

JUL 13, 2022

IIT Roorkee evaluates prospects for utilising forest bio

Professor Vinay Sharma and professor Rajat Agrawal from the Indian Institute of Technology Roorkee (IITRoorkee), have devised a project that utilises forest bio residue for low-cost energy generation.

The project, Socio-Economic Value Creation through Forest Bio Residue Energy Generation in Alignment with the UNs SDGs, was granted and financially supported as a pilot project by the National Mission on Himalayan Studies under the Ministry of Environment and Forests Government of India.

It is focused on developing complementary source of low-cost energy generation from the forest bio waste residue as well as establishing sustainable management practices of indigenous green technologies in the Himalayan Region of Uttarakhand.

As per the project initiative plan, a total of more than 1,000 quintals of pine needles from 100 acres of forest land has been gathered with the help of the Forest Department, Uttarakhand.



These pine needles were crushed and processed with the help of machines and crushers designed and developed in the laboratories of IIT Roorkee and UPES, Dehradun. Prior to the launch of the project, community engagement and capacity-building programmes were initiated in the villages in the form of regular training and workshop sessions and focused group discussions between experts and locals.

Beneficiaries from the villages were provided a training workshop session to learn the installation and operations of briquetting machines and crushers where doubts and queries related to the operations and safety were addressed by the experts.

Dr Gaurav Dixit, faculty in the department of management studies, IIT Roorkee, developed a multipurpose and user-friendly mobile application (Himalayan Briquette Production & Management Software) to integrate the whole value chain by connecting seller and buyer of briquettes.

Now, the second phase of the project at a bigger level for industrial expansion is being conceived, which can be an answer to several forest fires originating in the forests of Uttarakhand and engulfing hectares of land.

Professor Vinay Sharma, IIT Roorkee, said: "The project aims to solve the problem of destructive fire to constructively convert it into low-cost energy. It is a significant stage of the project where stakeholders are showing interest and coming forward to adopt the whole concept."

Talking about the project, Dr Kapil Joshi, additional principal chief conservator of forests, department of forest, government of Uttarakhand, highlighted: "Department of forest, Jammu, and Kashmir noticed the success of the project and suggested replication of the project in Jammu and Kashmir. And seeing the implementation of the project, machines are also installed by the Forest Department of Himachal Pradesh on their own."

"The successful replication of the model will bring thousands of people associated with this project as beneficiaries and as users by catering domestic level energy and raising livelihood through product innovation," he added.

Professor Ajit Chaturvedi, director, IIT Roorkee, said: "Effective execution of this project will help the government achieve its long-term development goals. This model would also help in the development of the market through industrial upscaling whereby different industries can use this forest bio-residue solution for their operations."

Talking about the journey, professor Rajat Agrawal, IIT Roorkee, said: "When the project was being conceived a complete value chain was considered in relation to the conversion of pine needles via technology interventions to a low-cost energy product where selected villagers were involved in particular regions of Uttarakhand, Chopda, and Shyaamkhet."