

Pomegranate de-seeder, arecanut peeler, bamboo splitting machine and others

National Third

Farm Machinery and Food Processing Technologies



Uddhab Bharali
North Lakhimpur, Assam

Uddhab Bharali (45) is a serial innovator who has designed and prototyped an entire range of mechanical innovations since his first innovation in 1987. He has innovated around eighty-five engineering devices for different purposes. Out of these thirteen have found commercial applications, albeit most being individual custom orders from different parts of the country. As of today, he has set up a research workshop in his idyllic hometown of N Lakhimpur. It is a small town, on the banks of the Brahmaputra river and in the foothills of the Himalayas, surrounded by lush tea gardens on gentle slopes. He has set up a workshop to help local communities and industries solve their technological needs.

Background

Born in a middle class family in North Lakhimpur District of Assam, Uddhab completed his schooling from Lakhimpur. After that his interest in making machines prompted him to take admission in the Jorhat Engineering College. Unfortunately he had to leave the course after three months because of the recurrent problems due to Assam Agitation. He then thought of doing the



same course via correspondence and took admission in the Institute of Engineers-India Madras chapter, in Chennai. Unfortunately, this time also he could not complete the course and only had time to complete the AMIE Sec-a due to the sudden death of his father. He was called back as his family was neck-deep in debts. However, he used his flair for developing machines to repay his father's debts by starting a polythene film making industry in 1988 to cater to the demand from the surrounding tea estates. Instead of buying the "Polythene Making Machine", which then costed around four Lakh rupees, he designed and developed the same machine at a cost of only sixty seven thousand rupees. The success of this machine gave Bharali the confidence to develop more machines. After repaying his father's debts, in 1995, Uddhab Bharali got a contract for looking after the machineries used in a hydropower project in Arunachal Pradesh at a place near the China Border, where people usually didn't prefer to work. After three years he had to come back to his hometown due to the death of his elder brother due to liver sclerosis.

At present, Bharali's extended family comprises his wife and a five year-old son, his widowed mother, widowed sister-in-law, three young sisters and a younger brother. Bharali, a positive thinking person, also plans to get his widowed sister-in-law married as, according to him, everyone has the right to live his or her life to the full content of his/her heart. Besides innovating new machines, Bharali likes to read books on medicine and also has an informal degree in Homeopathy.

The innovations

Since he first developed the Polythene making machine in 1988, Bharali has developed a number of machines, which he considers as his main assets that have and will always help in his time of need. Some of these machines are:

Pomegranate De-seeder: It separates the outer cover and thin inner membrane without damaging the seeds. It has a capacity of deseeding 50-55 kg of pomegranate fruits per hour. The machine has been exported to Turkey and USA.

Arecanut Peeler: Annoyed by the injuries caused while peeling the areca nuts manually, he developed an areca nut peeling machine with a capacity of peeling 100-120 nuts per minute.

Cassava peeler: It is a portable electric machine that can process up to five kg of cassava per minute. NIF facilitated the technology licensing on non-exclusive basis to a Guwahati based entrepreneur. One unit has even been sold to a customer based in Kenya.

Bamboo processing machines: Bamboo processing by hand is a time consuming and difficult process. Bharali has developed an assembly of machines that can perform operations like splitting long lengths of bamboo, sizing, surface finishing, polishing etc. These units have been installed with the help of NIF in a CFC (Common Facility Centre) of the NERCRMP (North Eastern Region Community Resource Management Project) at North Cachar hills.



Bharali has also developed *remi* recortication machine, garlic peeling machine, tobacco leaf cutter, paddy thresher, cane stripping machine, brass utensil polishing machine, safed musli peeling machine, Jatropha de-seeder, mechanized weeding machine, passion fruit juice extractor, trench digger, chopper for cattle and fisheries feed and portable *dheki*.

For many of his innovations, the innovator was supported under the Micro Venture Innovation Fund scheme (MVIF) at NIF. Facilitated by NIF, the innovator was also supported from the TePP scheme at DSIR, Govt. of India.

Product application and dispersion

Apart from having his innovations like the pomegranate-deseeding machine being sold to customers in countries like Turkey and USA, Uddhab has had a lot of distinction to his name.

Presently, he has been made a Resource Scholar by the Indian Institute of Entrepreneurship in their recent venture "Technology intervention in academic Education". Uddhab received a mention in MIT Journal for his innovation of the pomegranate-deseeding machine. He is also acting as a technical consultant to RUTAG (Rural Technology Action Group) for the development of *Endi* technology in IIT, Guwahati. Central Silk board has also sought his help to redesign a sophisticated version of *Muga* reeling machine. He has also designed a stevia pulveriser & passion fruit gel extractor for NERCRMP (North Eastern Region Community Resource Management Project). Financial institutions like NEDFI also want his skill with a proposal for developing bamboo *tarja bera* making machine. On request from several NGOs of the NE region he has also come up with several low cost manual bamboo craft machineries. In April 2009 he came up with a root-slicing machine for ASHRAMS Biotech Pvt Ltd, an herbal medicinal farm in West Bengal.

Strategy and Vision

Uddhab is of the view that every human being has a hidden scientific inclination, which requires nurturing. He thus selects youths having potential for learning, irrespective of their academic qualifications. He selects eight youths per batch and trains them on various machine technologies. The training is imparted for a period of three months on a condition that each trainee has to be able to draw at least INR 800/- as salary per month from him to be qualified as a skilled workman. He provides food and lodging completely free. In addition to free food and lodging he also pays a stipend of INR 300 per month to meet their pocket expenses. He provides free medicine to each trainee and his or her family members as an incentive to create a pull for other potential youths for training. He conceived the idea of

costless word-of-mouth marketing of his training program since he cannot afford any marketing budget.

Uddhab says that his greatest achievement and contribution to mankind would be the successful commissioning of a mechanized toilet for the handicapped. He hopes to accomplish this by the end of October 2008.

Uddhab has two dreams; one is to set up an unconventional orphanage in his hometown, which will produce technical experts. He has designed the training module in such a way that he will devote time in empowering these orphans only in technical know-how so that they become employable in the least amount of time. Once they start earning money, they will be able to acquire knowledge on other important subjects like history, mathematics, sociology etc.

His second dream is that of an industrial village which will have a multi-specialty skill development centre as well as a common facility where each person can bring in raw materials and get the intermediate product as per requirement. He also wants to enable senior citizens to learn scientific skills to become self-dependent when it is no more assured that younger children would take care of them in old age.

