big industrial consumers like using the platform because they can access many small sellers to aggregate raw materials to fulfil their massive demand. This allows small sellers to work with large industrial buyers they couldn't reach in the past.



Harshad Monpara

Owner Sagar Bioenergy - Gujarat
President of Gujarat Biomass
Briquettes Association



Since joining the platform, my time and effort to sell and market my product has fallen dramatically. Our consumers have all the information about the briquettes and pellets, their quality and prices, and I don't need to pitch that to every client. I can just focus on running my plant, knowing that I will be able to sell what I produce."

For small sellers like Monpara, the platform serves as a biomass business management system, coordinating everything from planning to sales to accounting, all in one place.

This sense of certainty and support is rare within the biomass industry. The existing supply chain is so poorly organised that features like the option for early payments or the chance to outsource transportation goes a long way to easing business for small manufacturers. It is only in this environment of safety that businesses receive the chance to work on their growth and expansion.

03 Value through a seamless end-to-end experience

In March 2022, rising coal prices and irregular supply made Mafatlal Industries interested in exploring alternative fuels. They were hesitant to take the first step because they anticipated the transition would require a complete overhaul of their existing operations. Things changed when they came into contact with BiofuelCircle and learnt that they could simply convert their existing facilities to use biofuels and had access to sources of raw biomass close to their factory.



Anis Sindhi

Sr. G. M. (Commercial)
Mafatlal Industries Limited.



We initially required a lot of assistance, technical input, and knowledge from BiofuelCircle to make alternate fuels work for us. The team took us on trips to public talks on green fuels, educated us on the choices we had and outlined the steps we needed to take to make."

Moreover, for industries to transition, they need an assured supply of raw materials at standard quality and stable prices. Acquiring large amounts of biomass often means having to deal with many small manufacturers and vendors. It is not viable for large industries to constantly work out new deals, set prices, ensure the reliability of sellers, and verify the quality of their produce. All this hassle is enough to put large companies off biofuels for good.

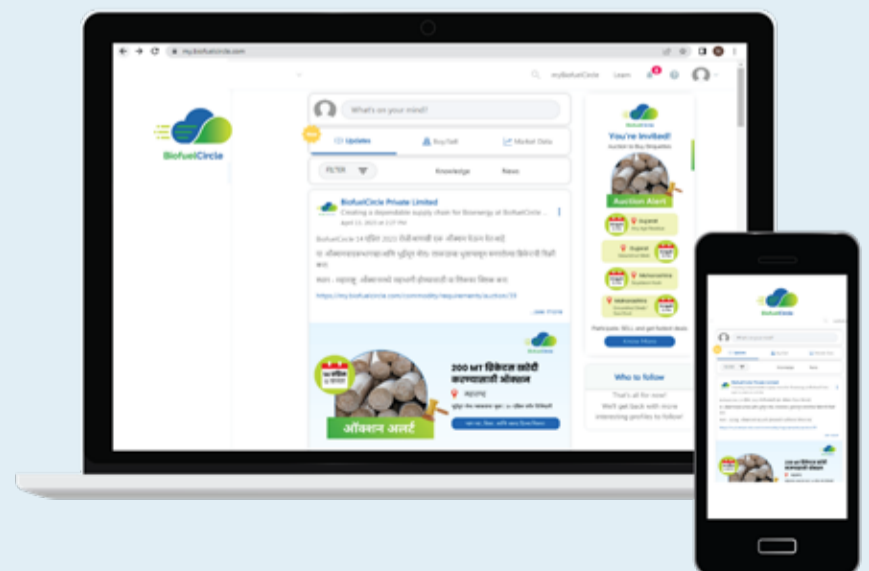


We knew we could use biofuels because of the ease of acquiring material through the platform - I can see the verified seller badge there, I receive an update about the quality of the material and I can purchase without any back and forth. I would happily pay even extra for the material just for this ease."

Mafatlal Industries currently powers 5% of its energy needs with biofuels and aims to double that within the next year. The right knowledge of available options and relevant market data can empower industries to make the crucial switch toward green fuels and deepen the resilience of the supply chain.

UNLOCKING POTENTIAL

The untapped value within India's biofuel supply chain is like a seed waiting for the right conditions to germinate. An end-to-end digital technology that works to fulfil everyone's needs provides the fertile ground for the supply chain to thrive. The impact of this value creation cannot be underestimated. It will significantly bolster India's efforts toward sustainability while empowering farmers and rural businesses to enter the energy industry in a way they never have before. These stories are a testament to how much transformation is possible when people and businesses feel well-supported in an environment of trust and stability.



Glimpses of the Future

Insights from the people leading India's sustainable industrial revolution

Rajesh agarwal on the journey towards renewable energy through biofuels

Rajesh Agarwal is the manufacturing head at Godrej Industries Limited. He has been with the company for over 15 years, leading Godrej's pioneering shift towards renewable energy. Godrej's deep commitment to sustainability goals shines through in their words -



In the world of biofuels, Godrej is not just reducing emissions, we're rewriting the story of energy."



Rajesh Agarwal
Manufacturing Head
Godrej Industries Limited

Can you tell us about Godrej's transition towards renewable energy?



Godrej has been committed to sustainability and increasing its renewable energy portfolio since 2014. Today, over 66% of our energy needs are powered by renewables and we're working to increase this number. Initially, our operating philosophy with renewables was to outsource our power generation to third-party partners. So, they were responsible for everything from acquiring the fuel and operating the machinery to supplying us with steam. We soon realised that the most expensive part of the production was the cost of briquettes. We realised that we needed to understand the market and industry if we wanted to bring down our fuel costs. So we began to explore other options for sourcing briquettes and that's when we came into contact with BiofuelCircle.

What needs of the company did the BiofuelCircle platform fulfil?



We joined BiofuelCircle last year primarily to reduce the cost of our steam generation. We were inclined to look into the wider market and see if we could diversify our sources of briquettes to have more choices and bring down fuel costs.

The platform offers us three important things. One is access to a wider range of sellers so we could diversify our sources for briquettes, find better deals, participate in auctions, and so on. This brought down our fuel costs without compromising the flow of raw material and the reliability of its supply. It also makes our energy generation more resilient since we're not dependent on a single source anymore.

The second was that the platform gives us insight into the wider market at the touch of a button. I just log onto the platform and can instantly see how many suppliers are available, selling how much quantity and at what rates. Then we can instantly decide which deals we need to strike at what specific volume of material.

The third is the value this market insight holds outside the confines of the platform as well. Even today, we fulfil a part of our demand for briquettes through third-party partners. But we're more empowered now because we can quickly check our supplier's prices against the general market prices as reflected on the platform. So if their prices are much higher, I know instantly and that is very useful.

How do you see the impact of this platform on the industry as a whole over the coming years?



I can see that, eventually, this platform will be adopted by almost everyone in the industry, because it adds value to both the sellers and the buyers of biofuel. For sellers, it eliminates intermediaries and connects them to big industries which raises the margins, while also keeping costs low for buyers, so it's a win-win situation.

As a buyer, it helps to have an external entity for support. The biggest issue we face with sourcing briquettes is the mixing of trace impurities. The platform verifies the sellers and tests the material. At the moment, it is almost impossible to identify these tiny traces of adulterants owing to the limitations of testing techniques. I prefer to use the platform because when this mixing happens, the platform will help me reject the truck if the material does not match my specifications and find alternative sellers quickly.

Our superior market understanding of biofuels empowers us to continue on this path of renewable energy and expand our impact and we're excited to see how this innovation completely unlocks the potential of the biofuel industry.

The Inside Scoop

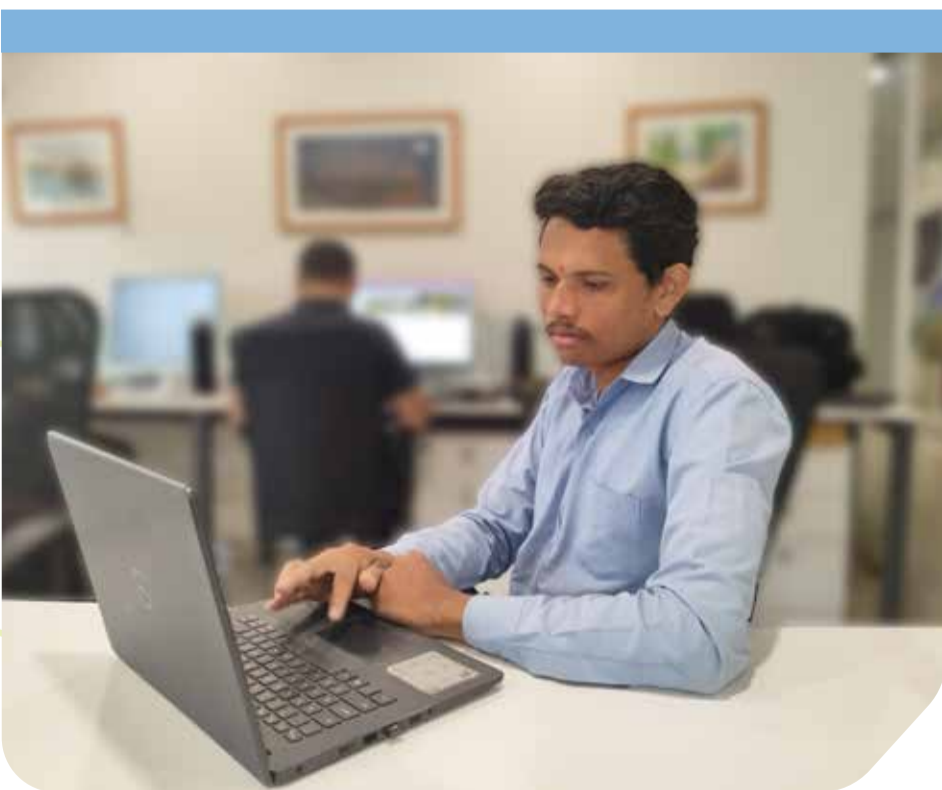
Stories and lessons from our growing team of passionate professionals

Shyam Nawale on

creating value through trust and support

Shyam Nawale handles logistics operations at BiofuelCircle and is amongst the first few employees of the company. Shyam serves as a crucial bridge between our development team and our customers, with deep insight into the inefficiencies of the existing supply chain and the individual challenges of various stakeholders. He oversees daily logistical functioning to ensure all deals occur successfully and issues if any resolved quickly and efficiently.

01 Can you tell us about your journey with BiofuelCircle?



Shyam Nawale

Platform Operations Executive
BiofuelCircle

I was one of the first few employees here and witnessed the platform come to life. I've always worked with start-ups; it's exciting because I get to take on individual responsibility and grow in ways that are difficult in a conventional work environment.

Currently, I handle all the deliveries in Maharashtra - from checking for new delivery requests to scheduling them to updating their progress. I'm also responsible for introducing our new features and updates to our sellers. I educate them on how they can use and access their benefits to best benefit their businesses.

We also work to get transporters on board in new areas, organise freight for them and generally work towards growing our Delivery services by making them more stable and efficient. Right now, the market is not stable with fluctuating supply so we're trying to bring in some much-needed certainty.

My work is essentially to be a bridge; I work in the office but I also see the ground reality and communicate each problem to the production team. And then once they integrate the solutions into the platform, I bring them back to the customers.

02 How do you plan to bring stability and certainty into these delivery services?



So since the demand and supply fluctuate widely, the sector faces constant uncertainty; One day, we might have zero trucks and the next day we suddenly have more than enough. So we're trying to strike deals where we can purchase transport at a stable rate for a long period - this will help build trust and reliability within this space, which will have a dramatic impact on the market.

How will we achieve this? We plan to use the data collected through our platform to predict general trends in supply within a given season. Then, we offer our transporters a reliable year-long contract based on average prices as calculated from this data. We also provide them with the platform data so they can see for themselves that such a contract will only benefit them.

For sellers, having fixed transport rates for an entire year comes as a huge relief. At the moment, we're still testing this data through our AI tool called Prakriti but it should be ready to get rolled out soon.

03 How will these delivery services benefit sellers and inject value into the supply chain?



Typically, it is large sellers who produce a high volume of briquettes have to deal with many different drivers and prefer to just hand over the burden of all that coordination. That's where our delivery services come to them as a great value.

So say a seller has 100 MT of briquettes to sell. Each truck carries an average of 10 MT so they're dealing with 10 different trucks. If one delivery takes on average three days, we're looking at three different drivers per truck. So this one seller has to co-ordinate with 30 different people and that's very frustrating. The platform offers the option to just put out a request for transport on the platform and that's it.

From our end, we're trying to make the process more efficient. As I mentioned, we've set up long-term contracts with certain transporters, so if something goes wrong or a payment falls through, there's enough trust and familiarity so operations don't come to a complete standstill.

With many transporters, we've achieved a very efficient workflow through the platform where everyone receives updates about new material orders with rates and delivery schedules. The truck just goes on its own and I receive an update in time. I don't need to even call them and everyone saves time and energy.

The key to all of this is being in close communication with our sellers at all times, understanding and caring about their concerns and constantly integrating their advice and suggestions.

04 In what other ways do you offer support to your customers and how does this translate into value for their businesses?



The sellers value us as a dependable pillar of support. Many deliveries are unloaded at night and if something goes wrong, the sellers might need to get in touch. They're always pleasantly surprised to realise that we're available on call to help solve their problem.

For instance, once, a customer's truck was rejected for failing to meet given quality specifications. The truck was stuck there for two days because the seller could not afford to bring the vehicle back without delivery. So, I helped him find another buyer close by and struck a new deal with this quality of material. The seller only had a minor loss as compared to the way bigger one he would have had otherwise. This was only possible because of the seamless communication and choices offered by the platform.

On the buyers' side too, a hassle-free doorstep delivery that is dependable makes the platform very valuable. After a purchase, they can track deliveries online without having to follow up with anyone. Our delivery services are a huge relief for large industrial buyers - we provide thorough documentation for each truck, we comply with the industrial norms of different buyers, and the

platform offers reliable, consistent service. I have therefore seen our buyers' preference develop towards deliveries through Platform transport than any other.

This whole-rounded care defines the character of BiofuelCircle and takes our platform beyond a mere marketplace for biomass trading. It is by creating this environment of trust, safety, and reliability that we've been able to strengthen the supply chain and become the largest biomass movers in India today.

Project Barsana

This Diwali, biomass brings prosperity to 96 villages

In October this year, just before the fall harvest, we organised a massive biomass collection and aggregation drive in Mathura. In a pioneering move to transform the biomass supply chain, Project Barsana involved 4000 farmers, 96 villages, and over 21000 acres of land to build 4 large biomass banks.

Creating a biomass bank involves cutting stubble, aggregating it, and compressing it into bales that are easy to transport for storage. Each village used idle tractors to transport this agri-waste to warehouses generating additional income for tractor owners.

A biomass bank increases the value of agri-waste for farmers, offering them entry into the industrial supply chain. The process empowers FPOs to expand their enterprise and widen their profit margins.



I was never excited about biofuels but ever since I've used BiofuelCircle platform, I'm very optimistic about this development - we can take the farmers with us, expand the business, and generate employment in the villages. We have tonnes of parali that is leftover on our farms which has now become a big source of income for our farmers."

Ajeet Singh

Director, Brijbhoomi Chhata Organic Navakrushak FPO

Project Barsana offered heartening evidence in support of our vision to offer rural players a rightful place within the biofuel industry. We witnessed the process of value creation unfold right before our eyes. Entire villages were bustling with biomass-related activities from tractors making rounds and rakers covering farms, to FPO members enthusiastically unveiling new opportunities. With renewed clarity, Project Barsana fuels our commitment to creating deep transformation by unlocking the latent potential of biomass in India.

