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LIFE & STYLES



Deb on his farm in West Bengal; (below) a traditional seed bank in the Sunderbans

NISHITHA NAIR SHRIVASTAVA

Serenity defines the ubiquitous green blanket called Niyamgiri Hills in Odisha. A sanctuary to the local indigenous people, they managed to drive out the giant mining company Vedanta last year. But this is not the only feather in their cap.

With the help of Dr Debal Deb, these hills can today boast of 920 varieties of rice cultivated on just 2.5 acres. An impressive statistic, considering almost 90 per cent of the 110,000 odd varieties of traditional rice in India has already been lost from farm fields.

Spearheading this movement is a man who dons several hats— scientist, ecologist, farmer and rice conservationist. Deb is striving to build a seed bank in Odisha and has helped to preserve several varieties of indigenous rice using traditional methods.

He has been working with local communities towards realising his vision of making farmers independent of large corporations and genetically modified (GM) crops, and helping them secure access to local seed varieties.

According to Deb, the districts in the Niyamgiri hill range, Kalahandi and Rayagada, once had a few hundred folk varieties (FVs) of rice— until the onslaught of modernization with mines, factories and chemical agriculture. Today there are less than 20 varieties that farmers still grow in this area.

"I have reintroduced a dozen old FVs, and also introduced about 30 varieties that are appropriate for the land type and climate of Rayagada district. I am glad that the farmers who received and cultivated these FVs are happy and satisfied with the yield, taste, aroma and several agronomic characters like pest-and-disease-resistance," he says.

His quest for rice varieties began nearly 20 years ago in remote areas of West Bengal largely populated by indigenous people. The tribal villages, according to Deb, are generally located in the "under-developed" zone, so the poor and marginal farmers cannot afford to purchase the costly seeds and irrigation and agrochemical inputs. Due to this, they tend to depend primarily on their heirloom crop varieties that can grow in the marginal farmlands.

SEEDS OF CHANGE

Rice conservationist Dr Debal Deb has been working with local communities to make farmers independent of large corporations and GM crops and to help secure their access to local seed varieties

"Thus the probability of finding heirloom seeds would be higher in the tribal areas than in the mainstream villages," he says. His line of reasoning was spot on. He found a large number of folk varieties which he collected from the indigenous communities, especially from farmers who had not yet modernized their farming system.

Lengthy searches for FVs often ended in failure. But then sometimes a farmer would bring a small sample FV that Deb never expected to find, providing enough fuel to resume the quest with renewed vigour.

One such example was JUGAL, a double-kernel variety. Says Deb, "The farmer, Kmala Kanta Jana from Birbhum district, brought over the seeds of this variety for which I had been searching around for years. My joy of finding it was no less intense than of Edison's inventing the light bulb."

In 1997, Deb established the Vrihi Seed Exchange Centre (Vrihi is the Sanskrit name for rice), the first non-governmental rice seed bank in West Bengal. Explaining the need for Vrihi, the ecologist says, "The main reason is that none of the ex situ gene banks, be it IRRRI (International Rice Research Institute) in the Philippines, NBPGR (National Bureau of Plant Genetic Resources) in New Delhi or CRRI (Central Rice Research Institute) in Cuttack, distributed any of the locally-adapted varieties to any farmer in need."

Deb realised that this need of growing a variety adapted to a local climatic and soil conditions can be met with a local ex situ or in situ seed bank. He founded Vrihi as the local ex situ seed bank, from which farmers from different districts could receive seeds.

"A second object of Vrihi was to subvert the hegemony of money and the seed market, and to replace the market supply of seeds with a resurrected culture of free seed exchange amongst farmers," he says. Vrihi does not charge the farmer anything for the seeds; instead the organization encourages farmers to distribute their seeds to others in exchange for more varieties.

The main reasons for the loss of several varieties of rice, Deb says were the loss of value of seeds and the consequent loss of the culture of seed exchange among farmers. According to him, with the establishment of the seed market, farmers grew dependent on the market for the seeds which were supplied by external agencies—the government and corporations. Now the farmers have no control over the price of the seeds nor have any knowledge about the quality or characteristics of the seeds beyond what they are told over the counter.



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"Once the user community depends on an external resource managed and owned by an external agency, the community has no need to conserve it. This is exactly what has happened with the forest resources when the indigenous forest people were divested of their customary rights over forest use— they eventually tend to

see the forest as "open access" property or even the enemy's property at the worst," says Deb.

Elaborating on the system breakdown, Deb says that the seeds supplied in the market are designed to be sold to the same farmer each year—otherwise there would be no profit.

"So a farmer learns that the seeds fail to give the crops of the same quality or yield characteristics in the subsequent years. Hybrid breakdown is one reason; non-uniformity of the certified seeds is another. So the farmer must buy a fresh batch of seeds every other year," he says.

A significant conservation consequence in the case of rice, according to the scientist, is that as the farmers find it pointless to conserve the "market seeds" for the following years, they forget the art and the skill of seed keeping. Soon enough, thousands of heirloom varieties disappeared simply because the farmers did not bother to keep those seeds in proper custody. Thus even if a farmer remembers some useful property of a particular FV that was grown on his own farm a decade ago, he cannot bring it back any longer.

While Deb did not begin his work with rice varieties that could withstand climate change, he found that there are scores of varieties that can tolerate soil salinity. "I found dozens of them could withstand water-logging, yet others resilient to drought. These are the varieties that can grow on farm lands that would otherwise become marginalised by climate change," he states.

Speaking about his book *Beyond Developmentality: Constructing Inclusive Freedom and Sustainability*, he says that the biggest problem is "developmentality"—the unquestioned acceptance of industrial development as the ultimate aim and frame of reference of 'progress' for all societies.

"People tend to ignore any solution that lies outside the big market, big industry, and GDP growth. And this fosters the fad of consumerism. To a young farmer, the lure of a cellphone with a camera and diverse ringtones, for instance, is more powerful than the notion of a healthy life, free from loans and diseases," says Deb.

His seeds have piqued the interest of several large companies too. But Deb refuses to cower. "They seem very interested in one, a three-grain rice. We have the last variety. We also have the last double grain rice variety. I was offered Rs 15,000 for just a handful. I refused. When buying was not an option, one man tried to steal some and another tried to offer bribes. Another company sent a man disguised as a farmer. I showed him the door too," says the feisty farmer.

Review Bureau



RADHARAO F. GRACIAS
COURTING CONTROVERSY

My father was born with the First World War and died with the Cold War. My earliest memories of him are linked to long country walks, he with his gun and we following some distance behind, so as not to disturb the game. Our turn came when the gun boomed and we charged to pick up the dying cuckoos, egrets, herons, coots, et al. A decade or so following liberation, the guns went silent as laws changed. But the walk or "passei" became an integral part of our lives. This time it was to merely look and not shoot at the birds. And this is the genesis of my craze for bird watching.

Life in the villages in those days was quiet, with not much to do. It was my father who pushed us into reading. By the time we had grown up, our old library was in a shambles with the rough handling of the books by so many of us siblings. But I realize now that the damage caused to the books was incidental and the knowledge gained eternal. Perhaps it is better that the books be damaged by constant use than they ending up as mere showpieces.

My father would walk home invariably carrying the *Sunday Standard* (the Sunday edition of the *Indian Express* as it was then called). He would insist that the column "Men, Matters and Memories" written under the pseudonym "Ariel" by Frank Moraes, his favourite editor, be read. I was keen to know who or what was "Ariel". My father wouldn't tell me, but suggested that I read Shakespeare. I followed his advice and it was after reading five of his plays that I found the answer and had my eureka moment. I ran to my father with the same excitement as Archimedes (but with my clothes on!) He smiled enigmatically. I realised then that he had feigned ignorance merely to make me read Shakespeare. Those who do not know who "Ariel" is may still follow my father's advice. It would be a worthwhile exercise.

The *Bharat Jyoti* (Sunday edition of the *Free Press Journal*), *Mirror*, *Imprint*, the *The Illustrated Weekly of India*, and *Reader's Digest* were among the periodicals that he brought home,

Memories of another day



The process was repeated and one more "snake" emerged. The third time there was no "snake", and my father assured him that he had been cleared of all the evil spirits that were haunting him

which I devoured, before I graduated into more serious reading of literary and philosophical works.

My father was a practical man and would find unorthodox solutions to difficult problems. Gonsalo Luis, a neighbour approached my father with the complaint that his servant, Marian Filipe was behaving irrationally and was "possessed" by some evil spirit. Nothing, apparently, could cure him. After a day or two, at my father's request, Marian was sent over to our house late at night. All of us siblings, as ordered, sat silently. My father tied a turban round Marian's head, and had him sit on the floor before he made some enquiries. He then took a few bits of charcoal in his hand and briskly circled Marian's head several times, at the same time loudly mumbling something incoherent. He then told him, "You are possessed by evil spirits. I shall turn them into snakes, destroy them and free you!"

Mumbling some more mumbo jumbo, my father lit the charcoal and sure enough one of the coals coiled up

in the form of snake. Marian was astonished and stared open eyed at the "snake". The process was repeated and one more "snake" emerged. The third time there was no "snake", and my father assured him that he had been cleared of all the evil spirits that were haunting him. The ashes were then wrapped in a piece of cloth and given to Marian to be deposited at a particular spot. Marian recovered fully and was as sane and sober as ever. Before long, the news of my father's prowess as a "ghaddi" had spread all over.

A few days later, there was a knock on the door. As the door opened, a voice was heard, "Socratinho, what are you up to, now?" (The 'now' being highly suggestive). It was the voice of Fr Basilio Andrade, the parish priest. My father explained that he had merely played a psychological trick on Marian. He had camouflaged with the charcoals, a small sort of tablet which in those days were on sale during the Ganesh festival and when lighted would rise in the shape of a snake. The trick had worked and Marian never lost his mind again. And my father never tried the trick, again.

On another occasion, a fisherman from Betalbatim came over complaining of a poor catch over a long period. He had consulted every "ghaddi" and worshipped every God, but the nets returned empty. He was desperate. So my father suggested that he consult Antonio (popularly known as 'Zontt'), a 'ghaddi' from Nuvem, on the following day. The same evening, Antonio was called to our house and given in-

structions. The next day the fisherman was advised by him, as instructed.

A week later, the fisherman returned to our house with a basket full of assorted fish and thanked my father. He had been having a bumper harvest. He also desired to take another basket of fish to the 'ghaddi'. My father dissuaded him from doing so, suggesting that the 'ghaddi' would lose his powers if he consumed any fish caught through his intercession.

Later, father explained that if the fisherman were to take fish to the 'ghaddi', he would go commercial and exploit the gullible fishermen. This had to be prevented. The instructions to the 'ghaddi' were simply to mumble some prayers and to tell the fisherman to go to a particular cross, pray for five days and cast his net on the sixth day.

"How did you know that fish would arrive after five days?" I asked. "Fish always come to their natural feeding grounds. If they miss the first train, they come by the next, just as humans do," was my father's reply.

My father was an ardent nationalist and activist who took pride in our Indian heritage. He broke the family tradition of naming every new born after an ancestor. All of us were given Indian names. I have continued the practice. He was ecstatic on Liberation day, but was soon disillusioned. Had my father been alive now, he would have been in the company of Sachin Tendulkar. He would have completed a century this Maundy Thursday.

GOOGLE'S MODULAR SMARTPHONE BY 2015

The multinational's ambitious Project Ara will now allow users to customise physical components such as batteries and cameras from multiple vendors, reports DIANA FERNANDES

Ever thought smartphones had reached their best? Think again. Google's latest Project Ara is aimed at making the world's first mass produced modular smartphone. Now a faulty part such as the battery or camera will not require an instrument change, all you need to do is replace that part with the new Ara smartphone.

The company has been working on the project for over a year and only recently announced it would be launching the phone in three sizes ranging from mini to 'phablet' early 2015. The creators aim however, is to have it launched in developing nations as opposed to the usual US market for anything from between \$50 to \$500 depending on the model.

Users will be able to customise their smartphones simply by popping out an old battery replacing it with another, or a broken display for a better version, or substituting a low pixel camera for a higher one without having to buy a new phone every time.

The Android powered Ara will have a basic endoskeleton called the Endo that will hold the interchangeable components together through electro-permanent magnets simply by sliding them in from the side. So even if you drop it, it won't fall apart thanks to its super strong magnets. Modules like processors, displays, batteries and cameras will allow users to make a phone comprising different hardware's from different vendors.

Speaking at a developer event in Cal-

ifornia last week, project coordinator and team leader Paul Eremko says the idea is to create the IKEA effect encouraging users to make their own phones. "Let the consumer make...changes over their own life and their own evolution," said Eremko.

This new project opens up yet another industry for third part modules, where instead of relying on a single manufacturer for a hardware component, users can shop around adding better quality or unusually manufactured ones instead.

If you thought the 'Grey Phone' may be bulky owing to the multiple blocks, you're wrong. The prototype measures in at 9.7 mm thickness. The project also involves 3D printing breakthroughs. Consumers will be able to pick custom designs for their component covers using 3D printers designed by 3D Systems. Google is also working on technology to measure pupil dilation and scan your social networks to choose an Ara phone best suited for your personality.

Project Ara is a product of Google's Advanced Technology and Projects Group (ATAP), an experimental lab where employees work on futuristic projects, acquired when Google bought Motorola's mobile division for \$2.9 billion. The ATAP is modelled after the Defense Department's Defense Advanced Research Projects Agency that was involved in the creation of the Internet and satellite navigation among other things.

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