New spin on old yarn

OFFBEAT Kannan Lakshminarayan's Fractal Foundation has introduced micro-spinning technology in rural pockets to help cotton farmers and weavers

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MEANINGFUL INNOVATION (Left) Kannan and (top) a micro spinning unit installed by Fractal Foundation
PHOTO: SARAVANAKUMAR

Kannan Lakshminarayan is an IIT-groomed, hard-bitten technologist, but can pass off as a social scientist. He has sunk his teeth into various subjects, including anthropology, economics, sociology, history and politics that enable a holistic understanding of society.

This versatile pursuit of knowledge is fuelled by a belief that technologies must match the societies they are meant to serve and that mismatch between the two will only result in the exploitation of the weak. Through Fractal Foundation — a Chennai-based technology-providing company he has founded — Kannan has successfully introduced micro-spinning technology in rural pockets and helped small-time cotton farmers and artisans participate more meaningfully in textile production. With the support of the Ministry of Rural Development and the partnership of the Hyderabad-based Malkha Marketing Trust, FF runs small-sized units that integrate all the processes in the textile value chain — at four pilot locations in Andhra Pradesh, namely Burguka, Punukula, Sirsilla and Chirala. A few other units in Maharashtra, Karnataka, Orissa, Kerala and Tamil Nadu that were installed by FF are now run by voluntary organisations. For these efforts, FF has been adjudged a winner in the social category of Innovation for India Awards for 2012, instituted by Marico Innovation Foundation.

Each of these village-based units engages 100 producer-households. These workers bring diverse skills to the table and work end-to-end and therefore have an understanding and control of the value chain. Creation of machinery that simplifies and downscales complex spinning operations, generally ruled by forbidding technology, is the project's chief achievement. In the journey from cotton to yarn, the set of machines created by FF performs the functions of an opener-cum-carder, a draw frame, a flyer frame and a ring frame. But they are considerably smaller in size than the machines that pack modern spinning mills and they also manage to execute the lengthy process in fewer steps.

Spinning, which turns cotton into yarn, is fraught with numerous and elaborate steps. In his long and thorough study of the subject, Kannan discovered that the actual conversion to yarn happens only in the last step and all the others are only preparatory moves. Kannan explains the key to simplification lies in doing away with many of these steps. Over the decades, many others in post-Independent India have grappled with the same idea. Efforts have been made at making the process simpler and shorter.

Besides heeding the lessons from such efforts, Kannan was also keen on following the time-tested truths of spinning. "There is a saying, 'When the cotton is in the bud that is as good as it ever gets.' It means that anything that you do to the cotton will only make it worse. At every step of the process, deterioration happens. For example, pressing down cotton damages it. Any textbook on spinning will present this insight," says Kannan.

Baling — where cotton is pressed into bales — for transportation results in severe damage to the cotton. A number of expensive, technology-intensive steps are required to undo its effects. Baling was unavoidable in the colonial era, when Britain wanted to take cotton to its shores. Bales of cotton will come from India and Americas and land up in Bristol before being carried to the spinning mills in Manchester, explains Kannan. Baling is also a result of industrialisation.

In small-sized cohesive units, baling is unnecessary and any spinning technology created for them will be less complex. Through research, Kannan discovered that textile-making units in ancient India were small-sized, cohesive units that catered to small groups. This model obviously worked, because textiles from this part of the world made their way to various countries. He quotes Pliny on how Indian textile exports were draining Rome of all her gold.

Kannan believes India's return to a position of world dominance involves customising technology and, most importantly, learning from her rich textile past.

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