



AT A GLANCE

- Incorporation:** 2021
- Sector:** Waste to resources
- Website:** ecochar.in
- Stage of Startup:** Pilot demonstration
- Stage of Product:** Business model validation
- Customer Focus:** B2B, B2C
- Funding:** Raised grants



Dr. Megha Saxena

Dr Megha Saxena is a post graduate in Physiology from AIIMS, New Delhi. Her maternity transition led her to entrepreneurship as the next step in her journey, which gave her the much-needed flexibility as well as a chance to commercialize her research to create impact.

ABOUT

At Ecochar, Megha aims to nourish nature with resources considered as waste. She uses pine needles and agroforest waste to formulate a natural feed additive to reduce the need for antibiotics given to poultry & aquaculture farming while also producing biofertilizer to increase agricultural soil quality.

THE CONCEPT : PROBLEM & SOLUTION

While working in Almora, Uttarakhand Dr. Megha observed pine needles to be a key causative agent in forest fires. She focused on alleviating this problem as a part of her research by experimenting with pine needles to create high-value products enhancing the quality of livestock farming and promoting organic farming. Due to the high emission of ammonia in poultry farms, poultry birds suffer from various diseases like Ophthalmic disease and respiratory tract diseases. To increase the survival rate of poultry, farmers use antibiotics for livestock which leads to antimicrobial resistance in humans. On the other hand, the agricultural soil quality needs enhancement through organic biofertilizers for organic farming to promote better health, while also fetching premium prices for farmers.

Ecochar offers a holistic solution to solve these multiple problems. Ecochar aims to provide a non-antibiotic alternative to poultry farmers by ammonia and methane absorption through their product, forest fire-prevention, and promote organic farming.



CUSTOMERS

Biochar is an untapped market in India and people are not aware of this product and its benefits. To convince her potential customers, Megha used her product on her own farm as a demo project to showcase the benefits of the products. They reared fish, poultry birds and grew paddy rice on their field without any fertilizer.

To put their product on market, they connected with panchayat heads and invited farmers for customer validation. This is how Megha got some potential customers.

To reach out to more farmers, Megha coordinates with SHG women leads. They help Ecochar to connect with more poultry and agri farmers.

PRODUCT

Through pyrolysis, Ecochar thermally decomposes pine needles and agroforest waste into biochar and wood vinegar.

Biochar for poultry animals:

Biochar as bedding reduces ammonia and toxins and promotes a healthier environment for animals by reducing odor. It is also used as a feed additive to improve the feed conversion ratio. By absorbing ammonia in faecal matter, biochar retains many nutrients and increases agricultural productivity.

Activated biochar for soil:

Ecochar's products amend the soil and reduce the need for fertilizer and irrigation.

- Activated biochar enriches the soil by enhancing the growth of microorganisms to boost nitrogen fixation and retains nutrients with its absorbent nature.
- It absorbs water like a sponge and when mixed into soil, it significantly reduces water runoff thereby preventing leaching of nutrients.

Wood vinegar is a biopesticide and helps the farmers sell their products as organic.

SUPPLY CHAIN

In order to source their raw materials, the Ecochar team tied up with 3 coordinators from Kumaon region of Uttarakhand who oversee women in Self Help Groups (SHGs). 30 women in 3 SHGs collect pine needles and waste from the forests.

Ecochar buys the pine needles and other agroforest waste from these women at ₹3-4 per kg, providing them additional income. Ecochar collects raw material biweekly from the village and delivers it at the plant in Champawat for further processing. Post-processing, biochar is sold to poultry farmers.

VALUE PROPOSITION

For poultry farmers –

- Biochar increases the immunity of animals and reduces the need for antibiotics with its feed additive quality

For agricultural farmers -

- Ecochar's products reduce fertilizers, pesticides, and irrigation costs by 30-40% for farmers
- Through Ecochar's biofertilizer and wood vinegar, a farmer can produce higher quality organic products and sell at a premium.

IMPACT

- Ecochar has collected 20 tonnes of pine needle waste with the help of 3 coordinators and 30 village women and are associated with 100 farmers. Through their initiative, they prevent forest fire occurrences and also have improved the financial status of organic farmers, poultry farmers, and local village women.
- 1 tonne of biochar sequesters 1.7 tonnes of CO₂
- Biochar's use has led to positive health impact in poultry animals through reduction in the use of antibiotics. And also benefits human health by combating the problem of anti microbial resistance.

Ecochar has a buy back model through which they buy back activated biochar from poultry farmers and then sell it to Agri farmers. Wood vinegar is sold alongside as biopesticide to agricultural farmers.

FUNDING

Ecochar is sanctioned with a grant from the RKVY RAFTAAR scheme and plans to utilize these funds to buy machinery which will help them manufacture 150 kg biochar per day from the current capacity of 50 kg/day. They are also looking to raise funds for R&D on how to use other agricultural wastes to create biochar.

CHALLENGES: HURDLES & LESSONS

Ecochar was incorporated during the pandemic. Even though their sales were impacted due to covid, they have been looking for alternate channels to market their products to farmers in Uttar Pradesh and Uttarakhand. Most of the farmers are not tech-savvy and it has been a challenge for Megha to reach out to them amidst the lockdowns to convince them about the benefits of the product. The coordinators also help Ecochar to sell their product in the village by reaching out to farmers on their behalf. Though not the best solution, this has worked for Megha to get some potential customers. Onboarding the first few clients was difficult for Ecochar, but with positive results from their product, they now have more than 100 customers.

WHAT'S NEXT

As her next step, Megha is now researching to work with other waste materials such as parali (dry grass left after paddy harvest), coconut dry shells, etc. to create biochar. These waste materials are a major cause of air pollution in North India.