



## Debal Deb - keeper of seeds

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Every year since 1997, Dr Debal Deb has sown the 700 varieties of folk rice seeds in his collection, in order that they may not be erased from India's heritage. He has collected these strains from humble farming folk in eastern India, whom the Green Revolution has mercifully passed by. Not able to afford the external inputs required for the misnamed high yielding variety [HYV:

how tellingly, scarily akin to HIV this acronym is!], these marginal farmers had stuck to heirloom seeds handed down by their ancestors. These seeds are notable for their hardiness, aroma and nutritional value. Each differs subtly but distinctively from the other, and all of them, in a fair assessment of yield that factors in environmental, monetary and labour costs, can unmask seed companies' claims of 'high-yield' for their products.

But HYV seeds continue to make steady inroads. Hundreds of heirloom varieties die every year; when a seed is left unsown for two years it dies. Farmers have been led astray, seduced by dishonest marketing that is abetted by a collusive state. Thus an once self-reliant farmer becomes an annual customer at the seed supplier's shop in the bazaar, next to the shops of the agro-chemical merchant, the pump repairer and the pawn broker.

Dr Deb's is an unequal but well-engaged battle with what he has christened 'developmentality', a virus from abroad that has produced a collective mindlessness in India's elite and led to the crisis in rural India. Why would Dr Debal Deb dirty his hands in the soil of remote India in a place that you would find hard even to locate in a map? Why is he not a member of the delegate club of doctorates who hop around the seminar circuit? Why, indeed. The answer to that question—why is worth knowing if only to be reassured that sturdy home-bred Indian character survives, however precariously, even as Debal's beloved collection of rice seeds do.

### **Amarendra Krishna Deb:**

Amerandra Krishna Deb, Debal's father, and his 6 siblings had been orphaned when young and were raised by their uncle. Money was scarce; he routinely carried huge bags of rice on his back across the Howrah Bridge in Kolkatta because of a price advantage. He came to value frugality and disdained accumulation of money. This made him pass up several opportunities to rise in his career at the bank. But he happily remained a Cashier, spending his freedom and time on his love for Sanskrit and Bengali literature; two loves that Debal has inherited along with a big library.



Debal remembers being taken to a rich man's home by his father. He was a customer of the bank and showed off his affluent home. On their way back, Amarendra solemnly enunciated to his boy the purpose of the visit: the lifestyle he had witnessed was precisely the one he must abjure if he wanted peace and happiness. "I took you there to remember forever what you must never aspire for"– the voice was firm and the diktat, final. Father was a private person but his mother Jaya, was always accessible. "Her lesson to me –still quietly taught– is patience." says Debal.

He liked physics and English and Bengali literature in college but it was away from the classroom that he discovered his passion. "I took to wandering in the Botanical Gardens. That gave rise to many questions. But there were no libraries that I could go to seeking answers. So I kept aimlessly visiting the Indian Museum," he says.

#### **Subir Poddar:**

The Museum had galleries dedicated to anthropology, music, archaeology, geology and science. He became absorbed in evolutionary biology and zeroed in on the four fundamental questions worth directing his attention to: origins of life, sex, sociality and consciousness. Was he drifting into too many realms, becoming a dilettante?

Acquaintance with Subir Poddar reassured him of the importance of eclecticism. Poddar published a Bengali magazine called Anrinya whose contents ranged from culture to science to philosophy. Debal was published in it and that led to knowing the formidable editor, who had been a professor of physics. "Poddar taught me how to 'create a writing'. He emphasised the importance of 'interdisciplinarity', as he called it." The Museum's role in Debal's life fell into place.

Like any self-respecting Bengali youngblood he too was immersed in student politics but passion for learning never flagged. Knowledge of Sanskrit, Marxist polemics, an affinity for science, writings of many but Stephen Jay Gould in particular, came together to mould him. He effortlessly passed the National Eligibility Test and enrolled for doctoral studies. Even as he was working on his thesis on aquatic ecology, he had published 2 papers in the Journal of Indian National Science Academy.

#### **Madhav Gadgil:**

Debal was surprised one morning in 1989 to receive a letter from none less than Madhav Gadgil, the grand master of formal ecology and founder of the Center for Ecological Sciences at the Indian Institute of Science, Bangalore. Gadgil had read his paper in the Journal, and being impressed, asked him to come over and spend time in actual research. He was yet to receive his doctorate and so was bowled over by being noticed by Gadgil.

"I had the priceless opportunity to work under Gadgil, N V Joshi and Raghavendra Gadagkar" says Debal. "In just three weeks there I learned how exciting science can be, how to 'do good science', how to use mathematics and programming in setting up objective experiments, the importance of rigour and so on."

He became an ecologist armed with the tools

of the science. He spent two years in Kumta, near Udipi studying the two distinct ways artisanal fishermen cast fishing nets. As he delved deeper the answer to why traditional people do certain things in certain ways, seemed rooted in anthropology, sustainable economics, culture and traditional knowledge.

Soon he was to study the ways of people of the forests who have always lived off usufructs, never touching the timber. He co-authored a well argued and evidenced seminal paper which proved that the value of Non Timber Forest Produce [NTFP] exceeded that from felling and selling timber. It exposed the non-ecological policies of the Forest Department. A few years later, the lessons learned from these 'ecosystem people' were to set him hard on his path to current mission.

#### **Mita:**

Debal has never worked for a corporate or at a 'steady' job. Research grants, a stint in an unpeopled island of the Andamans, developing computer programmes for researchers had sustained him. Four fellowships in the USA have helped him too; he has done post-doctoral and faculty work at the University of California at Berkeley, Irvine and Santa Cruz and at another time availed a Fulbright Scholarship. He has happily cruised along on modest incomes. He has used the money to drive his interests: the fight against genetically modified seeds, farmers workshops and Baul music, which he considers a part of the ecological lore.

But there were hard times. And times when he had to fight evil: his brother had been framed by police for flagging the plight of Santal tribal people held as bonded labourers. He trudged across Bengal in search for



a way to have him released. Nearly defeated, he began to collapse. That was when Mita arrived in his life. He had known her for many years but had not realised that the love she was capable of could drive him anywhere he chose to go. They live in an open marriage. She is his the one he is tethered to.

He began to work for the World Wildlife Fund [WWF] in 1992. As he travelled in eastern India for WWF, he began to observe many odd, varied and unknown varieties of rice cultivated by marginal farmers. He was amazed at the varieties in cultivation. When he applied to the management for funds to map these varieties he was allotted a mere Rs.36,000. The big money was for the big cats. He has wryly dubbed the big cats, 'charismatic mega fauna'. They are no doubt lovely and need to be cared for, but they suck away a disproportionate amount of eco donations in return for feel-good conservation.

#### **Dying stars:**

Debal put in his own money and free time to survey native rice seeds still in use- he calls them 'land races'. Marginal farmers had cherished these as life supporting heirlooms. They were proudly giving him seeds of their favourites. Soon he had 132 varieties on his hands. Some were of short and stubby rice

plants and some taller than man; some stood in parched land and some in floods; some had more than one grain in the husk; each varied as to colour, aroma, size or term to harvest; almost all were hardy enough to resist pests. There was one for every local condition. Every one of them could be preserved year after year eliminating seed cost. And they were all high yielding varieties if you did honest sums factoring in cost to the environment and of inputs, including labour and water.

He thought he would be adored if he passed on these treasures to farmers in less remote places, nearer cities. Though bore-wells, pumps and seed companies had grabbed the whole space, would farmers not reevaluate \*real\* net profit and switch? But no! The Green Revolution's indoctrination seemed complete: thou shall sow this, flood thus and spray that. He started approaching a few willing farmers to use and preserve seeds chosen for their micro-climate. He was in fact seeking foster homes for his wards.

A classic double whammy emerged: native seeds being disfavoured by farmers preferring commercial ones, and at the same time, seed companies in search of them for gene mining. These companies were on the prowl, grabbing these landraces to patent their uniquenesses as their own creation. Even the common neem had been kidnapped, which took a huge campaign to free; what of these less known, scattered dying stars. Debal felt the need to preserve and classify them in the National Biodiversity Register.

An article he wrote in Down to Earth magazine, attracted the attention of [Vandana Shiva of Navadanya](#). She sent a sum of Rs 20,000 and urged him to begin in-situ conservation of the landraces he had collected and to preempt biopiracy by making their characteristics public. It was time for a seeds orphanage; foster homes wouldn't do.

### **Vrihi and Basudha**

Thus began Vrihi ['rice' in Sanskrit]. It was a project to conserve over 400 landraces in his possession by then. In 1997 on 1.5 acres in Bankura, Bengal he began planting out each of the landraces in 2mx2m plots, a practice [see box] he has continued till today. By 2002 he had a place which he called Basudha where his Centre for Interdisciplinary Studies began to operate. His work had gone beyond a seed conservation.

#### **In-situ conservation**

*Debal Deb plants out every landrace in his collection in 2mx2m plots. Their term to maturity can vary from 70 to 180 days. Their growth is continuously observed and recorded. Each plot is tagged and also mapped on paper. The yield is between 0.7 and 2.5 kg. Although only about 60gms are required for replanting, about 200gms are transferred into the seed bank. Seed storage is in clearly tagged recycled paper packets placed together in terracotta pots, stacked three high. In order to prevent misidentification, seed stock is clipped from panicles while the crop is still standing. Seeds are classified with scientific rigour as to size and various characteristics. What remains after safe-keeping for next year's planting, is taken over for a seed exchange programme he runs with farmers. There is a seed suitable for every climate, soil and water source. At the moment*

*about 200 farmers have begun to conserve about 130 varieties from Debal's collection on a production scale.*

Basudha began to actively canvas for the adoption of native seeds and biodiversity through farmers workshops, seed exchange, visitor stays and demonstration plots. People came from around the world to learn, help, do research and observe rural life.

Debal was chasing a fast disappearing integrated life in India, in which traditions, cuisine, dialect, music, festivals, the calendar of seasons and behavioural prescriptions played a part in creating self reliant communities. What threatened it now? In a word, 'developmentality'— a word he has coined, a word that at once conveys the serious malaise of modern man.[see box below]

First make 'development' an unquestionable given. Then make all that is justified in its name, a priority. If you cannot convince people, coerce them. Promise a life with less work, easier money and freedom to 'enjoy'. In marxist run Bengal every village was politicised with apparatchiks strutting about everywhere. To be a cadre was itself a career. All that that was asked of them was to deliver consent and compliance to the central leadership. "What unites capitalism and communism," Debal wryly observes "is industrialisation."

#### **"Beyond Developmentality"**

*This book by Dr Debal Deb, a scientist, makes him accessible to the lay person interested in understanding issues concerning environment and ecology at varying levels of rigour. The book is a romp across time and domains. Arriving at its conclusion from sources in history, biology, economics, anthropology and politics, Deb concludes endless growth is not only not possible but that it is not required for happiness; all attempts to attain it will lead to disaster.*

*"To understand how zero rate of interest leads to infinite value of an environmental good, let's consider a resource like a river which can be expected to yield a constant rent [in terms of, say, annual fish catch.] over an indefinite amount of time in future. The price  $p$  of this permanent stock -as a source of permanent income- is equal to the pecuniary benefit or rent  $[r]$ -however small- discounted by a normal rate of interest  $[d]$ :*

$$p=r/d$$

*As the normal rate of interest decreases, stock price increases. At  $d=0$ , the price of any resource stock of permanent income becomes infinite."*

*'Developmentality' is the mentality that afflicts politicians, planners and the elite. And there are workable alternatives 'beyond developmentality' that can lead to inclusive prosperity. The first requirement is to disbelieve the need for high rates of growth, indeed even low rates of growth: we need to believe in zero-growth.*

*In Deb's view we need to go back to Traditional Ecological Knowledge [TEK] to learn about zero-growth economy. Keepers of this knowledge are the 'eco-system people'; people like the fishers of Kumta, seed saving farmers of Chhattisgarh and those living off usufructs of the forests. He calls all 'resource stock of permanent income', 'the commons'. Air, water, soil and*

*forests are all commons. These are things that money cannot buy and should not buy because its price is infinite. To learn sustainability we must sit at the feet of eco-system people.*

*It is easy to see how developmentality and industrialisation are inherently antagonistic to the environment. Privatisation of water, pollution of the air are moves to deny these as accessible commons. The glib concept of payment for these being revenue to the state which in turn will deliver prosperity to its subjects is a concept unimaginable to eco-system peoples' communities. Carbon credit is a notion akin to a tariff for murder. Even champions of 'charismatic mega fauna' -viz. tigers- insist on the exclusion of eco-system peoples from forests.*

*The book is a primer and a sourcebook with numerous cited authorities and references. If it were in hypertext one could follow the links and complete one's education in ecology. For all its readability, it doesn't dumb you down: if it is mathematical rigour you want, you have it offered un-intrusively. Deb comes through as a reader-friendly polymath.*

*As Derek Wall, Principal Speaker for the Green Party of England says, "Debal Deb is one of the most important voice for ecological sanity on our planet. He shows in this vitally important book that it is possible to create real wealth while sustaining our environment by drawing upon the knowledge of indigenous people and grassroots movements"*

By 2010 the drought situation in Bankura district had become acute. Added to that, an India driven by developmentality seemed unstoppable too. The government was playing games with public opinion and protests against genetically modified seeds. Seed companies were waiting in the wings with smug reassurance. While farmers were indeed asking for seeds in Debal's collection for trying out, it must be said he had not been overwhelmed by demand. He decided to move to a more remote area which had a greater assurance of water.

So what is the good news in this story? It is in the doggedness with which Debal continues his mission in the state of Odisha at the foothills of Niyamgiri hills. His associate Dulal has joined him and Debal feels it is enough help. He lives in a mud shack with no electricity. The last 15km of road to his station is primitive. His phone and laptop are charged in the nearby tribal hamlet. There are miles of silence all around. There is a running stream to irrigate his small research field. Debal has already made the first harvest of his 720 landraces currently with him at the new site. Like some ancient keeper of fire, Debal keeps the seed lines alive. He is hopeful –he is certain– their time will come.

There is reason to believe as he does. His station sits in the Niyamgiri valley. Hills all around gaze down upon him in encouragement. They had been to the brink and had fought back developmentality that had almost won the day; so the hills know Nature will in the end prevail. It is good to listen to their success story as we leave Dr Debal Deb in their fold.



Vedanta is the serene name appropriated by a corporate mining company. With the blessings of the State they sought to mine for bauxite in the Niyamgiri hills which are notable for diversity of flora and fauna. Alas for Vedanta, these hills are home to eco-system people known as the [Dongaria Kondhs](#). Small and gentle though they may seem, they are fierce in their commitment to the hills. As most of India slept or barely noticed it is these little people who fought back and [drove out Vedanta](#). They spurned the material allurements Vedanta dangled in front of them. It is their value system, rare as his seeds, that Debal Deb banks on. It is a value system worthy of elite India's emulation.

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[More on the in-situ conservation work by Dr Deb](#)

[How active the Bengal centre was until two years ago!](#)

[This brief but good interview with Dr Deb covers a range of issues](#)

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