



## Bamboo Incense stick making machine

L Ralte and L Sailo  
Aizwal, Mizoram



L Ralte (52) and L Sailo (55), both fabricators, develop customized tools and equipment for their customers. They also undertake research on innovative products. They have developed a bamboo stripper cum splinter, which reduces the drudgery and danger

in using the knife for making bamboo strips and splinters.

An arts graduate, Ralte has a wife and four sons in his family. Remembering his childhood, Ralte mentions

that while he was a good student, his interest primarily lies in drawing and painting, which he is passionate about even today. He wanted to take up a career in visual art but became a fabricator after his graduation.

A mason by profession, Sailo has his wife Lalengsiami, two sons and a daughter in his family. All his children are married and settled. Though he liked mathematics a lot and wanted to study, he could not beyond class 5 due to the extremist movement in the area. He has tried his hand at different jobs, carpentry, masonry, fishing and even worked casually for the electricity department for a while. He has been quite creative as a child as well. At the age of eleven, when there was no electricity in his village, he made a room lighting system using a torch bulb and battery. Later he also made river water operated grinder and husker.

Both Ralte and Sailo came to know each other while being associated with a voluntary organization CHAN's Vocational Training Centre. The acquaintance went on to become a good friendship, given their mutual interests. They both opened their workshop in 2007 and have been together since then. Prior to their coming together, they used to individually work on their innovations and occasionally discuss ideas. Sailo has a number of useful machines to his credit, which includes grass cutter, squash vegetable/fodder chopper, chicken dressing machine, dough kneading machine and bamboo splinter.

### **How the idea evolved**

Association with the voluntary organization exposed them to a variety of issues and challenges. They also came to know about bamboo and its prospective use. It was then they realized that there was abundant wealth lying as waste in the forests. Meanwhile, an entrepreneur approached them with a challenge to develop a machine for slicing and splitting of bamboo for making incense sticks. They started working on the concepts, the brief given to them was to have a machine, which can reduce labor dependence, be of low cost and efficient. The problems soon started. The first idea was ready but there was no milling or die cutting machine around, so the task had to be outsourced to a far off location. The first attempt resulted in two different machines viz. for slicing the bamboo into strips and for making splints from the strips. In 2007 NEDFi (North Eastern Development and Finance Corporation) supported them for their two machines. Their work continued and one prototype followed other, each with its own design issues. However, they got lucky the fifth time when they were able to successfully merge both the functions in one device. This resulted in a lowering of cost, increased efficiency and ease of use. This was facilitated by the product development grant by NIF.

### **The bamboo stripper cum splinter**

The device is a handy manual device, which can slice bamboo strips and make splints from the strips, thereby eliminating the risks involved in doing the same using knives. For using the machine, one needs to load the bamboo piece onto the machine and slide

the cutter to and fro using a handle. This results in 1.2 mm thin strips of bamboo. About 50 of these strips are then stacked together and loaded onto the machine vertically. The cutter is again moved to and fro resulting in splints of 1.2 mm thickness. Using this machine, an average person can make about 5000 splints per hour. While bamboo stripping and incense stick making machines are available (in NIF Database by innovators Paresh Panchal, Usman Shekhani, Manihar Sharma, Uddhab Bharali, Liagi Baht), the advantage with this machine is that it combines both the features together with good efficiency at a reasonable cost. All other machines are a set of two units for the separate processes. NIF recognized their efforts through a National Grassroots Innovations Award in 2013.

### **The journey after the award**

After receiving the national award in 2013 for Bamboo stripper cum splinter, Ralte has attended several innovation functions in North-East. After recognized with national award of National Innovation Foundation, Chief Minister of Mizoram personally invited him at his residence to see his innovations and assured him to provide business opportunities in the northeastern region. He got several invitations from various departments like Skill Development, State Science and Technology department and State Innovation Council. Mr Ralte was invited to exhibit his innovations at Innovation Festival during 14<sup>th</sup> - 15<sup>th</sup> February 2016 organized by Regional Science Centre, Guwahati and invited to deliver a speech as one of the keynote speaker at the

National Science Day in Aizawl on 28th February 2016. He has since participated in a number of events.

Ralte was very happy when he came to know that he was considered for the “Innovation Scholars in Residence Program” at Rashtrapati Bhawan in 2016. He gives the credit to National Innovation Foundation which supported during his struggling period not only financially but also emotionally.

### **Diffusion**

NIF filed and facilitated the grant of patent (285159) in their name for the incense stick making machine and provided them financial support from its Micro Venture Incubation Fund (MVIF) to commercialise the product, which is gratefully acknowledged by the innovators. The machine 'Bamboo stripper cum splinter' is now in demand and they have received purchase orders from various regions of the country. In addition to this, they are receiving enquires from other countries as well.

These machines have been received well and the user feedback has been positive where they have mentioned that they found the device efficient and easy to handle. This machine has a great scope in areas where bamboo is grown and processed both nationally and internationally. It won the 'Best Innovative Bamboo Product’ award in 2012 as well. This machine has also been popularised by local news in newspapers and cable channels. Their work

has been profiled by a few regional stations of Door Darshan also. Mr. Ralte has a number of other innovations to his credit viz. Plantain/Banana stem cutting machine for manufacturing of organic manure, Grass cutter for organic manure, Dough Kneading machine for Noodle Industries, Chicken dressing machine, Lemon Juice extracting machine, Bamboo Cross Cutting machine and Areca-nut cleaning machine. Few more innovations are in pipeline which include: Portable Round Incense Sticks Machine, PCP Air gun, Plastics Benches and Portable Charcoal making machine.

### **Current Status:**

In Mizoram, other North Eastern States, Nepal, Myanmar, Sri Lanka, Bangladesh, Colombia and Cambodia more than 3000 incense stick making machines have been sold resulting in less drudgery and more income for the people. He has sold more than 800 arecanut polishers in Mizoram, some other Indian states and also in Myanmar and Bhutan, reducing the drudgery of hundreds of women folk involved in this task.

(Indian Patent No: 205097) US Patent No: 6854404B2)

