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ECOLOGIC

A WOTR NEWSLETTER



Tackling the triple threats...

Scenario 1: Food prices have nearly doubled between 2004 and 2008 and continue to remain high. Prices of staples like wheat, rice and maize doubled and tripled in the last five years. While a range of factors have contributed to food price rises, financial speculation in agricultural commodities, believe many, has magnified market volatility.

Scenario 2: Biological diversity -- crop diversity -- the biological foundation of agriculture, the raw material of evolution in our agricultural crops is crumbling; A mass extinction is underway in our fields, in our agricultural system. And that this mass extinction is taking place with very few people noticing and even fewer caring.

Scenario 3: Climate change is no longer an issue for the distant future. The impacts of higher temperatures, more variable precipitation, more extreme weather events, that are felt world over and more particularly in South Asia will continue to intensify.

With a combination of these 3 scenarios – volatile markets and escalating food prices, a fast depleting bio-diversity, and the almost-upon-us climate change, agriculture looks to be on the brink of disaster. What then are our options?

Our story from Damarigedda in one such story which promises to sustainably adapt where 14 farmers have taken up SRI method for their rice cultivation. In Sattechiwadi, a combination of eco-systemic solutions, are proving that though time is running out fast, we might still be able to back-pedal. Balu's concern about the depleting bio-diversity and his efforts to shore up a crumbling foundation is just the beginning. And the questions on Alternate Energy raises questions that will not allow us to be smug about Renewable Energy being a always-there-backup.

There is reason why we picked these stories from our Watershed villages to share. Real-life stories. Because we believe that in the context of the Deadly Trio, just development is not enough. Even Sustainable Development is not enough. People will anyway Adapt to Climate Change. But who and how? What perhaps could lead us through the current chaos is Adaptive Sustainable Development... and these stories are glimpses of what could be made possible.

Radha Kunke

Sustainability Quotient

Mihir Mathur



Have you ever thought that we all are walking talking forms of sunlight? Yes, sunlight. We are all derivatives of the earth's primary source of energy, the sun. Each day the earth receives 120,000 terawatts of sunlight; world wide, our energy consumption is .012% of that number. But instead of directly consuming this abundance of sunlight, we use its dirty ancient remains, fossil fuels. Fossil fuel is nothing but buried sunshine; hence it would be fair to say that our lives are now derivatives of ancient sunlight. The sunlight that fell on earth millions and millions of years ago converted to biomass and then to fossil fuels after various forms of chemical reaction. It is now our primary energy source, but could well turn out to be the nemesis of our runaway growth.

Using this finite source of energy we have created industrialized economies. The stock of this energy is dense and thick. But our rate of consumption is far outpacing its rate of regeneration. Globally we are consuming 500 years of photosynthetic energy (in form of oil) in a span of 12 months. Soon the past millennia of fossil fuel creation will run out, and with it the fuel itself.

Artificially capturing and storing sunlight is the next generation of thinking. But the idea that we can continue to live our lifestyles the way we currently do may be too good to be true. Solar energy has been proposed as a major piece of the renewable energy puzzle over the last few years, as the energy itself is renewable and virtually infinite. But how renewable is the means of processing that energy? That's where it gets complicated.

The resources required to capture and store solar energy are finite. The time frames over which they regenerate themselves are not useful for human consumption. We are going to run into a decline of production for some of the most critical resources required to maintain technological progress. Take Hafnium or Indium for example. They are required for manufacturing computer chips, solar-cells and LCDs. They are expected to

reach their peak production in 10 years. Silver, used in industrial catalysts and solar-cells, will run out in 15-20 years. Uranium, required for nuclear power-stations? 30-40 years. So, where will this leave us?

Peaking of minerals is going to be the major limiting factor for us towards developing alternate forms of energy, primarily solar power. World primary gold production peaked in 2001; Lead and Mercury production globally are in a decline as compared to their historical levels. It will be difficult and time-consuming for us to find substitutes for these precious metals. Precious because they are inseparably tied to not only our "growth" and "progress", but also simple technological functioning of our society.

"Renewable Energy", I hear someone say? Renewable forms of energy consume a lot of energy for their production and subsequent usage. Mining, manufacturing and transportation are energy intensive activities. They have a very high primary energy footprint. This means it's not always guaranteed that they will pay back the total energy consumed in their production. Mining and production of steel, aluminium, copper, zinc, lead, consume 34.18 EJ per ton - an equivalent of 5.88 billion barrels of oil. All these metals are of great significance to the energy industry. Their exploration and mining is heavily dependent on fossil fuels, primarily oil, for their mobility and transportation. It follows that when oil peaks, a mineral production peak may soon be on the way. Solar energy is renewable, are the means of producing and distribution so? Food for thought.

The serious limits on alternative forms of energy to become mainstream suggest an even more urgency to develop solar energy infrastructure before oil becomes prohibitively expensive. Where are we, as a society, on this?

Sam Jewler

Bio-Diversity for the People!

I first met Balu at the Eco-course in Darewadi, where he became inspired to write a book about his village and to catalogue its natural wonders for the purpose of preserving them. Last week I met him in his village, where he has come home to do field work for these projects.

I saw how serious he was when he came into the front room with a large plastic bag slung over his shoulder, plopped it down and began unpacking it. A few minutes later he was sitting on the floor in front of almost 100 jars of seeds and an array of bird feathers, snake skins, animal droppings, a book of dried plant specimens, and a bird's nest.

He had collected this natural treasure trove in just two months as part of WOTR's People's Biodiversity Register (PBR) program. To him these are more than curiosities – they tell the story of his village's traditional way of life, a lifestyle that in which people have always lived directly off the bounty of the land.

“Before going to the eco-course I thought PBR only dealt with wild flowers, fruits, and plants, but I learned it's about more, about lives of people in villages,” Balu said. “I realized that tradition, food, songs, and culture are integral parts of biodiversity, and that I should do PBR for my own village.”

The idea behind the People's Bio-Diversity Register (PBR) program is that what you don't know might kill you. As villagers (like urbanites) gradually mold to the contours of globalization, shifting to non-native cash crops, relying on motorized transportation and moving from natural to technological entertainment, they lose touch with the land and its offerings. For example, Balu said, his grandfather once told him that if you eat a jackfruit and then a betel nut leaf you might stop breathing and die. Information like this will be lost to the current and future generations if it's not deliberately handed down through methods like PBR.

Balu also told me a story about a time he went to the forest to



collect seeds. He came across an ivy he had never seen, but which he knew to have pods that irritate the skin. Just as he began to carefully collect some pods, a big gust of wind came and blew them all over his body. “I got a very good lesson from nature,” he said, “though it looks beautiful it has its strengths. I'll never forget that lesson.”

Balu is his village's naturalist, the link from their organic past to a future in which they will need to remember where they came from. “This is not about five years or ten years or fifteen years,” Balu says. “It should continue after me.”

“Everything I see is unsustainable; we must start preparing for the future right now.”

So shall you reap . . . !

Case-story: V.Rangaswamy, WOTR-AP
Edited by: Saisudha Hejmadi-Acharya



In the hot, dusty, water-starved regions of Mahboobnagar, Andhra Pradesh, is a small village whose rice fields stand shoulder-high. This is Damarigedda village. 14 farmers here stand with happy faces as they take away 31% more bags of rice than their neighbouring farmers.

These 14 farmers, like any other farmers of the area, face the daily anxieties of irrigating their thirsty fields, and find themselves having to choose between the short term benefits of expensive chemical fertilizers and pesticides, which while increasing yield, ravage the soil, and the long term benefits of more organic farming methods that might not necessarily provide the same high yields in the short term, but ensures healthier crops and more sustainable production. At the same time, they also face higher transportation, processing and input costs. This situation is not confined to this region. All over the world there are scientists, farmers, governmental, and non-governmental organizations scratching their heads hard, looking for solutions. Major crop failures are an almost annual occurrence now, as a result of overworked soil and climate destabilization. Food prices have now been rising for several years.

The Indian government is currently faced with a pretty sticky problem – how to make sure we have 2 million more tonnes of rice every year to ensure our food security. The high increases in yields during the Green Revolution are now showing signs of stagnation. The intensive use of irrigation, fertilizers and pesticides which at one point led to the increase in yield are now the cause of environmental degradation.

To begin with, the required increase in rice production is going to apply further pressure on an already dire water management situation. Rice production consumes more water than most other non-meat products. It takes three to four thousand litres of water to grow a single kilogram of rice! In India, where water is a scarce and precious resource, farmers are facing problems with irregular water supply and scarcity given increasingly unpredictable monsoons and salinisation of ground water. And although our rice productivity per hectare is extremely low we are still the largest consumers of water per capita (239 m³/capita/year) with regards to rice production.

So what then would be the solution for small and marginal

farmers? Can something be learnt from the Damarigadda farmers?

Rangaswamy and his team from WOTR identified 14 volunteer small and marginal farmers who were interested in experimenting with SRI (System of Rice Intensification) and helped them set up demo fields over a total of fourteen and a half acres. With the help of regular village level meetings in these areas to share the demo farmers' experiences, local farmers and villagers have become more interested to adopt the new techniques in their own farms. At these meetings, their neighbours are convinced when they listen to farmers like Laxmappa and Bheemappa, who have experimented with SRI on their fields, and are able share actual, hard data on the cost savings and increase in yield.

At the regular meetings set up by WOTR AP, the 14 SRI farmers are not just able to ask each other questions about the SRI experience, but can also boast to their neighbours about how while conventional Paddy cultivation needs 20 kilograms of seed per acre, their demo fields needed just 2 kilograms. In addition, the farmers were able to show an impressive

34% input cost savings on their demo fields, as they use organic compost and manure and reject expensive chemical fertilizers and pesticides. They reported finding the rice plants stronger, healthier, more resistant not just to insect activity, but also to the strong cyclonic gales that whip across the countryside. The rice plants had stronger tillers (stems) and larger root systems which were able to reach deeper into the soil, binding it to the earth and also reaching deeper into the soil for nutrients that their counterparts in the conventional paddy fields are not able to reach. The SRI rice plants were yielding between 55 to 60 straws with an average of 115 seeds per straw, whereas their conventional counterparts were yielding between 32 to 36 straws with an average of 45 seeds per straw. The soil is healthier, the plants are stronger, and the farmers are happier as they walk away with an average increase in rice harvest of 31%. And while there might be many sceptics out there, the farmers in Damargidda are pretty pleased, for really it is more how you sow than what you sow which determines how much you reap!

In SRI the saplings are carefully transplanted singly, rather than in clumps, at the age of 8 to 12 days, which is a quarter of the age of saplings being transplanted according to the conventional method. They need to be spaced wide apart (25cm X 25cm) in square pattern rather than in rows. This farmers are reluctant to adopt these steps, believing that saplings are not strong enough, but early and careful transplantation allows for better tillering, ensuring that the rice plants have stronger, denser tufts and multiple seed heads.

Farmers then have to weed their fields four times over the course of the season using a simple rotary hoe to aerate the soil and control the weeds. Weeding and aeration are required because in SRI there is no flooding of fields, where standing water usually works as weed control. The simple mechanical weeder churns the soil, removing the competition for the soil's nutrients and providing the young rice plant's roots with

additional oxygen and nitrogen due to the additional microbial activity. This new step, despite being particularly labour intensive has high payoffs, with an increase in yield of up to 2 tonnes/ha/weeding. In addition, organic compost or manure improves the soil's health and structure, provides the plant with more balanced nutrition and so, naturally, increases plant growth.

Finally, with SRI, rice fields require just enough water to keep the soil moist but not saturated, with intermittent drying periods for aerobic and anaerobic soil conditions to maintain healthy soil biota. With the introduction of the rotary weeder, and periods of intermittent wetting and drying, farmers benefits considerable water savings, sometimes up to 40%. This is a considerable benefit, especially in drought or water scarce areas.

Sattechiwadi Replenished the right way

Ankit Pahwa



As I descended from Pune-Nashik highway into Sattechiwadi (located at the foothills of Baleshwar-Sahyadri range), I had the distinct feeling of leaving the outer world. I thought about what would happen if one of us urbanites had to live here... no, I wouldn't be able to do it.

After going about 4 kilometres down I could see three micro-hamlets. They are for the three different tribes who populate Sattechiwadi – the Thakars, Bhills and Kolis – and there was a temple of *Mata Satteaai* (Goddess Satteaai), from where Sattechiwadi gets its name. Sattechiwadi is a tribal hamlet with 83 households. . Those 4 kilometres represented more than just physical distance - they were the distance between sustainability and consumerism, the distance between various half hearted government attempts to develop and their untouched beneficiaries. However, half the hike down and things start getting clearer. A picturesque landscape starts welcoming you, with a calm and soothing balance in place. You reach there and you see that change is a tangible attribute. After my welcome drink (I think it was made of sugar 'only'), I went for a walk and decided to sit under a tree in the School compound, as I could see a bunch of kids playing there. In the school there was a drinking water tank (Implemented under the WOTR-Arghyam drinking water and sanitation project). I decided to gulp some down. The moment I got up a couple of kids asked me, “how was the water?” I replied with a smile and we became instant friends.

Right next to the school stood an Ice-cream man, who rides his decrepit scooter 25 kilometres from Sangamner every day. The first question to surface from my head was, how would he manage to preserve the huge box of ice-creams if the scooter refused to start? As I contemplated possible answers he brought my question from theoretical to practical: “My scooter broke down,” he said.

“It's not a big deal,” he said. “Had it been some other hamlet across the mountain it would have been a problem, considering the distance from the road and the facilities around. But here I can retire easily as there are enough people to buy my goods, plus basic necessities like drinking water and toilets and it's a lot safer now as everyone has their productive shares



of work.”

Sattechiwadi didn't always have such amenities. It used to be a deserted village for almost 10 months per year, as the land was good for agriculture only during monsoon and a lot of people used to migrate to nearby towns in search of work. But since watershed development started here in 2005 the picture has changed.

Things were difficult in the past, when little to no water was available. The agriculture practised used to give produce hardly sufficient for individuals and hence there was absolutely no money being raised from the prime vocation.

Water – through WOTR – brought life to Sattechiwadi. The ground water level has increased and now the land is good for cash crops also; onions hanging from the roof indicate the same. Through the WOTR-

WASUNDHRA approach the Satteai village development committee was formed to look after the watershed development, while receiving active participation from women as well as men. Micro-enterprises of the Women's SHGs augment incomes of the families. Back-yard Poultry, leaf-plate making is now taken up in earnest by the women of the village. Hot-water chullahs ensure daily, personal hygiene and health to the village. The school sanitation program has ensured that the school is not a breeding ground of diseases. The hike up is not a difficult job anymore as almost 56 out of 83 households have motorbikes.

Now, Sattechiwadi has its own balance and everything is in place, the kids are at school and people in the farms. The happy faces around can tell you that water definitely gives life.



Volunteer speak

Marc Siepe



I joined WOTR after being an intern for Andheri-Hilfe, a donor NGO for WOTR, in Bonn, Germany where I had become aware of WOTR's work. My internship took place from March to June 2011 – the hottest season in India. I had flown to India three days before my work began to visit Mumbai: Too little time and too much struggle - as I learned quickly. For someone who travels to India for the first time, a week for acclimatization without sightseeing should be scheduled. I could not sleep and was not used to the heat and the food. Completely exhausted I arrived at the WOTR office in Pune on a Monday. I expected one or two weeks of introduction to get an overview of their work as I was used to it in Germany, but found myself in a more fast-paced work environment. I went to Ahmednagar to visit WOTR projects in the villages and get a closer insight into their work. It was a great experience but definitely too early for me to start such a trip. I became weaker and weaker and after the first field visits I was sick.

I rested for a few days and went back to Pune to look for a permanent accommodation. Before, I had slept in hotels, guesthouses and WOTR's Training-Center: Almost every day it was another place to sleep, more travelling and packing. I felt alone and everybody spoke Marathi around me. Most of the people in Ahmednagar could not speak a word of English. But once I settled down in Pune I could finally start to concentrate on work instead of asking myself where to find tap water or breakfast. I found friends here at work and I found a nice place to stay.

I worked in various fields during my time in Pune. I wrote some stories for the WOTR blog and a study about enterprise and leadership development for communications. Pune strengthened me and I went again to the

villages and conducted interviews. Sometimes a fourfold translation was necessary for that: I thought in German, asked in English, a colleague translated from English to Hindi and another colleague from a partner NGO converted the Hindi to Marathi, and then the whole process repeated in reverse. These trips to the villages were always really special. Travelling in overcrowded buses or at the backseat of a motorbike to the middle of nowhere to arrive in a completely different world where the people live in little hamlets dependent on agriculture – it's something one doesn't often get to experience. The villagers are so friendly and serve you fresh mangos, milk of their own buffalo and delicious lunches with vegetables from their own fields.

Back in Pune office I took care of WOTR's YouTube Channel. I edited videos with topics like "What is Watershed Development" or "Parabolic – a Sunshine Story". Because of my affinity to music I decided to create a music video promo for WOTR. For that I travelled again to the villages for filming, and edited the video. I named it "WOTR World". Besides I regularly worked on a final report for a finished drinking water project which also includes a study for possible improvements in implementing WOTR projects.

I am still studying political science but at WOTR I could expand my horizon in writing and filming for the public as well as working on studies and reports. If you decide to become a volunteer at WOTR you should know exactly what you want and how you can help. WOTR will not necessarily tell you these things. But working for WOTR means that you can be creative and that you have the freedom to be the creator of your own project. But first get used to incredible India.



Of Joys departed not to return, how painful the remembrance...

Dr. Rajnikant Arole

Famous Social activist, Magsaysay award winner and a friend of WOTR. His death marks the end of an era in the field of rural and public health. A legend in his own time, Dr. Rajnikant Arole's comprehensive rural health project (CRHP) has been adopted by the World Health Organisation (WHO) as a model for community-based public health initiative. He will be deeply missed by WOTR.

WOTR TRAININGS

Training cum Experience Sharing Workshop on Role and Functions of Panchayat Raj Institutions (PRI) in Village Development

Dates: 5–8 July 2011

Panchayat Raj Institutions (PRIs) play a pivotal role in the development programmes therefore it is necessary that they are adequately strengthened. The Central, State Governments and also international developmental organization and donors have perceived the important role of PRIs.

In view of these concerns, WOTR has developed a model of village level development process assisting PRIs to enable the village community to undertake their own development. These strengthened PRIs and CBOs would create the foundation for long-term economic and sustainable development through Gram Panchayats.

Our experience shows that this development process is very helpful for the holistic development of entire village. The needs, expectations and ambitions of the poor people can and are being met to a large extent. This promotes equity, gender sensitivity, inclusive governance participation and sustainable development.

For Whom:

The course is meant for NGO Decision Makers, NGO Staff, Members of Autonomous Institutions, Corporate staff, Activists, Government Officers (District/ Taluka / Village Level), PRI members and other institutions interested in gaining

local experience.

Course content:

- The importance, role and functions of PRIs in village development.
- Stakeholder's involvement in village development activities.
- 73rd Amendment : PESA Act (special provision of self government with respect to tribal areas) - Capacity Building Process (Effective tools developed by WOTR for Sub Committees) - Role and Functions of sub committees of Panchayat - Gender Sensitisation - Exposure visit to WOTR's Projects. - Experience sharing of PRI study conducted by WOTR - Overview of NREGS / MREGS Act Provisions - WOTR's experience in implementing the NREGS / MREGS through Gram Panchayat

Course Fees:

The course covers the costs of lodging, boarding, course material and field visit travel expenses of one person. Travel costs to and fro will have to be borne by the participants. A registration and course fee of Rs. 1,500/- per participant will be charged. Payment should be in the form of a Demand Draft drawn in favour of "Watershed Organisation Trust" payable at Ahmednagar".

Venue: Watershed Training Centre

Village Darewadi, Taluka Sangamner, District Ahmednagar, Maharashtra.

Contact: Kiran Shelke

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WOTR NEWS

■ Sushil Bajpai, Director of WOTR, launched two recently developed simulation "Games" - "Water Budgeting" and "Transformations: a rural community simulator". These games aim at helping grass root communities understand the issues related resource management. The games were launched at the first ever Conference on Systems Dynamics, held on May 5-6, 2011, Pune, India by System Dynamics Society of India. The Society is an international, nonprofit organization devoted to encouraging the development and use of system dynamics and systems thinking around the world.

■ WOTR initiated a series of capacity building and action research exercises using CASDAT and LM3 (Local Money Multiplier) in 7 villages in Sangamner Taluka. CASDAT, a Climate Adaptive Sustainable Development Assessment Tool, is a decision support tool that aims to provide a logical, use friendly process to help users better understand the links between climate related risks and people's livelihoods. In doing so, successful adaptation strategies can be developed and better supported at the local level by systematically understanding the links between local livelihoods and climate; assessing a project's impact on livelihood resources vulnerable to climate risk and important to coping; and devising judgements that improve a project's impact on livelihood resources central to adaptive capacity. LM3, similarly is a tool to assess the money leakages within a locality, which gives an understanding of the external dependence of the community and identifies the areas in which these leakages are high. This allows for developing successful strategies that identify the livelihood potentials that will build financial resilience within a community.



WOTR's revamps its website

Check it out at

[www.wotr.org!](http://www.wotr.org)

Also See

trainings.wotr.org
blog.wotr.org

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