

People in Conservation

Biodiversity Conservation and Livelihood Security



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Special Issue on Good Food

Opening Words

For many people across the world growing, buying or finding food is a daily struggle. According to the United Nations, more than 800 million people worldwide are estimated to be malnourished. Billions don't have stable, secure access to good food. One of the most important issue besetting humanity is also that of wastage of food. In this scenario, there are growing concerns that amid signs of groundwater depletion, environmental pollution, loss of biodiversity and other woes marking the end of the green revolution model, global food production will need to grow by 60 percent - mostly on existing arable land and in the face of climate change- to feed the future population in 2050.

It is increasingly clear that modern industrial agricultural methods (framed within the confines of capitalist economy) - which began in the 1950s, are more resource intensive, very fossil fuel dependent, high on fertilizers and pesticides, and based on massive production - can no longer feed the world, due to the impacts of overlapping environmental and ecological crises linked to land, water, and resource availability. The range of challenges that humanity faces include resource scarcity, increased population, decreasing land availability and accessibility, emerging water scarcity, and soil degradation. To make matters worse, as the United Nations Special Rapporteur on the Right to Food, Hilal Elver said, "There is a geographical and distributional imbalance in who is consuming and producing..."

So what is to be done?

The short answer is to aim for food sovereignty.

In order to do this, firstly, governments must support small farmers. According to Hilal, "If we deal with small farmers we solve hunger and we also deal with food production." Governments need to recognize the role small farmers, who are also the most vulnerable and the most hungry, play in meeting the food needs of the world. Elver says, "Empirical and scientific evidence shows that small farmers feed the world...According to the U.N. Food & Agricultural Organization (FAO), 70 percent of food we consume globally comes from small farmers." But if this is to happen, it would mean that food policies have to shift their focus towards small farmers, and away from catering to large Agri-businesses, because "Food policies which do not address the root causes of world hunger would be bound to fail". What we need is a transition to "agricultural democracy" or as Colin Tudge calls it "Agrarian Renaissance" which would empower rural small farmers. The two recent landmark global agreements, the Sustainable Development Goals(SDGs) -

which require eradicating hunger and putting terrestrial ecosystems on a sound footing by 2030 and the Paris Climate Change Agreement (COP21), only underscore the need for inclusive innovation in food systems.

A multi-pronged approach is required to tackle the situation.

For instance, drawing on case studies from around the planet, the "Save and Grow" approach to agriculture advocated by FAO is already being successfully employed to produce staple grains, pointing the way to a more sustainable future for farming. "International commitments to eradicate poverty and tackle climate change require a paradigm shift towards a more sustainable and inclusive agriculture able to produce higher yields over the longer term..." said FAO Director-General José Graziano da Silva. **Save and Grow** is a broad-based approach to an environmentally friendly, sustainable agriculture aimed at intensifying production, protecting and enhancing agriculture's natural resource base and reducing reliance on chemical inputs by tapping into the Earth's natural ecosystem processes, and thus to increase farmers' gross income. As such it is an approach intrinsically crafted to contribute to the SDGs and foster resilience to climate change.

However, food sovereignty would not only mean control over production and distribution by the small farmer, but also decentralization, protection of the richness in agro-biodiversity, gender equity, caste empowerment and participatory farming. While the Save and Grow approach could be the first step towards food sovereignty, this would hardly be sufficient in itself. From the point of view of substantive equality and social justice, there is a need for thinking more creatively about how food gets produced, and who controls the production and distribution process. The need of the hour is a substantively revolutionary measure that will reinvigorate small farming practices that are non-GM based, yet scientific, sustainable and equitable. We need safer alternatives that, while being rooted in traditional knowledge systems, do not quarrel with modern science (adapting to its advice where necessary), protect our rich agro-biodiversity, guarantee social justice, ensure decentralization of decision-making, protect localized production planning, and guarantee empowered community participation.

One such route is that of agroecology – a practice gaining prestige across the world given that it promises inclusiveness, participation, decentralization, livelihood generation, the stemming of migration to cities, empowerment of the small farmer, and the stimulation of family farming practices.¹

1. Source: <http://himalmag.com/sowing-revolution/>

For the uninitiated, agroecology is a science derived from traditional knowledge and advances made by modern agricultural research (except, of course, transgenic biotechnology and pesticides), utilizing elements of contemporary ecology, soil biology and the biological control of pests. It thus involves a knowledge dialogue between the ancient and the modern. It is socially activating, as agroecology must be participatory and create interchange networks, without which it would not work. It is also more democratic. Because it will employ local resources (potentially involving thousands of small and medium family farms and farming communities) its implementation does not depend on imported resources and inputs. It is likewise more resilient to climate change; with increasing evidence showing that it is more resistant to major phenomena such as drought. On the other hand, monoculture, which tends to dominate world agriculture, is highly susceptible to the effects of rising temperatures because of its genetic and ecological homogeneity. Through local knowledge and sustainable, innovative farming methods, family farmers can improve yields and create a more nutrient-dense and diverse food system. They're also key players in job creation and economic stimulus, supplying jobs to millions and boosting local markets. Agroecology is most feasible for small and middle-sized family units, and could play an important role in reversing unmanageable urbanization. Because it is more amenable to processes of decentralization in production as well as in distribution through local food markets, it can also help stem the wastage that currently affects food stocks.

Agroecology is more than just a science, it is also a social movement for justice that recognizes and respects, on the one hand, the right of communities of farmers to decide what they grow and how they grow it, and on the other hand, it respects the right of the consumer to good food. As such it poses a challenge to neoliberal paradigms of privatized agriculture that is ridden with agrarian crisis and farmer suicides. It substantiates and provides a practical answer to Karl Marx's observation that "the capitalist system runs counter to a rational agriculture... and (society) needs either small farmers working for themselves or the control of associated producers"

Let us sow a revolution!
milind

1. News and Information

FAO urges broader adoption of its Save and Grow paradigm for sustainable agriculture

A FAO book out on 18 January 2016, takes a close look at how the world's major cereals - maize, rice and wheat, which together account for an estimated 42.5 percent of human calories and 37 percent of our protein - can be grown in ways that respect, and even leverage, natural ecosystems.

Source: <http://www.fao.org/news/story/en/item/379724/icode/>

National Permaculture Convergence

National Permaculture Convergence (5th - 7th February 2016) was an inclusive forum where 1180 practitioners in the rapidly growing fields of permaculture, eco-friendly agricultural practices and sustainability, came together to connect and share experiences and best practices. The Convergence included talks, presentations, discussions, small demonstrations and exhibitions.

Permaculture is a contraction of the two words 'PERMANent AgriCULTURE'. It stands for responsible and wise use of natural resources, in a way that will sustain life for the present as well as future generations. It is a philosophy and practice that enables people to design and establish productive systems to provide for their food, energy, shelter and other material and non-material needs, in harmony with natural systems.

Source: <http://npcindia2016.org/>

In a corner of the Himalayas, India now has its first organic state

Sikkim, the northeastern Indian state snuggled between Bhutan and Nepal, has now rid its agricultural land of pesticides and fertilizers making it the country's first organic state.

The 75,000-hectare area was transformed as per the policies of the Indian government's National Programme for Organic Production, meant to promote organic farming. This form of agriculture typically avoids the use of pesticides, fertilizers, genetically modified crops, and other artificial inputs. Instead, farmers use natural alternatives such as green manure and compost. "We achieved fully organic status by the end of December." S. Anbalagan, executive director of the Sikkim Organic Mission (SOM), told the Press Trust for India on Jan. 14.

Source: <http://qz.com/595408/in-a-corner-of-the-himalayas-india-now-has-its-first-organic-state/>

Millet growers survive drought scare

When drought hit farmers across 25 districts of Odisha badly, Bipin Majhi, a resident of Deogarh, a non-descript village in Kandhamal district survived the scare as he has millet crops to fall back upon. Despite acute dry conditions, tribal communities in Kandhamal, Rayagada, Gajapati and parts of Kalahandi districts have harvested significant quantities of millets crops, some of the most favorite staple foods of tribals.

"I had grown paddy in one acre, but lack of rain this year completely damaged it. On the other hand, millet, which is not a labor intensive crop, did not disappoint me. Most of us in our village now cultivate millets around the year," said Mr. Majhi.

Ranjitha Digal, a woman farmer of Biringia village in Kandhamal district, has a similar experience to share. "Although this year's volume of millet production did not match our expectations, it was not a disaster like paddy during this drought year," she said.

Farmers from Kandhamal, Deogarh, Mayurbhanj and Rayagada shared their traditional knowledge and practice of growing millets in their backyard at an Odisha State-level workshop on 'Millets for food and nutrition security and food festival' organized by NIRMAN, a voluntary organization, and Millet Network of India December 31.

"There has been a decrease in the number of operating millet farms over time. This decline in millet production is one of the key factors behind the dismal hunger and malnutrition status in backward regions. According to government statistics, millets and other traditional crops used to be grown on 5.49 lakh ha of land in 1978-79, but the area under these crops has come down to 2.01 lakh" said Prasant Mohanty, Director of NIRMAN, which has been working to revive millet crop for years now.

Source: <http://www.thehindu.com/news/national/other-states/millet-growers-survive-drought-scare/article8052011.ece>



2. Perspectives

Challenges of the global food system

With the Green Revolution a farming model, which concentrated on supplying large volumes of food grains to global markets, was globally established. The industrial farming system it promoted focused on increasing yields for monocultures through intense use of chemical fertilizers and pesticides, while traditional and diversified small scale farming systems were declared as unproductive. Nutritious traditional crops such as sorghum, a variety of millets and quinoa² have been displaced from the fields, with the consequence that nowadays, from the over 50 000 edible plants that exist in the world, just three of them, rice, maize and wheat, provide 60 percent of the world's food energy intake. The increase in the total yield of staple foods such as wheat also contributed to declining prices of those crops, while the availability of more nutritious crops such as pulses, fruits and vegetables decreased.

Around the industrial agriculture model industrial food systems have developed, in which a few companies control the trade, the processing and marketing as well as the retail sector. Commercial structures and globalized food supply chains heavily influence local food systems and consumption patterns. Developing countries are often integrated in the global market in such a way that they export 1) cash crops such as palm oil that is used by companies as cheap raw material to produce highly processed food and 2) valuable products such as tropical fruits to rich countries in the global North, while importing refined grains. This trend increases the price differential between staple crops and more nutritious food on local markets, with the consequence that especially poor consumers in developing countries rely for their diet mainly on cheap staple crops. The food industry contributes to the loss of food diversity, and to nutrient-poor diets, as the apparent diversity of highly processed products consists of a few industrially produced ingredients. Other negative outcomes are persistent hunger and micro-nutrient deficiencies; widespread degradation of land, water and ecosystems; high Greenhouse Gas emissions and livelihood stress for farmers around the world.

In order to extend their sales market, companies such as Nestlé, Coca-Cola and Danone adapt the prices of their

2. Quinoa originated in the Andean region of Peru, Bolivia, Ecuador, Colombia and Chile and was domesticated 3,000 to 4,000 years ago for human consumption in the Lake Titicaca basin, though archaeological evidence shows a non-domesticated association with pastoral herding some 5,200 to 7,000 years ago.

products to the less well-funded but larger group of the global population. This is possible as these products are based on cheap ingredients such as saturated fats, refined grains and sugar. As transnational food companies understand that their main “growth markets” are now in the global South, they push for free trade and investment agreements and try to take over traditional distribution channels.

As a consequence, the challenges of persisting hunger and micronutrient deficiency are increasingly accompanied by the problem of being overweight and, associated with this, diseases like diabetes. One in three people worldwide are malnourished and all 193 countries of the world are affected. Several types of malnutrition occur in the same country, the same family and even the same person.

The agricultural and trade policies currently in place support big producers and industries, while family farmers with agroecological production systems, who could best supply both rural and urban populations with nutritious food, and furthermore, would not harm the environment, receive little support. Less than 8% of expenditures on agricultural programmes benefit this sector. Nevertheless, positive examples exist. In Brazil, the government implemented instruments for public procurement from family farming, a programme that contributed to create markets for small holder farmers and provide healthy and fresh food in public institutions such as schools. Also, people within the civil society are engaged in re-localizing and democratizing food systems, as for example through the creation of food policy councils. Food Policy Councils (FPC) provide a forum for diverse stakeholders (including farmers, city and state officials, non-profit organizations, chefs, food distributors, food justice advocates, educators, health professionals, and concerned citizens) to come together and address common concerns regarding food policy. FPCs bring together these stakeholders to share concerns and act on common goals, thus influencing and shaping food policy and supporting local and democratic food systems (<http://foodfirst.org/wp-content/uploads/2014/01/DR21-Food-Policy-Councils-Lessons-Learned-.pdf>)

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Saving seeds

The miracle of a seed is that this tiny little thing holds within itself the potential to recreate a whole individual plant or tree. By holding promise of things to come, it truly gives hope. What kind of world would it be where a seed has to necessarily pass through tedious exchanges of money, labels, and an externally imposed system before reaching the soil where it can take root? Absurd as it sounds, there are many forces, globally and in India, pushing towards just such a situation. Luckily, there are also people who resist this threat.

Who are these people?

They are the seed-savers. They might save seeds in old glass bottles, clay pots, plastic bags or old gunny bags. The approach may vary. While some focus on creating seed banks which preserve the batch of seeds for years, others believe that the field is the only place for the seeds. What they have in common is that they are helping keep alive seed diversity and being part of both, a continuation of a millenia old tradition, and a silent revolution.

Farmers use their own farms for this purpose, or form networks for the purpose. In Jardhar gaon, Uttarakhand, Vijay Jardhari of Beej Bachao Andolan has collected 350 varieties of paddy, eight varieties of wheat, four of barley, 220 varieties of kidney beans, eight of cowpea and 12 of navrangi dhal – a variety of pulse seeds. On a 2 acre farm called Basudha located in Odisha, Debal Deb plants over a thousand varieties of rice in an effort started in 1996 to conserve rice diversity. Gangwar Anjamma, a 55-year-old peasant woman and a member of Deccan Development Society (DDS) in Zaheerabad, Telangana runs the village seed bank which makes local farmers independent of Multi National Seed Selling Companies. The women farmers of DDS also organize a Mobile Diversity Festival travelling across 50 villages of the region for about one month every year to celebrate ecological agriculture. The Timbaktu Collective, spread over 156 villages of Anantpur district of Andhra Pradesh, has been able to document and collect 28 rice varieties, 31 kinds of millets, 18 pulses and 7 oil seeds. In Satna district of Madhya Pradesh, Babulal Dahiya of Pithaurabad conserves over 80 varieties of rice, along with Desi Makka (Maize), Sama, Kakun, Kutki, Kodo and Katia wheat. In her small garden of 2,000 square metres in Auroville, Tamil Nadu, Deepika Kundaji has 20 varieties of brinjal and about seven varieties of lady's fingers. These are just a few names representing some of the numerous such attempts and initiatives aimed at seed saving, located in different parts of the country.

Then there are groups that facilitate setting up of community seed banks or seed-sharing networks. One example is Navdanya in Uttarakhand which has also set up a learning centre called Bija Vidyapeeth on its organic farm. Another is Save Our Rice Campaign active in the four states of Kerala, Tamil Nadu, Karnataka and West Bengal. Then there are also organizers of seed-festivals, writers, and citizen campaigners. In April 2014, a national level Bharat Beej Swaraj Manch (India Seed Sovereignty Alliance) was formed with 100 dedicated seed committees from 18 states of India.

And of course, millions of small farmers all over the country (especially women farmers) and farm families who remain largely unnamed and unnoticed, have been a vital part of this movement by keeping alive the culture of seed-saving and growing local varieties. It is from these farmers that the renowned seed savers have been able to collect their seeds. With new policies and the proliferation of market forces, this scenario is changing, but even now there are pockets of traditional farmer families and individuals where these practices and varieties prevail, especially amongst the older farmers!

Why bother?

The age-old interaction between farmer and crop has led to the evolution of seed varieties with different traits like local ecological suitability, micronutrients, medicinal property, pest-tolerance and in some cases even aesthetic appeal. Such diversity becomes particularly important for food security in the present environment of climate change and associated unpredictable and shifting rainfall patterns and seasons. It is important not just to keep this diversity alive, but also accessible to the local small farmer.

As we saw, this free flow of seeds is threatened. There has been a sharp decline in the diversity of traditional varieties, which were best suited to local contexts. Now for a long time, policies and processes have pushed and changed agriculture in a direction where a few hybrid varieties of a few crops (which have to be bought afresh every year for best results) have replaced the highly diverse and numerous local varieties. There is then the imminent threat of criminalizing the sale of seeds by farmers, if the Seeds Bill comes in force. In such a scenario the entire seed market will be controlled by private players. Already, the top three agricultural biotechnology corporations – Monsanto, DuPont, and Syngenta – control 53 percent of the global commercial seed market. To add confusion to all these threats there is the dimension of intellectual property rights over seed varieties which comes with multiple interpretations

and is against the principles of many farmer groups that view seeds as a community heritage. Corporations like Monsanto have taken 1500 patents on Climate Resilient crops.

For Indian farmers to remain seed-secure and debt-free, a free exchange of different seed varieties becomes crucial to counter the monopolies of seed-control. In 2015 in Chandigarh, members of the Bharat Beej Swaraj Manch pledged to regenerate and widely share the enormously rich diversity of traditional crops and crop varieties in India as a collective open-source heritage belonging to all, free of any private/corporate Intellectual Property Rights. An Open letter to Narendra Modi and Barack Obama (by citizens of India and US), also gives out the message: Life is not an invention, biopiracy is not an innovation, and freedom to save seeds is a fundamental right. Food sovereignty is the only way out.

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Excerpts of Open letter³ written by Vijay Jardhari of Beej Bachao Andolan to the Prime Minister

"Here in the mountains, the climate is far from fine. We are shivering in the month of Chaita (Mar-Apr). Badrinath, Kedarnath, Gangotri and Yamnotri, along with other hills, are covered with unseasonal snow. Agriculture and farming is far from fine. While in some places the rabi sowing could not take place right after the monsoons, because of the drought, now there is heavy rainfall and snow."

"I remember how 25-30 years ago our country used to have six seasons vasant, grisham, varshat, shishir, hemant and sharad, in a pre-determined sequence. Farmers used to sow seeds at a fixed time, carry out nirai-gudai and harvest at a fixed time. Wind, water, weather was not an obstruction. The courtyard of every farmer's homestead used to be filled with livestock (cow, calf, ox, and buffalo). Our water sources (chaal, khaal, talab, bawadiyaan) were brimming with water. The sweet sound of ringing bells tied around the neck of the livestock used to echo in villages. The village forests used to provide sufficient fodder for livestock as well as wood for farming implements... The farms, barns and house were filled with cereals, pulses, tilhan, vegetables and greens. All this nutritive stuff used to keep people healthy and happy. Disease used to stay away. This is why the Father of the nation, Mahatma Gandhi, used to speak about taking Gram Swaraj forward."

3. The original Hindi letter can be found at http://vikalpsangam.org/static/media/uploads/Food%20and%20water/vijayji_10_page_letterpm.pdf and the English translation can be found at <http://www.ecologise.in/wp-content/uploads/2015/11/Vijay-Jardhari-Letter-eng.pdf>. Translation is by Shiba Desor.

But today, there's bad news coming from our villages. Neither farm-saved seed remains, nor manure, nor oxen nor diversity in food crops. Instead of the bells of livestock, we hear the cacophony of tractors. Instead of manure and compost, we have chemical fertilizers and oil, making our eyes water. Even apart from the increased weather unpredictability, there is a cascade of troubles on the farmer. You must have heard how more than 3 lakh farmers have committed suicides. But they are only remembered during the elections..."

*"Seed is an important element of creation. It hasn't been made by a scientist or an entrepreneur in a laboratory. Thousands of years ago, ancestors of farmers collected seeds from the **jungles** by picking and choosing, and like their own heirs, propagated different crop varieties. These are the same seeds that scientists have researched on to create new seeds.... How unfair it is that farming is done by farmer but the seed has to be bought from MNCs! This is a huge betrayal of the farmer."*

"But diversion of fertile land linked directly to farmers' livelihoods for huge malls, high-tech cities like Lavasa, FDI (Foreign Direct Investment) and SEZ (Special Economic Zones) of national and foreign Multi National Companies is not simply an injustice, but a grave one. Representatives of the government argue that farmers will get good compensation. This exchange of land for money reminds one of the saying among the mountain-dwelling people about 'selling the boat for buying a nose-ring'. Fertile land is immovable property. How many days will the money be good for? What of our next generation..."

"... the Indian government, under pressure from American companies, is going to introduce Genetically Modified seeds. As per presently available information, GM technology will be detrimental to the traditional seed and cause contamination of traditional varieties"

"...the truth is that the small clerk has become an officer, the small shopkeeper an industrialist, the small town has become a city, now increasingly using high-technology. But why are the villages going barren? Why are farmers committing suicide? And why is the new generation leaving agriculture and migrating to cities to work as laborers..."

"Our planners have chosen the Western model of industrial, urban development. By choosing the American agricultural model and increasing the yield of wheat and rice, it did win praise, but in turn we lost our biodiversity. We have also lost our food biodiversity; as a consequence, the common man is suffering from malnutrition and dangerous diseases. How clever are these multinational companies! First they bring chemical fertilizers, pesticides and herbicides. When chemicals make us sick with toxic food, they speak about keeping good health with life protecting medicines. In the name of development, government is strengthening their business."

"The entire balance of seasons has gotten disrupted. The rich developed countries or the people in big cities of our

own country disrupt the climate and the negative impacts are borne by poor farmers. Can there be graver injustice? What court should we go to?"

"...the greed of mono-cropping, business and cash cropping has made farming as a way of life, barren. Sometimes it feels like it has been a deliberate trick in the name of agricultural development, for industry to take over farming. The farmer suicides are the consequence of this."

"But Honorable sir, remember one thing; please understand that one day the traditional knowledge and traditional biodiversity will be of value. We are hopeful about sustainable farming, nutritious food, clean air and water but worried about the destructive urban development and the oppressive culture which has threatened our old world of dark monsoon clouds and a verdant earth."

We hope that you will understand the feelings of farmers."



3. Guest Column

What's in your shopping basket?

(Lessons from the west)

According to the World Food Programme, 842 million people in the world do not have enough to eat with 3.1 million child deaths annually due to malnutrition. And yet, there are more than 1 billion overweight adults globally, with at least 300 million of them clinically obese. *Diabetes Atlas* estimates that every 6 seconds a person dies from diabetes (5.0 million deaths), with a large proportion of that due to Diabetes Type 2.

According to **Compassion in World Farming**, we produce enough food globally to feed between 10-12 billion people and yet 30% of the food we produce is wasted, much of which never even meets the customers lips. It is undeniable: our global food system is – broadly speaking – skewed, unfair and inefficient. Colin Tudge, founder of the Campaign for Real Farming⁴, talks of how we need an Agrarian Renaissance: a need to radically reconstruct the way our global, regional and local food systems operate. I think I'd have to agree with him. That said, this seismic restructuring is no mean feat.

The UK dairy industry is a microcosm of our wider, global food system. Local, small scale producers simply cannot compete with large-scale, often unsustainable oligopolies

4. See: <http://www.campaignforrealfarming.org/>

which dominate the market. Subsidies and farm gate prices favor the 'big boys' and Schumacher's 'small is beautiful' vision barely gets a look in. Over 95% of small scale dairies have closed in the past 50 years because farmers simply cannot sell their milk for more than the cost of production. Coupled with the increase of robotic milking, less and less people are working on the land and many of the traditional dairy farming stories and practices are being lost. Mega-dairies are on the increase in the UK and to me, represent the pervasive neo-liberal paradigm of 'every man for himself'. Concepts like milk unions, cooperatives and communities are few and far between. Today milk is cheaper than bottled water in the UK, and with our insatiable demand for cheap food, and cheap milk, invariably comes poor welfare standards for not only the animals, but for the farmers also. In 1994 The Milking Marketing Board was disbanded. Many farmers have described to me that almost overnight they were pitted against one another to produce their milk as cheaply as possible and ensure supermarkets and other retailers would buy their milk. The board, although it was far from perfect, still allowed for each farmer to get a fixed price for their milk and ensured security of payment. However, when it was disbanded and in flooded Thatcher-esque, neo-liberal narratives, many dairy farmers were unable to compete.

For me the UK dairy industry represents how little we know about our food, and the political, economic and ecological processes involved in producing it. As this gap widens between our lack of knowledge and connection towards our food, the less we are able to make informed choices and take responsibility as citizens (not consumers) about what we choose to put into our shopping basket. The business model of the industrialized food system relies on customers being disconnected from, and anonymous to, the people that provide their food: **efficiency over connection, cheapness over histories and stories**. Our biographical landscapes are being lost in the UK, in place of highly efficient, machine based systems.

In an attempt to open up dialogue about our connection with food, eighteen months ago I began living with cows and learning how to milk them. In April this year I created **The Milking Parlour**: a public exhibition which explored some of the values and connections we hold towards milk; a substance we drink on a daily basis here in the UK, but often given little thought to. I slept with two pure bred Guernsey cows for four nights and five days in the centre of Bristol: a city in the South West of England and the 2015 European Green Capital City. The Milking Parlour was commissioned by Cape Farewell, a London based arts organization campaigning about climate change but through the arts. We transformed

a busy city square, which is next to one of the largest science education centers in the South West and set up a temporary milking parlour, accompanied by a cow shed and somewhere for myself and the cow stewards to sleep. The motivation behind bringing two cows totally out of their usual context, i.e. their farm just outside of Bristol, provided a real contrast to show how rare it is we get to meet the animals, and the farmers who produce our food.

One of my greatest concerns was that people would not care and would not engage with the issues being discussed during the show. But my concerns were never realized. Over the course of the five days, an estimated 5,000 people came down and the conversations and interest people had in 'finding solutions' was so inspiring. Our current capitalist system, I believe, wants us to feel powerlessness and apathetic to change – as if governments and corporations are immovable monoliths, but this is simply not true. The only thing constant in the world is change, and living the democracies which we do, we need to fight for a food system we wish to be a part of. Countless numbers of people (many of whom were not necessarily 'greenies') felt frustrated and 'wanted to do something' about the inequalities not only with the UK dairy industry, but more broadly vehemently wanted to find solutions to the challenges of biodiversity loss, climate change, social inequality, etc.; and all the other problems industrialized food and dairy production brings.

Working as Co-Director for **This is Rubbish**: a civil-society led organization campaigning about the preventable scale of food waste happening in the UK, I believe two great means for actually effecting positive change and making our food system fairer, more transparent and socially and ecologically sustainable is via policy change and legislation coupled with engagement, and pressure on corporations from civil society. It feels like the two are almost redundant without each other. We cannot simply wait for food retailers and corporations to change: they simply won't without 'consumer demand'. Food is deeply political and there is no denying the fact that when we go to the supermarkets, what we put into our shopping trolley, whether we like it or not, it is a political choice. The problem is, if we are not careful, soon that choice could well be taken away from us leaving us with little beyond other than what is on offer.

We have great agency to shape and change our food system: to create one which positively serves people and planet. I have always been dubious as to how 'art' can be a channel for discussing environmental issues, but I am a convert: you have to engage people through personal experience, and through joy. Ranting down someone's throat with climate change statistics and forecasting the apocalypse simply just adds to our impending

feeling of planter doom. The Milking Parlour taught me about the importance of civil-society led public art and campaigning, as well as the importance of both the individual and the collective to never stop informing oneself and asking questions and challenging the status quo. If we are to truly take part in democracy, then we absolutely must ask for corporate social responsibility (not the green-washing nonsense), but for organizations to be truly transparent and accountable to the people, to us, especially given that our food choices dramatically shape the future of our planet.

Visit The Milking Parlour

Visit Stop the Rot (This is Rubbish food-waste project)

Author: Nessie Reid(nessiereid@gmail.com), works at Cape Farewell's Rural Artist in Residence.

Website: www.themilkingparlour.org

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days before harela people plant in a *pate* (in their houses) all the seeds that have cultivated in this season (7-8), and they are harvested on Harela and offered to each other along with some good wishes.

Call to certain academics

What is there on the banks of these rivers, doctor?

Take out your binoculars

And your spectacles

Look if you can

Five hundred flowers

From five hundred different types of potato

Grow on the terraces

Above abysses

That your eyes don't reach.

Those five hundred flowers

Are my brain.

My flesh

.....José María Arguedas

4. Musings



Harela

jee raya, jag raya (May you live long, May you stay well)
yo dinbar bhentne raya (May we keep meeting on this day)
dubak jas jad haijou (May your roots spread like the doob grass)

patejas paul haijou (May you progress as fast as pate⁵)

syalak jas buddhi haijou (May you be as sharp as a fox)
baghak jas tran haijou (May your spirit be as strong as that of a tiger)

himalay main hun hun tak (Till there is snow in Himalayas)

ganga main pan chantak (Till there is water in Ganga)

harela tour manate rayaa (May we all celebrate Harela)

Contributor: Asha Pande. Asha is from Annapurna village in Uttarakhand. For more information contact Neema Pathak (neema.pathak@gmail.com).

Note: Harela is a special festival in Kumaon (Uttarakhand), marking the time when all the agricultural activities of chaumasa are over. Transplantation of rice gets over by this day. Ten

5. Signs of Hope

The Kedia experiment on ecological farming

It was a hot and humid day of August, 2013 when two farmers of Kedia, a small village of 94 farmer families located in Bihar's south-eastern Jamui district, set off to participate in a farmers' consultation on the state of farming and farmers at Paro Chowk, which is around a kilometer from their village. The consultation began with a forum theatre in which the players narrated the story of a self-dependent farmer who got trapped in the chemical farming system and destroyed his soil, cattle, water bodies and the agro-biodiversity. 72-year-old Anachchh Yadav of Kedia could relate easily to the story 'as it reflected his own experience'. During the ensuing discussion he rose to say – "Your story is perfectly right and we acknowledge that due to excessive use of chemicals our agriculture is in deep crisis. We know the problems. We also know that we should stop using chemicals. But we do not know **how** to do that. Can you people help us with that?"

5. Pate is a kind of grass that sprouts the very next day after its seeds are thrown...irrespective of where they are thrown.

For the organizers of the consultation, this was not an isolated response. Over 5000 farmers who participated in 24 such consultations, organized by the campaigners of Greenpeace India's Living Soils team, echoed this question. Some farmers were aware that adding biomass-based fertilizers and reducing chemicals is the only way to rejuvenate the soil and farm successfully, but due to lack of biomass they were unable to do that. They also shared that most of the farmers were debt-ridden and could not invest much in the infrastructure needed for organic farming.

The consultations proved useful for the Living Soils team in identifying the challenges in adopting ecological methods of farming such as:

- Biomass availability
- Comprehensive ecological agriculture knowledge system
- Finance for the required infrastructure
- Collectivization and empowerment of farmers, especially the women farmers

The Living Soils team then organized a series of brainstorming sessions with the farmers, government officials, civil society groups, and academicians and interacted with individual farmers and expert groups who have been working on improving the soil health and the farm economy by adopting eco-agricultural practices. A biomass-based ecological farming model was evolved after this exercise.

About Bihar Living Soils Village Model (BLS)

BLS was initiated in April 2014 to find solutions for ecological and economic issues with the farming practices. The model tries to rejuvenate the biodiversity and ecological components of agriculture by means of knowledge co-creation and empowerment of farmers, finding new and alternative means of eco-fertilization, biomass conservation & quality enhancement and connecting the growers with the consumers for a fair trade paradigm and safe food availability for the economically weaker sections of the society.

The **Bihar Living Soils Village Model** that has emerged is an intervention of three stake holders:

1. The farmers
2. Bihar government departments
3. Greenpeace India

The farmers are the key implementers of the model in this tripod arrangement. The government departments facilitate the subsidy transfer from their schemes.

Greenpeace India's role is to facilitate the knowledge co-creation process and collectivization of farmers.

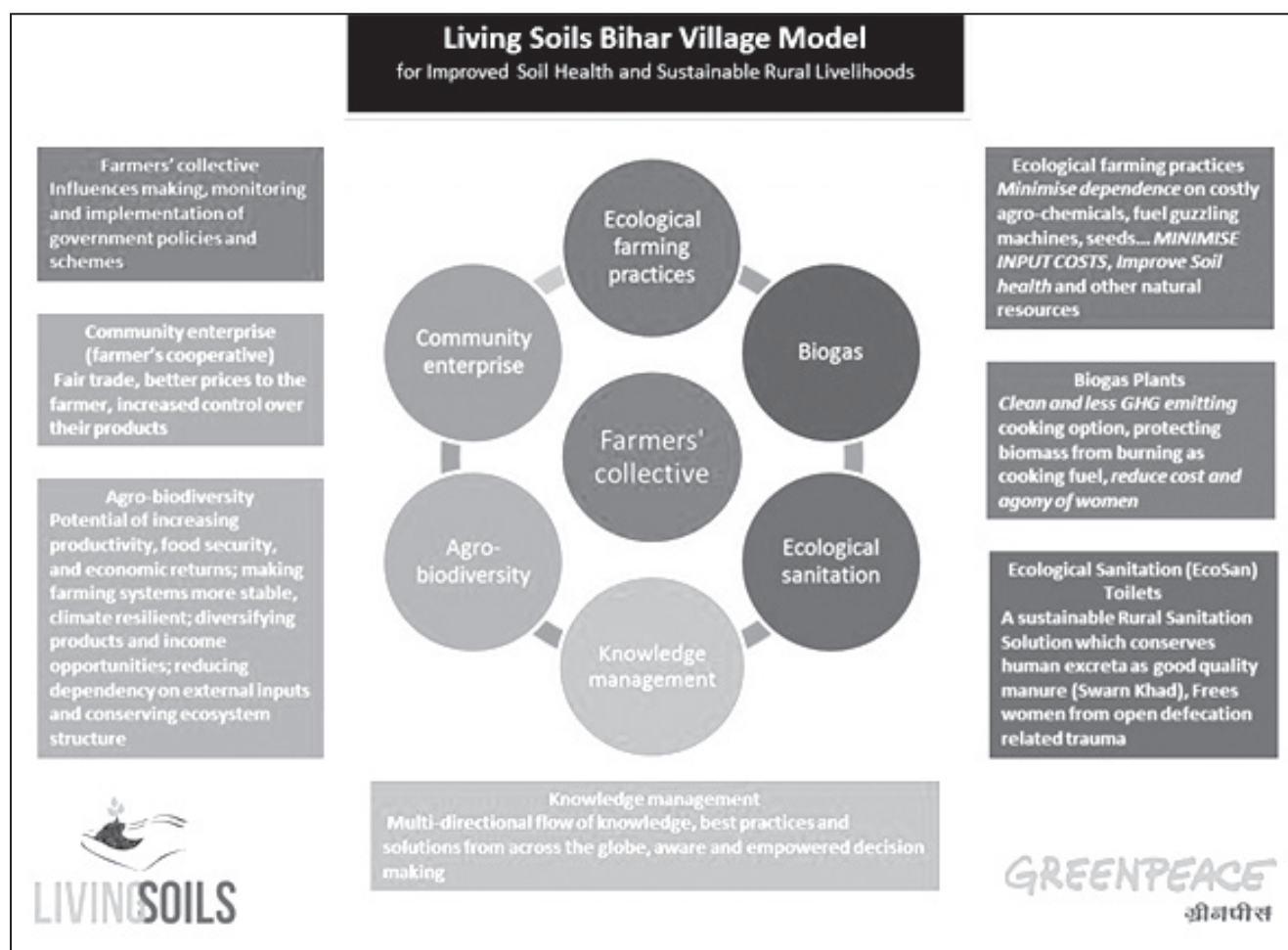
To address the above mentioned issues, it was decided that farmers will organize themselves in order to demand government support for creating the infrastructure for biomass conservation and enhancement. The agriculture department will install biogas plants, construct ecological sanitation toilets and build *pukka*⁶ cattle sheds to conserve almost all the biomass residues produced in the village. It was also decided that to bring positive change in the mindset of farmers and on-the-ground practices, the model would focus on six key elements [see chart on next page].

This model was introduced in Kedia in April 2014. Since the farmers had participated in the above process, they were well aware about the model, and hence the pace of implementation was quite high. In the first lot 10 farmers applied for the government subsidy for construction of vermi-composting units. Though it was a hectic process and the concerned department officials were a little hostile, 60 such units were constructed due to strong collective demand from the farmers.

Meanwhile, the Living Soils (LS) team introduced liquid manure-cum-plant protection solution, Amrit Pani, to the farmers. The solution worked very well and complemented the awareness generated during the series of interactive sessions with the farmers and resulted in a 50% decline in chemical fertilizer use in paddy cultivation. Chemical pesticides were rarely used. During the Rabi season, Amrit Pani was produced and used in huge quantities while the first lot of vermi-compost reached the soil. Human and cattle urine were utilized as the substitute for chemical fertilizers such as urea. More than 10 farmers decided to devote a sizable portion of their land for the production of ecological fertilizers and plant protection solutions. Their harvest was comparable to that of those who used chemicals in their fields. The use of agro-chemicals further dropped. By the end of the fiscal year, the village had 162 units producing vermi-compost with government support. Eleven biogas plants were also installed.

During the lean season in 2015, the LS team ensured that farmers kept their cattle on their farms so that cattle excreta are deposited in the soil. Earlier, this was practiced by every farmer but was forgotten in the last 40-50 years of chemical promotion. This practice itself helped the process of soil rejuvenation tremendously and the soil was ready for paddy cultivation. In the following season, the use of chemical fertilizers dropped by

6. i.e. permanent.



70-75% and not a drop of pesticide was applied. And the most amazing fact was that there was no significant drop in the yields!

During the next Rabi season, several other plant nutrition and protection solutions made from locally available plant leaves, tobacco-dust, cattle urine and dung were introduced. These not only reduced the chemical usage and farming input costs but significantly improved the soil ecology - a step towards climate resilience as well.

Farmers are satisfied and are successively committing more farmlands for ecological farming practices. The biodiversity in the village has been steadily improving. Now the local administration is not only accepting the model as its own but acknowledging the contributions of farmers and Greenpeace India. In a meeting with Ravi Chellam (Greenpeace India Executive Director) and Ashish Kothari (noted environmentalist), the Block Agriculture Officer of Barhat, Mohammad Haroun Rasheed shared that it was the awareness generated by the Kedia Village Model that was responsible for the reduced consumption of urea in Jamui district – it has dropped by 24%!

Now the farmers of Kedia have created a unique place for themselves by shifting from chemical-based farming

to ecological farming. They have stopped using chemical pesticides completely and reduced their chemical fertilizer usage by 70%. As a result they are saving over 30-35% on farm inputs. With the increased amount of biomass in the soil, the water retention capacity is swiftly improving and the soil temperature is moderate. Hence the crops are more resilient to erratic temperature and rainfall. Farmers are happy that they decided to move away from the agro-chemical trap.

In the process of going the ecological way, the three legs of the tripod have had to re-negotiate their positions among themselves, and this is helping them learn new skills of dialoguing, not only among themselves but with nature at large and its various players. It is a long journey indeed!

Author: Ishteyaque Ahmed (ishteyaque.ahmed@greenpeace.org) is a Food for Life campaigner with Greenpeace India since 2013. He has worked with organizations like Vividhara, Beej Bachao Andolan, SRUTI, Pravah and Punashca. Active in theatre since 1984. One of the key persons in developing Bihar Living Soils village Model in Kedia village of Jamui district, Bihar.

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6. People in Profile

From farmland to school textbooks, Natabar Sarangi sows seeds of success

Organic farming techniques of Natabar Sarangi, a noted farmer and seed collector of the Cuttack district (Odisha), have found place in Class IX curriculum of Andhra Pradesh and Telangana.

Natabar's techniques have been taken as an example in 'Indian Agriculture' subject of Social Studies books of the two States where students are now studying how to grow high-yielding indigenous varieties of paddy without using chemical fertilizers and pesticide.

Natabar, an octogenarian, is a resident of Narisho village in Niali. A retired school teacher, Natabar has been practicing organic farming for more than a decade and has been able to conserve more than 400 varieties of indigenous paddy seeds which are now on the verge of extinction.

He says some of his natural varieties yield over 20 quintals per acre, much higher than the so-called 'high-yielding' varieties that farmers generally grow using chemical fertilizers and pesticides. And he spends much less by using organic compost and natural pesticides. The main ingredients of his bio-fertilizer are cow dung, waste vegetables, fruits and greens which are available daily free of cost.



Natabar Sarangi in his paddy field at Narisho village

Earlier, Natabar used chemical fertilizers and pesticides after being lured by some officials and traders. However, one of his laborers engaged in sprinkling Carbofuran (a highly toxic pesticide) fainted within an hour of application of the chemical. He also found scores of dead snakes, snails, frogs and earthworms in his field and realized how these chemicals poisoned the natural system. Natabar then switched to natural farming. So

far, Natabar has been able to preserve more than 400 varieties of paddy seeds which he grew in his own five acres of land and in the vicinity.

Natabar says the seeds, which are pest resilient, require less water and can survive in adverse weather condition and are suitable for organic farming. Moreover, the varieties of paddy produced from indigenous seeds through organic farming have a special taste, aroma and high nutritional value. Many of these seeds are also resistant to drought, flood and saline water. Using these indigenous seeds considerably decreases the cost of farming too, he says.

Currently, Natabar is producing traditional seeds on about 12 acres of land at his village for demonstration purpose. Natabar, who has set up 'Desi Dhana Chasa Gabesana Kendra' (a research centre) near Kundhei Canal side in Niali, also imparts training to farmers on techniques of organic farming.

Source: <http://www.newindianexpress.com/states/odisha/From-farmland-to-school-textbooks-Natabar-Sarangi-sows-seeds-of-success/2016/05/18/article3438621.ece>



7. State in Profile

Organic Sikkim: "Ahimsa" in the Fields

Chandra Prakash Ghimeray walks down his terraced farm and points to large cardamom growing on the far edge. We are in the village of Ranka in East Sikkim, a state that is the largest producer of large cardamom in India. Last year, Sikkim made world headlines by announcing it was the first Indian state to transition to fully organic agriculture. Ghimeray is hoping to ride the wave of economic possibilities of "Organic Sikkim," where this coveted spice is a key value-added crop. Ghimeray has leased three acres of land, where he is growing a medley of fruits and vegetables. He transitioned his farm to fully organic two years ago. "My production is still not optimum, but it will be in a year's time. My wife and I are working very hard, and the government is supporting us with trainings and exposure visits," he says.

"This is ahimsa cultivation. When you are farming organically, you are not killing your Mother Earth," said Khorlo Bhutia, the spirited Secretary of the State for Agriculture of Sikkim. In Sikkim, tourism is bread and



Chandra Prakash Ghimeray tends to his grove of large cardamom

butter for many and is a mainstay of the economy. "Our population is around 6 lakhs. And last year we had nearly 11 lakhs tourists visiting Sikkim," said Bhutia. "The organic state transition is our chief minister's long-term view to generate employment, increase tourism and have a value addition component to Sikkim."

This dynamic "Organic Sikkim" vision was spearheaded by one of India's longest-serving chief ministers, Pawan Chamling, when a bold declaration was made in the state's legislative assembly in 2003. In January 2016, Prime Minister Narendra Modi made a visit to inaugurate Sikkim Organic Festival and praised the state's trailblazing journey in embracing a holistic agricultural model and stewarding its environment.

While some may view Sikkim's chief minister as the rare green politician, others note he has a mixed record. Chamling is also infamous for the contentious expansion of hydroelectric dam projects on the Teesta River, a move that has been criticized by Lepcha and Bhutia tribes for its adverse impact on the ecology, as well as their cultural and sacred sites.

It took Sikkim 12 years to transition to an organic state. In the first phase, that spanned seven years, the government launched state-wide awareness programs, building the capacity of its field officers on organic farming practices and developing and documenting indigenous technical knowledge on bio fertilizers and pesticides. "We set up livelihood schools for organic farming practices, soil-testing laboratories and integrated pest management mobiles. We also created seed processing units," shared Bhutia. Over time, the state government eliminated subsidies for chemical fertilizers. Bhutia notes that today Sikkim is producing 80% of its organic seed needs and has created organic farming practices for around 32 crops. In 2010, the implementation of the organic

transition began as per guidelines laid down by National Programme for Organic Production.

While transitioning to an organic state was no small feat, the task was easier given the size of the state and agricultural land. Sikkim is one of India's smallest states, second only to Goa, and has the smallest population. According to the government of Sikkim (GOS), farmers in Sikkim also used much lesser quantities of chemicals compared to other states. So far, around 187 farmer groups have been certified organic, where the state government has footed the bill for the certification costs.



A farmer selling her produce at new organic farmers market in Gangtok

Anti-dam activist, Dawa Lepcha, who resides in North Sikkim, views the transition news with cautious optimism. "We are happy about the organic effort. However, at the grassroots level, things are superficial. My name is added to the list of organic farmers, but I have never been consulted. There are people in my village with no land papers, but their names have been included as organic farmers. The implementation seems haphazard," he observed. Lepcha is also concerned about absence of market linkages given the mountainous terrain and remoteness of many rural communities. He also points out that Sikkim is not food sufficient given a large floating population of migrants, tourists and the army. Non-organic produce from West Bengal fills a large gap in the state's food production.

This year, a new organic farmers market opened in Gangtok. Jashoda Tiwari, a farmer from South Sikkim, has been selling fresh veggies and greens in one of the stalls for several weeks. "My farm transitioned to organic two years ago," she says. "My production is still low, but I am happy that Sikkim turned organic. We won't fall sick from eating food with chemicals," she says. When asked if farmers are tempted to use chemical fertilizers on the

sly, she shakes her head. Flouting the rules can lead to consequences. In 2014, the state enacted the Sikkim Agricultural, Horticultural Inputs and Livestock Feed Regulations Act that criminalises sale, export or use of chemical pesticides and fertilizers.

While Laal Bazaar, the large, lively fruit and vegetable market in Gangtok, is teeming with locals, the organic market a stone's throw away has few takers. Majority of the produce in Laal Bazaar comes from Siliguri in West Bengal and is inorganic. But it's also cheaper than the prices of the organic market, and it could be a while for Gangtok residents to warm up to organic produce prices.

Besides the tourism leverage, the Sikkim government is priming four key crops for organic export, namely ginger, turmeric, buckwheat and its famed large cardamom. But transportation and scaling production, marketing and nailing competitive prices will pose as formidable challenges. "We have clustered areas for growing these five crops, which will be grown by [farmer] grower groups. We are trying to create an organic value linked chain for these groups," said Dr. Anbalagan, Executive Director of Sikkim Organic Mission.

As farmers in Sikkim plant the seeds of a new paradigm of farming, some ripple effects of "Organic Sikkim" seem to be in motion: The chief minister of Meghalaya has expressed interest in scaling organic farming in the state; the central government is promoting various initiatives to promote sustainable agriculture. "Already the government of India has launched a scheme, Organic Value Chain Management for North Eastern states," said Dr. Anbalagan. "We have done what others have not ventured into. Now we also need support to take this forward."

Author: Rucha Chitnis (rucha.chitnis@gmail.com) is a photojournalist and founder of Changing the Narrative, a storytelling project of alternatives and counter-narratives of women, indigenous communities and social movements.



8. Book Review

Title: Learning at Bodhshala, Re-orienting the school to its community

Author: Rajan Venkatesh,

Publisher: Other India Press

According to Rajan Venkatesh, the author of 'Learning at Bodhshala', school should be a place for discovering the right way of living. Without such investigation, it is dead. He uses the word education 'in its truest sense of encompassing ethics, understanding truth and falsehood, right and wrong.'

The book, published in 2015 by Other India Press, documents the philosophy and activities of Bodhshala, a learning centre in rural Tehri-Garhwal in Uttarakhand, from first-hand experience of the author, who ran the school from June 2008 to March 2012.

The students here participated in growing crops and saving seeds, grinding millets and corn in the water-mill, and making food-products for self-consumption and for local market. By dealing with growing and cooking food in day-to-day lives, the teachers and students together dealt with questions of natural sciences, history, geography, economics, language and health.

A characteristic of the approach was that instead of negation of traditional language, it encouraged learning from the local environment.

The book details a number of 'experiments' relating food to economics. One of these was when students decided to make biscuits. They calculated how much it would cost them to make biscuits and found out that buying the same quantity as packets from market was much much cheaper. The reason, they discovered, was the replacement of some key ingredients with inferior or unhealthier substitutes, for instance, ghee is replaced with hydrogenated vegetable oil and the percentage of refined flour (or maida) is increased. Another such example was when they started growing haldi (turmeric). Like detectives, they carried out a fact-finding mission about how haldi powder was cheaper than 'sabut' – (meaning whole or unbroken) haldi because of adulteration of haldi powder available in market with wheat flour, corn flour or chemicals.

A rationale behind such investigations was the belief that 'togetherness of food and health helps us see the togetherness of work and responsibility'. The author reasoned that if such an approach is used, food produced and consumed locally will be the best in quality and

price, a model which encourages localization and social responsibility.

Many other interesting endeavors are also described in the book, for instance, making chachi ka namak (a seasoning salt with 8 spices and condiments) and home-made potato chips. One of the projects also involved bringing out a compilation on local cuisine which talked about not just local recipes but also local agriculture, food and health, properties of different food items and techniques of preparation.

Beyond food, such experiments extended to other arenas of life, like preparing an herbal *dant-manjan* (toothpaste), creating hand-made paper through recycling and making their own soap. The recipes for making all these products are shared in the book consciously, with respect for preserving it as a part of the common heritage.

Throughout the book, the author discusses the underlying philosophies of what they were trying to do. He firmly insists that "participation in an alternate economic system is an inseparable part of alternate education...While the modern system is destroying local communities; the alternate economic system would promote and support self-sufficient communities. In this way, one may explore what is right livelihood at an individual and family level, and its relationship with justice, social harmony, ecological harmony and psychological fulfillment."

Although the school is not running anymore, the documentation of what the children and teachers tried to work towards makes a very interesting reading for anyone interested in food, education or even life in general.

Author: Shiba Desor (desor.shiba@gmail.com).

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A new Kalpavriksh publication for young readers
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