



Romance of Innovation: Human Interest Story of R&D in Rural Setting.

Anil K. Rajvanshi. Nimbkar Agricultural Research Institute, Tambmal, Phaltan–Lonand Road, P.O. Box 44, Phaltan 415 523, India. 2016. xviii + 134 pp. Price: Rs 150.

This fascinating book by a US returned engineer is all about the challenge and excitement of doing research and development (R&D) work in a rural setting. After reading the book it would be hard for an engineering or a science graduate to ignore the great satisfaction he or she can derive by working for the development of rural areas, where 70% of Indians live.

The author, Anil Rajvanshi, a mechanical engineer creates this excitement through his riveting autobiographical narration covering a period of over three decades of his career as a researcher and innovator. After getting his PhD from the University of Florida, USA he did something many young men of his age would consider unusual. Driven by a passion to use his scientific talents for improving the life of the rural population, he gave up a lucrative career in the US and returned to India in 1981 to work at Nimbkar Agricultural Research Institute (NARI) – a non-profit, non-governmental organization (NGO) at Phaltan, a small town in Maharashtra. There he

dedicated himself to applying sophisticated science and technology to solve the problems faced by the rural communities. What made him do that? As Rajvanshi says in the book, he was inspired by the work and teachings of Mahatma Gandhi, father of the nation.

That was a bold decision. Cycling to work with his wife from a rented house for the first two years did not bother him much, but getting engineers and scientists for his new laboratory in a village environment with practically no facilities was a different matter. But perseverance paid off. His first project proposal on ‘solar distillation of ethanol from fermented mash’ got approval and a grant of Rs 120,000 from the Commission for Additional Sources of Energy – predecessor to the Department of Non-Conventional Energy Sources – and NARI became the first NGO in India to initiate work in renewable energy. From then there was no looking back as Rajvanshi’s team moved from one successful project to another innovating new low-cost technologies covering the whole spectrum of energy, fuel, food and drinking water. These include technologies for the production of ethanol from sweet sorghum; biomass gasifier to convert fallen tree leaves into energy; a solar system for treating waste water, and electric rickshaws for rural transportation. NARI made international news with its unique device called ‘Lanstove’ for rural households. It runs on kerosene, diesel or low-grade ethanol and acts as a stove for cooking food and at the same time as a 100 W lamp for lighting rooms. NARI’s sari filter technology for obtaining clean drinking water won praise for its practicality and simplicity. Rajvanshi’s team has scientifically shown that dirty water gets sterilized and becomes drinkable after it is filtered through a folded cotton sari (to remove particulate matter) and is then exposed to sunlight for less than an hour to make it bacteria-free.

This book *Romance of Innovation*, in short, is the history of the renewable

energy work at NARI that brought Rajvanshi the Energy Globe Award of Austria’s Energy Globe Foundation in 2009 and Distinguished Alumnus Award from his alma mater, the University of Florida in 2014.

The book is a sincere effort by the author to inspire youngsters to enter the field of rural innovations and a clear demonstration that one can do meaningful R&D work even in a small rural town if there is motivation. He earnestly hopes that some bright students who read the book will take up the challenge of using their training to develop devices and technologies for a rural setting.

The new band of rural innovators need not spend much time trying to identify problems that need solutions – a list of challenging tasks is given at the end of each chapter. These include development of low-cost refrigerator and a fan; efficient biogas digesters running on agricultural waste and engines to run on this biogas; zero-emission vehicles for rural transportation and an efficient technology for dew condensation to produce potable water. The book also has a catalogue of new ideas for research that could lead to the development of technologies with potential applications in villages. One is the identification of a molecule that will split into two when exposed to sunlight and produce light when recombined. Another suggested topic is to design an efficient reverse osmosis plant for producing drinking water from the sea by duplicating the mechanism employed in nature by mangroves that grow in salty water.

‘The *Romance of Innovation* is like yoga’, says the author. ‘The goal is attainable if one pursued it with a single minded focus and forgets about all other problems.’

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