Young innovator from the North East develops affordable machine that processes bamboo at 25 times the speed of manual processing.

BY VIKRAM SINGH

Bamboo is everywhere in India—it holds up scaffoldings, wedding tents, roofs and welcome arches. Bamboo furniture adorns urban homes as well as corporate waiting rooms. Its pulp makes paper and rayon, while bamboo chips, glued into boards, make for excellent building material. Bamboo grows to an average height of 35 feet but all of it is not used. At least five feet are snipped off from the tip and the base. But that is not all, once harvested, each bamboo pole must be processed. It involves removing the hard nodes or rings every few inches along the length of the pole. This is a must to smoothen the surface of the pole. The surface of bamboo is naturally coated with protective silica, giving it its sheen. The silica must also be filed away in order...
He was always struck by the enormity of the task. Processing bamboo is a tedious, manual task. Using a short local machete, called the dow, workers in the North East hack away the protruding nodes of the bamboo, and rub the silica away with rough hand tools. However, their imprecise and irregular methods are crude and extremely time-consuming. For years, Imli Toshi Namo, a resident of Nagaland had observed the workers process the bamboo. In the best of circumstances, they can process about 100 feet of bamboo per working day. That's about five or six poles a day.

Imli grew up in Nagaland, roaming the sprawling bamboo plantations and observing the grass being harvested and processed, before it was shaped into furniture or items of handicraft. He was always struck by the enormity of the human labour that went into cutting away its nodes, filing away its surface and removing the silica. After graduating in Geology, he spent years thinking of a way to reduce the drudgery of the bamboo workers and helping them multiply their yield. By 2006, he had designed Arulepsa, the prototype of an integrated, precision-controlled, bamboo processing machine. Arulepsa processes five feet of highly finished bamboo per minute. That translates to 300 feet an hour, or 2,400 feet per working day of eight hours. That's nearly 25 times the output of manual processing. “Even then, the finished bamboo that Arulepsa produces is far more uniform, better finished, well-planed and surfaced,” says Imli.

India is the second richest bamboo resource country in the world, next only to China. According to the Forest Survey of India, the North Eastern states of India have bountiful bamboo reserves. Although they cover only eight per cent of the country’s land area, the states together hold two-thirds of its bamboo that grows over more than three million acres. Currently, the global market size of bamboo products is worth US$ 10 billion. According to the government’s National Bamboo Mission (NBM), India’s share of this market is a billion dollars, but by 2030, it can grow ten-fold. Apart from the most obvious use as scaffolding, bamboo is used for making paper, rayon and bamboo boards.

Imli, 30, has been making machines and devising solutions for as long as he can remember. His innovative spirit has earned him the moniker ‘serial innovator’.

Although he had made the first prototype in 2006 and improved it a year later, Imli has so far been able to sell only one such machine. And that too, to a local government body. “It is not that the machine is not good enough or doesn’t do the needful. I have not yet been able to find an industrial house that will manufacture my machine for the market,” says a thoughtful Imli.

The prototype and its improvement cost him a total of INR 300,000 (US$ 6,725). He had funding from the National Innovation Foundation (NIF) and the National Bamboo Mission (NBM). When I met him at the Rashtrapati Bhawan in New Delhi recently, Imli was poring over machinery catalogues. He told me he was ordering a range of machines to set up his own unit for producing Arulepsa. Imli was in New Delhi, participating in an innovation exhibition organised by the NIF and at the invitation of President Pratibha Patil.

Since then, he has ferried the machines to his workshop in Dimapur, Nagaland. Imli says the first of the new machines should roll out by August this year. He is thinking of pricing them at INR 80,000 (US$ 1,800) each. “That’s not much, considering the substantial savings a company will make using Arulepsa”, says Imli. According to him, the buyers of his machine are potentially all furniture manufactures and producers of handicraft products. In the North East itself, he should be able to sell a sizeable number of his machines, but he says he has business enquiries from nearly seven states including faraway Andhra Pradesh.

“The highlight of the machine lies in using a single versatile wood processing platform for seamlessly processing bamboo. The precision in work is achieved by deploying the dedicated control centre and a user friendly four way joystick”, says Prof Anil K Gupta, Chairman of the National Innovation Foundation. The electrically operated machine weighs 75 kg.

NIF was among the first to help Imli through its Micro Venture Investment Fund. It has also taken Imli’s innovation to various forums, showcasing him and his work. “NIF has really helped me take Arulepsa from an idea in my head to a working machine on the ground. I have also been exposed to new opportunities through the fund,” acknowledges Imli.

In the four years since having made Arulepsa, Imli hasn’t been resting. Among his many innovations is one that is currently keeping him extremely busy. It is called the Solar Farm Produce Dehydrator and has really caught the fancy of officials and villagers alike. In the high moisture North Eastern states of India, keeping farm produce dry is an arduous task. Most people dry their ginger, chilli and fish either in a smoke stack or out in the sun. Imli’s Solar Farm Produce Dehydrator is a simple contraption that uses specially treated polyurethane sheets in an innovative design.

In spite of his struggles and challenges, Imli’s spirit is indomitable and his mind relentlessly innovative. While he waits for his prototype to turn into an entire line of machines for sale, he spends his time working on new ideas. For sure, making furniture and items of handicraft from bamboo will soon become a lot easier, thanks to Imli Toshi.