BiofuelCircle

GREENFIELDS

Women Advancing Bioenergy

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Foreword

Bioenergy is one form of renewable energy that directly touches the lives of people. It perfectly demonstrates the ideas of inclusivity and circularity. At BiofuelCircle, we are trying to bridge the rural and industrial sides of the sector and bioenergy offers a particularly sweet spot for rural women.

This opportunity presents itself in clean cooking and healthier alternatives to the traditional 'chulhas' used for cooking. However, bioenergy can offer much more that in terms of women empowerment.

The entire operation of aggregating biomass, either at an individual farm level or at the village level, can be undertaken by women. Biomass aggregation does not require any specific knowledge or skill-set. We have been associated with several women's Self Help Groups that organize biomass collection drives, generating additional income and participation for women and creating local jobs in the village. We are witnessing the growth of several biomass banks across the country with active participation from rural women.

Inspired by these entrepreneurial women, who are contributing to the sustainable growth and prosperity of their villages, we've named our AI tool for the platform "Prakriti". Prakriti is committed to delivering the highest value on the platform and ensuring the success of every participant.

Women participation and empowerment is deep rooted at BiofuelCircle. Our growing team consists of 30% women and this percentage continues to grow. From technology development to operations, the team supports every aspect of business, enabling a dependable bioenergy supply chain.

We saw 2.5 million MT new trades published on our platform between March'23 and February'24. With our rapidly growing network of farmers and marquee industrial consumers, we saw 215,000 MT worth of deals occur through the platform. We shall continue to make bigger strides towards a more inclusive and widespread bio energy supply chain.

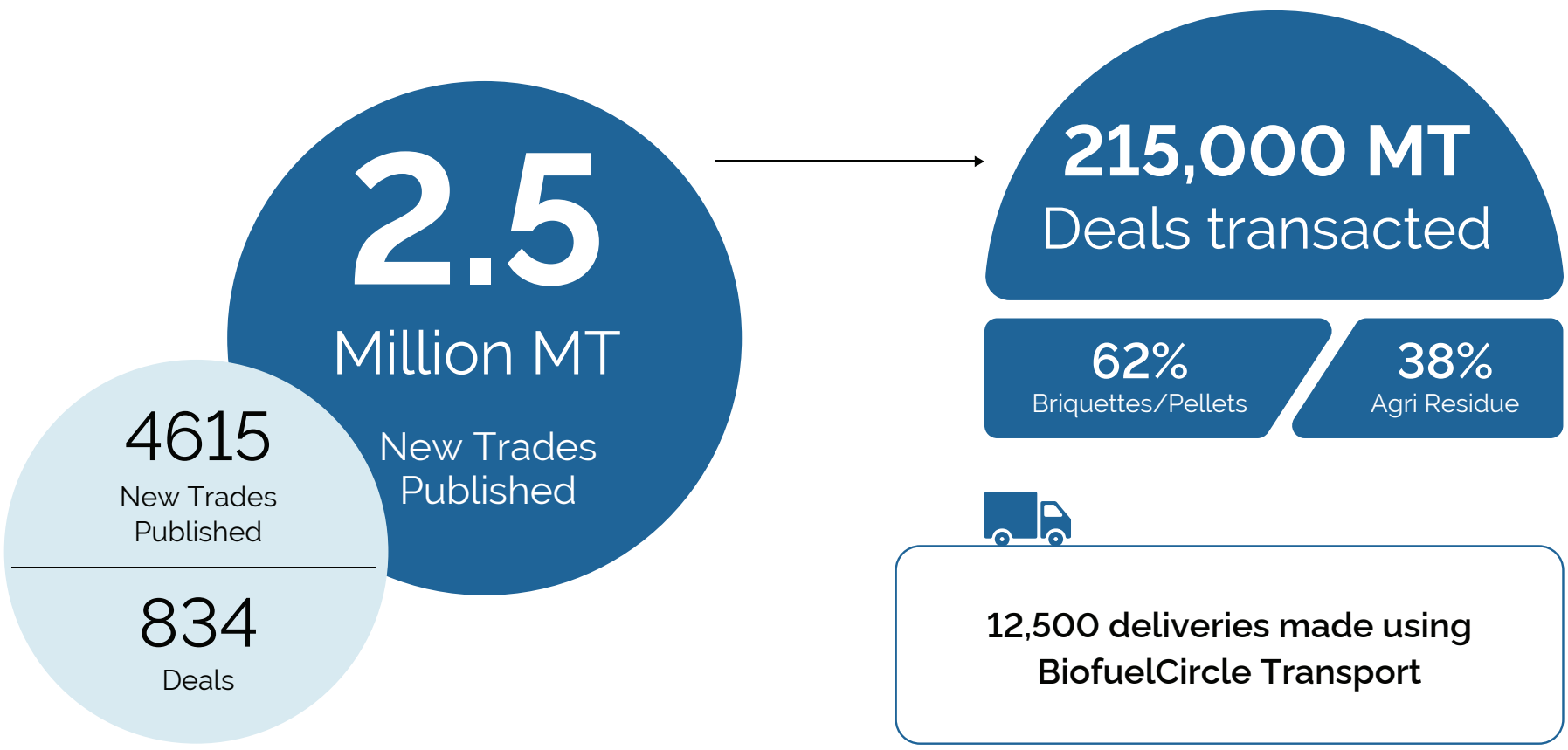
Regards,

Anita Nerkar

Head- Marketing, BiofuelCircle

Platform Insights

New Trades Published From March'23 To Feb'24



The Cover Story

Women Enabling The Growth Of Bioenergy In India

The expansion of bioenergy in India contains a unique opportunity for the empowerment of rural women. The essential raw material for biofuels, that is, biomass, is found abundantly in rural India. Thus, the long-term growth of bioenergy will necessarily involve **decentralized, small-scale rural** processing and manufacturing of biofuel. And women will be central to this growth.

There are many reasons for this. Women are, in a sense, already deeply involved in the generation of bioenergy. Millions of women in India cook over a traditional 'chulha' or firewood-powered open stove. They are involved in collecting and burning the firewood to cook food and hence participate in a form of informal energy generation. As we explore cleaner cooking options through decentralised energy generation, it is clear that our success will depend on the extent to which these women are involved in the transition.

The collection and processing of raw biomass requires no advanced technical knowledge or skill. This will enable women's participation, especially when it is still common for women in rural India to be denied a complete education. Moreover, given that much of the sector is still undeveloped and novel, there is no precedent and prior associations that create barriers to the entry of women, as is the case with older and more entrenched sectors like farming.

In this piece, we explore what it will mean to have women in rural India not only adopt biofuels as an alternate source of energy but become active enablers of this transformation.

Women As Adopters Of Bio Energy

For hours every day, women across India squat over traditional, fire powered stoves, inhaling disastrously unhealthy amounts of smoke. Many of them collect this wood from nearby fields or forests and carry it home over their heads. It is no wonder that lung issues and spinal pain are rampant among elderly women in rural India. The transition from chulhas to modern clean energy powered cook stoves is widely accepted as a necessary step to improving national health.

Ketaki Kokil, the Director of Ecosense Appliances Pvt. Ltd. is committed to promoting green cooking through biomass pellet-based cook stoves. The company is involved in facilitating an ecosystem at the village level to produce biomass pellets from agricultural waste to power these cook stoves and create a self-sustaining cycle.

Ketaki Kokil,
Director,Ecosense Appliances Pvt. Ltd & Head, India Chapter of World Bioenergy Association (WBA)

"The adoption of clean pellet-based cook stoves depends on our ability to tap into the needs and desires of women. We quickly understood that it was essential for women that food cooked on the green cook stove tastes every bit as good as food made on the chulha. Moreover, most women we work with are looking for their cook stoves to add a touch of colour and vibrancy to their kitchens. Fulfilling the needs and particular tastes of women is crucial for the wider adoption of clean stoves and renewable energy," says Ketaki.

Women As Enablers Of Bioenergy

Ketaki also serves on the board of the World Bioenergy Association (WBA) and leads its India chapter. WBA is committed to promoting the sustainable development of bioenergy globally and creating a business environment for the flourishing of bioenergy businesses. To this end, the WBA is working to create a revolution in green cooking through pellet-fuelled cook stoves. It works to nurture the right ecosystem for decentralised rural manufacturing of pellets and briquettes.

"The key is really providing people with the right information. Our country has an abundance of raw biomass and is committed to shifting towards renewable sources of energy. We are going to see the demand for bioenergy grow rapidly, and if we can set up a reliable supply through these small manufacturing units, then rural players will be able to access huge economic potential. BiofuelCircle also does a great job being a bridge between the two worlds and providing free access to valuable market information," reflects Ketaki.

As women adopt biomass-based cook stoves, it is only natural for them to come together and manufacture the pellets for these cook stoves too. The entire system becomes self-sustaining, healthier and more convenient than collecting firewood. Ecosense Appliances works with Self-Help Groups to establish small pellet manufacturing units in villages where their cookstoves have been widely adopted, powered by agricultural waste. This will, of course, keep the cookstoves running, but any excess pellets can be sold to neighbouring villages to bring additional revenue for these households. This creates fertile ground for women to take charge of energy production, become entrepreneurs, and enable the country's transition toward bioenergy

Women As Leaders Of The Bioenergy Mission

Rohini Shende and her sisters Shweta and Sayali Rao from Raut S. Group were looking for a way to leave the city and return to their village in Maharashtra. They come from a farming family, and in the absence of a brother who might have carried on the family's legacy of farming, the three sisters felt called to reconnect with their village and land. They decided to start a venture of their own that would make it possible to live and earn in the village.

Rohini Shende,
Enterpreneur,
Raut S. Group,
Briquette Manufacturer

"We considered a few options but quickly settled on a briquette manufacturing plant. We could use all the waste lying around, give some income to the farmers, and take advantage of being the only manufacturing plant within a 50 km radius," says Rohini.

The sisters faced a lot of initial resistance from the village. Many people did not want to do business with women. They had a challenging time navigating vendors looking to take advantage of newcomers by charging high rates and failing to stick to commitments. "After almost 4 years of being in the business, I feel grateful for those initial challenges. It taught us to be completely self-dependent. Today, even if none of our labour show up, we will be able to keep the entire operation running," reflects Rohini.

Shweta Rao,
Raut S. Group,
Briquette
Manufacturer

Since the beginning, Rohini has used the BiofuelCircle platform to strike deals for raw materials and sell their briquettes. "The team held my finger and walked me through all of the features on the platform. We were very lucky to have their support. They were the only ones who did not care that we were women, they did not offer us sympathy or charity; They treated us just like they would any customer and this was empowering," reflects Rohini.

Today the sisters are well-established in the village, having convinced many farmers to sell their waste to the unit instead of burning it. Young women with aspirations often come up to them to learn what it takes to run a successful business. The sisters have now turned into role models, opening the door to other young girls to dream and start their own businesses.

Bioenergy Has Much To Gain From Empowered Women

When we acknowledge the role women have played and will continue to play in shaping bioenergy production, we can begin to tap into a massive opportunity for rapid and widespread transformation within the sector. At the level of adoption, women will play a major role in the transition of rural homes towards clean energy. From here, it is only natural for them to become involved in small-scale energy production, which will enable more families and villages to make the transition.

At BiofuelCircle, we are honored to be nurturing these emerging women-led enterprises through biomass banks. In Parbhani, we are witnessing the growth of a completely women-run sugarcane biomass bank that runs its operations through the platform. Creating a biomass bank involves clearing the farm of the crop residue, aggregating it and compressing it in form that is easy to transport for storage. A biomass bank serves many valuable functions. It offers a viable means to prevent stubble burning and use agricultural waste. It increases the value of Agri-waste for farmers, offering them entry into the industrial supply chain. The process empowers FPOs and Women Self-Help Groups to expand their enterprise and widen their profit margins, contributing to the creation of jobs within rural India. The nature of these biomass business models, increased connectivity through the platform, and a low barrier to entry, will pave the way for a proliferation of women-led businesses that can transform the landscape of rural India.

Glimpses Of The Future

Insights From The People Leading India's Sustainable Bioenergy Revolution

Nidhi Sarin On Intelligently Shaping

India's Bioenergy Future

Nidhi Sarin is the Director of the Global Energy Alliance for People and Planet (GEAPP). An environmental manager by training, Nidhi has worked for over two decades on projects relating to environment and resource management, national-level climate interventions, improved access to clean energy, and decentralised renewable energy production. Her specialisation lies in strategy, policy advice, programme development/execution, raising funds, and managing large teams.

Nidhi Sarin,
Director,
Global Energy
Alliance for People and
Planet (GEAPP)

What Fuelled Your Professional Interest In Bioenergy And Biomass-based Interventions?

I've had the opportunity to work in different sectors with various organizations, companies, and individuals. The focus has always been to not just create policy changes but to understand and ground policy changes in lived experiences.

This is crucial when driving the bioenergy sector - that ground realities, people's needs, and resource availability are always driving policy interventions. Bioenergy fits in well with my larger motive - its adoption improves community health and income, reduces pollution, and so was a good fit for our organizational objectives.

More specifically, what brought me into bioenergy was cookstoves. We've been looking at biomass-powered cookstoves to replace the traditional chulha wood burning.

I was interested in the use of pellets as a source of energy in these cookstoves. So I've explored various ways of improving cooking practices and cooking with clean energy. How do you enable the markets for producing and exchanging pellets?

I then worked on biomass exchange with BiofuelCircle. We were very fortunate to connect to BiofuelCircle at that time. We studied how to take this intervention to the ground, get FPOs involved, encourage women's participation, and improve incomes while also increasing access to cleaner energy sources, and enabling the entire supply chain.

Can You Walk Us Through Your Process Of Using Insights From The Ground Realities You Witness To Inform Your Policy Recommendations?

I always say that no policy should be made without closely working at ground-level, especially in a country like India.

We also cannot expect the government to do everything, to wait for subsidies and schemes before we act. It's important to work through the private sector and build business models which are reliable and self-sustaining. How do you organically attract financing for these interventions? How can you build a business where every stakeholder is receiving value? This is far more far-reaching for me than just saying, "Oh there's a bioenergy mission and I will get this much subsidy if I install this plant on my land..."

If you don't understand the realities on the ground, these interventions just won't work. My approach has always been to get myself to the ground, talk to users, and understand what works for them and what doesn't. Then you can come back to your office and put pen to paper.

How Do You See Some Of The New Government Budget Announcements And Schemes For Bio-energy, Especially Those Being Planned And Granted Towards Promoting Supply? What Do These Mean For The Bioenergy Sector?

So, the annual budget and targets are feeding into our larger goal of 2070, 2047 or 2030. I would try to see these budget announcements and schemes and ongoing programs as a complete picture in relation to their connection with our 2030 goals.

The government has the intent to boost income and move towards cleaner sources of energy and it's doing its best. However, it is the collective responsibility of each individual and organisation to understand how these different incentives and announcements can best be used, so we can converge at a common point that the government has announced at international levels.

You Spoke About The Need To Involve Women In These Interventions And Businesses To Enhance The Growth Of The Sector - How Can We Facilitate That Involvement?

Bioenergy is one sector in particular that can play a huge role in empowering women in rural India and bringing them into business and industry in a big way. In rural India, women are often involved in handling biomass, whether that is for cooking or repurposing waste. So the first opportunity thrown at us is- how can we empower women to become enablers for the adoption of clean energy in rural India?

With BiofuelCircle, I see them working with women-led SHGs and businesses, which is the next opportunity - how can we involve women in the processing - the making of the briquettes and pellets and the marketing of those products?

Unlike many technologies, you don't need to go inside someone's house to install it, and you don't need to be highly technically skilled to understand this product and business. This is a sector where you can have non-skilled and semi-skilled labour to advance it. So women can become a part of this change.

We need to nurture the right ecosystem where women can access these latent opportunities. That's where the work of

BiofuelCircle platform becomes so important. With the right interventions, we can facilitate women empowerment through the creation of sustainable rural enterprises. The way to do this is to bring women into every stage from clearing fields to collection to aggregation, transport, storage and processing. The creation and running of biomass banks can be done entirely by women as we're seeing already in a few places. Every aspect of these rural enterprises will be facilitated through the digital platform. If we can nurture these small rural enterprises across states and regions, then we will witness a huge transformation.

How Do You Perceive The Impact Of The Platform In Bringing Together The Various Pieces Of This Supply-chain Puzzle? What Might Be The Greatest Value Of Such A Technology For The Sector?

It's important to bring different stakeholders together in a way that their individual needs are met. So, we have this big-picture view of the bioenergy sector, but we need to situate it for every stakeholder. The farmer is looking for a source of additional income. The industry is looking to meet sustainability commitments and regulations. The Environment Ministry is concerned with the problem of stubble burning and achieving net zero goals.

Learning about BiofuelCircle was a pleasant surprise for me. We were working on facilitating biomass exchange and grappling with the challenge of how the government can make a Section 8 company and push this marketplace forward. And then we found BiofuelCircle which had this entire model in place and could also see how it was playing out on the ground.

Our engagement with BiofuelCircle was to pilot and demonstrate this model to the ministry; we wanted to show that if the necessary incentives to adopt bioenergy are provided, this model will ensure a steady and secure supply of biomass.

I feel very proud to witness the changes in the bioenergy sector, driven by the platform. It makes me very happy and satisfied that the brainwave has been put in the right direction and we can expect even bigger changes in the future.

The Inside Scoop

Stories And Lessons From Our Growing Team Of Passionate Professionals

Monika Iyer On

What It Takes To Improve And Expand A Multi-faceted Tech Product

Monika Iyer is the Head of Product Development at BiofuelCircle. After working at Persistent Systems for 19 years in a series of different roles, Monika was seeking deeper meaning and contribution through her work. She joined Gyan Prakash Foundation which facilitates primary education in rural India where she helped create and launch a new technology product for teachers. Her continuing desire to contribute to the greater welfare of the country led her to BiofuelCircle where she is unlocking the next stage of expansion within the platform.

Monika Iyer,
Head,
Product Development,
BiofuelCircle

Why Did You Join BiofuelCircle?

There's so much talk now about green energy and India's commitment to carbon neutrality, but when I heard about BiofuelCircle, this finally became grounded for me. We've read about the stubble burning in the north and the disastrous pollution that follows. When I understood the company, I knew this was the solution; enabling a farm-to-fuel ecosystem was the way out. We can stop stubble burning, convert waste to fuel, and reduce our consumption of coal, all while providing income to farmers and adding value to everyone involved in the supply chain.

I was impressed by the depth to which the solution had been thought about and researched. It's common to see tech startups take a problem, build a technology solution, and then try to sell it. However, here the technology is part of a much bigger intention to transform the biofuel supply chain, not a stand-alone intervention that is disconnected from the lived experience of the stakeholders. I was impressed by the amount of features and functionality already on the platform built in such a short time.

And then, of course, I was presented with a role that I'm very well prepared for - developing the platform and heading the product team - so it was a wonderful coming together of my aspirations with my skills.

Can You Walk Us Through Your Role And Everyday Work At BiofuelCircle?

When the company first began, it focused on getting a platform out there, creating a marketplace that works, and seeing how customers interact with it. It was testing concept on-ground to figure out what the next steps should be.

The base product has been built and it has been built well, but the company is expanding rapidly and this means that the platform needs to be equipped for scale; it must be robust enough to handle big changes and massive onboarding of new consumers.

We're also looking at new feature developments. We're working to make the platform able to cater to all the many differences within the sector, variations in raw materials, and the needs of stakeholders from widely different backgrounds.

My team takes inputs from the marketing and on-ground team, we create and define inputs for our software, execute the improvements, test the developments, get feedback from the customers and this cycle repeats itself constantly.

Can You Tell Me More Specifically About Your Vision To Make The Product Both More Valuable For Users And More Able To Handle Scale And Expansion?

On the one hand, we're working on non-functional developments where we're optimizing the software to handle scale and perform better. This must happen in the background constantly with the help of the right infrastructure, cleaning up the code, making the platform more secure, and so on.

And then, on the other hand, we're working on functional developments to support new business projects. So for instance, last year, we did a large biomass bank project that was a huge departure from the typical way in which deals were made on the platform. It was a new operation that required aggregation and booking vehicles. We had to develop all of these new features keeping in mind the people who are going to be using it, in this case, primarily farmers. They would not get on a laptop and register so we created a WhatsApp BOT-based registration. Building these new features on the platform helped in fulfilling this project successfully.

We recently also launched standardized biofuels called Envira. This includes a set of good, sustainable processes right from the collection of biomassbiomasses to the making of the fuel. Those who follow these processes can easily display their adherence to these standards on the platform.

Your Journey Has Been One From A Corporate To An Ngo To A Start-up - How Has This Transition Been And Do You Ever Feel Like Going Back To A Big Corporate?

I got out of the corporate world, where I worked for 19 years and went straight into a small NGO. Everything was completely different and was quite challenging. I went from having everything taken care of, to having to buy my own laptop and speaking to people who were not familiar with technology.

In two years with the NGO, I had a kind of exposure to the world, government and education in a way I never would through a corporate. I also worked in a video technology company as a product manager for a few years.

I was sure that I wanted to retain the ground-level connection that I had with the NGO and continue to work on the product side. Both these opportunities have amalgamated well in my current role, so it does not make me want to go back to a big corporate. I'm looking forward to know our customers in person and witnessing firsthand the transformation we are creating.

BiofuelCircle Wins The India Green Energy Award, 2023

We are thrilled to share that BiofuelCircle was awarded the Indian Green Energy Award 2023 for its 'Unique Green Energy Model/Technology' by the Indian Federation of Green Energy - IFGE. The award was presented to us by Shri Nitin Gadkari, Minister of Road Transport and Highways in the Government of India. This award is supported by Ministry of New and Renewable Energy Government of India (MNRE), the Ministry of Road Transport and Highways, Government of India (MoRTH), and Mission LiFE, Ministry of Environment, Forest and Climate Change, Government of India.We are honored and excited for this recognition of our commitment towards a green future.

Biomass Banks Flourish Across The Country

Creating a biomass bank involves cutting stubble, aggregating it and compressing it into bales that are easy to transport for storage. A biomass bank serves many valuable functions. It offers a viable means to prevent stubble burning and use agricultural waste. it 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, contributing to the creation of jobs within rural India.

BiofuelCircle makes it to the SET 100 List of Most Promising Climate-tech And Energy Start-ups Of 2024

The SET100 List, 2024, is the 8th edition of the annual selection of the best SET Award applications launched by the German Energy Agency in collaboration with the World Energy Council. We are honored to be selected for this list from over 430 applications in over 70 countries. It fuels our motivation to continue to grow our platform and impact.

Here's our growing list of flourishing biomass banks:

- Amondi, Ambegaon
  This biomass bank collecting sugarcane is independently run by a rural enterprise empowered through BiofuelCircle's platform.
- Pathri, Parbhani
  This biomass bank collecting sugarcane is entirely run by women.
- Umarkhed, Yavatmal, collecting sugarcane
- Botad, Gujarat, collecting cotton husks.
- Surendranagar, Gujarat, collecting cumin