Dr Debal Deb: A Legend of the principle of local self-sustainability on the ground | The Ground Report India 05/01/13 10:24 PM

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Dr Debal Deb: A Legend of the principle of local self-sustainability on the ground

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In this exclusive ground report, I write about the models of self-sustainability established by Dr. Debal Deb, founder of the rice seed banks *Vrihi* and *Basudha*. Dr Deb has a PhD from the Calcutta University, West Bengal and post doctorates from the University of California, Berkeley (USA) and the Indian Institute of Science, Bangalore.

BASUDHA (Earth Mother)

My good friend Laurent Fournier, a French architect, suggested to visit *Basudha* near Panchal in Bakura district of West Bengal state. It was a hectic journey in a country bus and took a few hours. The bus dropped me in a forest. There was no signboard. I thought I was lost and I wanted to call to Dr Debal Deb, but unfortunately my mobile did not have any reception there. So as I was deciding which direction of the forest to walk into by chance I saw a local person and asked for directions to *Basudha* to meet Dr Debal Deb.

I was expecting to see a huge signboard of *Basudha*, projecting works done by the Centre For Interdisciplinary Studies (CIS) with a campus boundary surrounding various buildings. But my assumptions were dashed. Basusdha house was built of bricks and mud. With windows and doors made of bamboo mats. I saw *Basudha* house as a model of ecological buildings which used locally available building materials, ecological sanitation, solar energy, and ecological architecture.

Photo tour of Basudha

http://www.thegroundreportindia.com/2012/04/dr-debal-deb-a-legend-of-the-principle-of-local-self-sustainability-on-the-ground/ Page 1 of 6

Dr Debal Deb : A Legend of the principle of local self-sustainability on the ground \mid The Ground Report India05/01/13 10:24 PM

Basudha is a small farm of more than 1.5 acres near to a forest in the Bankura district of West Bengal. Basudha was established in the year 2002 to conserve Bengal's vanishing rice varieties; encourage, demonstrate and support for organic farming and traditional methods of multiple cropping; and preserve and develop local knowledge of biodiversity and its uses. Basudha is engaged in non-formal education and heuristic science teaching for local rural youth, and gives practical training in ecological agriculture.

Over 500 rice land races are cultivated on the one-acre farm of *Basudha*, where local varieties of 20 different species of non-cereal crops are also grown. Novel methods of pest control, soil management and crop yield enhancement are taught to farmers after replicated field experiments conducted with local farmer volunteers who are participant-researchers.

Every year, scientists, research scholars, students, activists and farmers from different parts of the world visit *Basudha* – to teach, learn from, and share ideas with, CIS workers and farmers in the surrounding villages. WWOOFers¹ find *Basudha* to be a favourite farm to stay and work. The Annual *Basudha* Festival, held in winter every year, is a special event in which students, environmentalists, artists and conservationists from different parts of the world come to participate.

VRIHI (Rice)

In 1997, Dr. Debal Deb established *Vrihi*, the first non-governmental rice seed bank in West Bengal. Due to the continuous efforts of Dr. Debal Deb and his colleagues re-establish the vanishing ancient culture of seed exchange in West Bengal, they have succeeded to reduce significantly the genetic diversity loss of the rice plant. *Vrihi* has become the largest rice seed exchange center in eastern India with over 600 traditional rice varieties cultivated in situ and distributed freely to farmers from 18 districts.

"The principle is local self-sustainability, depending on the locally produced seeds of indigenous varieties, and access to the seed bank for everybody - Not in exchange of money, but in exchange of varieties." Dr Debal Deb

¹ WWOOFers are volunteers of **Worldwide Opportunities on Organic Farms (WWOOF)**, also known as "Willing Workers On Organic Farms". WWOOF is a loose network of national organisations in 99 countries that facilitate placement of volunteers on organic farms. As there is no single international WWOOF membership, all recognised WWOOF country organisations strive to maintain similar standards, and work together to promote the aims of WWOOF.

In order to receive seeds from *Vrihi* the farmer must give, in exchange, one kg of seeds of at least one folk rice variety, which would then be passed onto another

farmer. In the case when the farmer does not have any folk variety seeds to exchange, he/she must pay a 'security deposit' for obtaining a packet of one kg of seeds. A paper receipt is issued against this payment, which is refunded when the farmer returns two kg of that rice after harvest. This arrangement is to ensure cultivation and multiplication of the seeds.



Since 1997 Dr Debal Deb has been conserving 700 varieties of native rice that seed companies are trying to drive out.

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, which the Green Revolution mercifully passed by. Not able to afford the external inputs required for the misnamed High Yielding Variety (HYV) seeds, these marginal farmers 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 a 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.

The seed stock of *Vrihi* is composed of hundreds of rice samples donated by farmers. *Vrihi's* awareness campaign for folk crop seed saving has slowly overcome the initial intransigence of farmers. With an inchoate understanding that folk crop genetic diversity would ensure the country's food security, many

farmers have come forward to donate seeds, and pledged to save and exchange those seeds with friends, kins and neighbours. *Vrihi's* collection has thus expand

http://www.thegroundreportindia.com/2012/04/dr-debal-deb-a-legend-of-the-principle-of-local-self-sustainability-on-the-ground/ Page 2 of 6 Dr Debal Deb : A Legend of the principle of local self-sustainability on the ground | The Ground Report India05/01/13 10:24 PM

ed by accessions from interior villages of West Bengal, Bihar, Orissa, Jharkhand, Assam, Meghalaya, Tripura, Nagaland, Arunachal Pradesh, Chhattisgarh, Maharashtra, and Tamil Nadu. Rice samples from Bangladesh, Nepal, Pakistan and Italy, donated by farmers and scientists abroad, have enriched *Vrihi's* stock.

At the end of 2008, the number of folk rice varieties in *Vrihi's* collection exceeded 700. *Vrihi's* collection includes a number of unique rice varieties. An example is *JUGAL*, the double-grain rice variety. Another amazing variety is *SATEEN*, the triple-grain rice. There are also numerous varieties that can withstand drought, flood and salinity, or have resistance to diverse pests and diseases. Hundreds of landraces with diverse pigmentation, culinary properties and valuable agronomic traits have been characterized, documented and published for the first time by *Vrihi*.

Any farmer can receive any indigenous rice variety, free of cost, from the *Vrihi* seed bank at Panchal. The seed exchange centre is open for farmers every month from February through to June. The office closes in the middle of June.

Vrihi assists farmers, who intend to take rice seeds, to choose the rice varieties appropriate for his/her farm's land type, and soil characteristics, and local climatic conditions. In case a farmer visits the seed bank in the first week of any month between February and June, and finds it closed before his arrival, he/she may leave his name and address on a slip of paper and return home. He/she may also mention the name of a variety he/she would like to receive, or just the type of land (rain fed, upland, irrigated, medium land, deep lowland) where he/she intends to grow the seeds. *Vrihi* volunteers would then take bags of rice seeds appropriate for his/her farm.

All rice varieties are being cultivated on the *Basudha* research farm of the Centre for Interdisciplinary Studies. Every year, samples of all rice varieties are brought from *Vrihi* and grown in small plots at *Basudha*. 'Core sample' panicles from each plot are harvested and stored for the next season. In order to obviate

chances of cross-pollination between varieties grown on neighbouring plots, an innovative method of transplanting varieties with asynchronous flowering dates is

http://www.thegroundreportindia.com/2012/04/dr-debal-deb-a-legend-of-the-principle-of-local-self-sustainability-on-the-ground/ Page 3 of 6 Dr Debal Deb: A Legend of the principle of local self-sustainability on the ground | The Ground Report India 05/01/13 10:24 PM

employed. Agronomic and morphological characteristics of each rice variety are assessed, following the International Plant Generic Resources Institute guidelines. Special agronomic features like resistance to pests and pathogens and adaptations to different edaphic conditions are also empirically tested on trial plots. At *Basudha*, farmer-researchers have developed eight new varieties through crossing and selective breeding of various landraces.

Protecting Indigenous Cultures

Many forms of folk music and indigenous sports are now disappearing and credits go to the advent of corporate-sponsored cricket and commercial film music. Dr Debal Deb tries his best possible to protect the traditional sports like archery, stilt race and women's pitcher race by organizing annual tournaments. Baul singers of the indigenous school are invited to perform their arts at Basudha to protect the original form of baul songs from neglect and degeneration. Every winter, a three-day Basudha Festival is celebrated. The Basudha Festival includes indigenous sports tournaments and a musical night.

It was a great opportunity for me to be in Basudha in the time of Basudha Festival in the year 2010.

Photo Albums of the Annual Tournament

Photo Album of Musical Night of the Basudha Festival

Dr Debal Deb and the depth of his social commitments:

Dr Debal Deb decided to work without any organized grant. He contributed his savings to buy a land for Basudha. The land was bought in the name of the local community not in the name of Dr Debal Deb or his organization, it was his strong faith in the social ownership in place of individual ownership. 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. Dr Debal Deb makes his hands dirty in the soil of remote India whether he could have been enjoyed membership of the delegate club of doctorates who hop around the hi-profile international seminars to change the world.

http://www.thegroundreportindia.com/2012/04/dr-debal-deb-a-legend-of-the-principle-of-local-self-sustainability-on-the-ground/ Page 4 of 6
Dr Debal Deb: A Legend of the principle of local self-sustainability on the ground | The Ground Report India

He put a few conditions in front of his wife before marriage that he will be based in a remote village, will not be earning money for materialistic pleasures, will not have children, will not be returning home daily or weekly or monthly, will not be following elite etiquette of developmental civilisation, and will never put social commitments with a low priority. Without a second thought his wife accepted all of his conditions. She has been walking with him as true companion in all his struggles without a complaint.

An open letter from the Basudha: BASUDHA RELOCATED to Odisha (excerpted from Basudha's website)

After the 2010 experience of too late arrival of the monsoon, we were worried about the likely recurrence of drought in 2011 and afterwards. Although Basudha's accession of ca. 700 folk rice varieties includes 14 drought-tolerant landraces that can withstand too late and too scanty rain, all the other varieties, especially those adapted to low- and deep low-land conditions, cannot survive in the event of prolonged drought period. The impending drought poses a great threat to the survival of our rice genetic diversity on Basudha farm, which has no irrigation facility. (Irrigation by pumping up groundwater is an unsustainable option.)

In 2010 we were able to save all the 686 varieties on Bhairab Saini's farm in Panchal, some 5 km away from Basudha. Bhairab sacrificed his farm plot for Basudha's conservation work for the year, but we cannot take advantage of his generosity every year; besides, we must find a sustainable solution to conserve the nation's wealth of vanishing rice varieties *in situ*.

This became a herculean onus of responsibility on my shoulders. Saving the rice seeds do not earn me any money, nor will anyone reward me for saving them, yet I must save them at all costs – for no one is prepared to do that. (A few farmer friends are already saving a few landraces on their own farms, but no one is capable nor willing to save all the 700 rice varieties *in situ* every year.) I searched for an irrigated land in 5 districts of West Bengal, but either the landowner asked for a price too high for my financial ability, or the neighbourhood was too suspicious for sustaining the conservation work – so I backed out. Against my will, I approached the State government for help with 2 acre of land (to be maintained at my own expense) to save the heirloom rice varieties, but received no material help as yet.

Although this year 2011 appears to be blessed with good rainfall throughout eastern India, this

is no guarantee for a similar fortune for Basudha's rice accessions in the years to come. We deemed it wise to shift to a safer place where water is no limiting resource, even in the event of too late, or failed, rains.

Dr Debal Deb : A Legend of the principle of local self-sustainability on the ground \mid The Ground Report India05/01/13 10:24 PM

http://www.thegroundreportindia.com/2012/04/dr-debal-deb-a-legend-of-the-principle-of-local-self-sustainability-on-the-ground/ Page 5 of 6

Although we spread word to all people concerned with agrobiodiversity conservation, no gesture of support appeared from either governmental or elite non-governmental institutions. Finally, we received an offer of 1.1 acre of land with surface irrigation facility, from a group of indigenous farmers of **Raygada district**, **Odisha**. I have entered into an agreement to grow all our rice varieties on this land, and I will pay an annual rent of Rs. 4000. The villagers do not expect any financial return from the rice production on that piece of land, but are enthused to set up a local seed bank, using the heirloom varieties to be cultivated on their farms.

We transferred all the rice seeds from Basudha's accession to this new farm in the lap of Niyamgiri Hills, and sowed all rice seeds here, beginning from the 16th June 2011, with the help of local villagers, and Living Farms, a local NGO. The sowing was finished on e 21st June. Debdulal Bhattacharya is posted on the new farm, assisted by Pradeep of Living Farms. The transplanting of all the seedlings began on the 10th July, and the last rice harvested on the 17th January.

We are now staying in a bivouac - a mud shack built with the help of local villagers. We shall live there until we build a more comfortable new farm house with attached bathrooms. We have also installed two solar units for light and fan in the bivouac. In February 2012, we began building a new farmhouse, with stones and adobe.

We have also conducted several farmers' trainings in methods of ecological agriculture and seed saving. In response, 20 indigenous farmers from surrounding villages took from us, in 2011, seeds of 120 varieties from our nursery and planted them with great enthusiasm to their own farms, and pledged that they would maintain these rice varieties for years to come. This is something that we ever experienced in Bengal. In 2012, farmers from Koraput and Malkangiri districts have also booked their demands for locally adapted rice varieties to grow on their farms. They have also donated us seeds of a few traditional varieties for Vrihi's accession.

Good Bye Bengal. Long Live our heirloom rice seeds in Odisha.

Dr Debal Deb : A Legend of the principle of local self-sustainability on the ground \mid The Ground Report India05/01/13 10:24 PM

http://www.thegroundreportindia.com/2012/04/dr-debal-deb-a-legend-of-the-principle-of-local-self-sustainability-on-the-ground/ Page 6 of 6

2012 July-October Edition: CERI

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