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Fortnightly Bulletin on Genetic Engineering **South Against Genetic Engineering (SAGE)**

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India to take up bio-piracy issue at WTO meet

WTO India is heading a group of nine developing countries which includes Brazil, China, Pakistan, Colombia, Cuba, Thailand and Tanzania, which is trying to convince the WTO to frame multilateral rules to check bio-piracy

India's proposal to the World Trade Organisation (WTO) for checking bio-piracy and protecting traditional knowledge will be taken up at the WTO's Trips Council meeting scheduled later this month. The two-day meeting beginning October 25 will also review implementation of the agreement on Trips and public health.

The meeting is important for India as it has strongly taken up the issue of introducing a mandatory requirement for patent applicants to disclose origin of the biological resource being patented. The country has also contended that there should be proper benefit sharing with the country of origin of the patented resource.

In fact, India is heading a group of nine developing countries which includes Brazil, China, Pakistan, Colombia, Cuba, Thailand and Tanzania, which is trying to convince the WTO to frame multilateral rules to check bio-piracy.

Speaking to ET, official sources said that India's demand was well within the framework of the Doha

development agenda which was guiding the on-going negotiations at the WTO.

Since disclosure of origin is part of the convention on bio-diversity (CBD) and the Doha agenda talks about bringing about a parity between CBD and Trips, developing countries are well within their rights to demand that the requirement of disclosure

should be made mandatory under Trips.

Developed countries, especially the US, have made several efforts to patent the properties of biological products like neem and turmeric, which Indians have been using for centuries.

The US government revoked patents on certain uses of neem and turmeric when India challenged the

decision. Despite the small victories, the developed country has been extensively using products growing in the developing world in their patented products without paying royalty.

The Trips meeting will also review the Agreement on Trips and Public Health, which was signed at the WTO ministerial meet in Cancun in September '03.

<http://economictimes.indiatimes.com/articleshow/2210809.cms>

New Report Critical of Gates/Rockefeller and FAO's "Green Revolution for Africa"

IN REALITY: The Food First Policy Brief is titled: Ten Reasons Why the Rockefeller and the Bill and Melinda Gates Foundations' Alliance for Another Green Revolution Will Not Solve the Problems of Poverty and Hunger in Sub-Saharan Africa.

The Institute for Food and Development Policy, also known as Food First, today released a report that is highly critical of the Rockefeller and Bill & Melinda Gates Foundations' \$150 million

The authors-all distinguished experts on rural development-show how the recently announced \$150 million "Alliance for a Green Revolution in Africa" fails to take into account the failures of the original Green Revolution. The creators of AGRA promise to bring benefits to the African continent's

"Alliance for a Green Revolution in Africa" (AGRA).

The Food First Policy Brief is titled: Ten Reasons Why the Rockefeller and the Bill and Melinda Gates

impoverished farmers who they claim-have until now been bypassed by the first Green Revolution. In what appeared to be an orchestrated move, one day after that announcement, Jacques Diouf, Director General of UN's Food and Agriculture Organization (FAO), called for support for a "second Green Revolution" to feed

Foundations' Alliance for Another Green Revolution Will Not Solve the Problems of Poverty and Hunger in Sub-Saharan Africa.

the world's growing population. UN boss Kofi Annan also weighed in to support the initiative.

The AGRA plan is remarkable given that over the last 20 years, the CGIAR-which brings together all the key Green Revolution research institutions-has invested 40-45% of their \$350

million-a-year budget in Africa. If these public funds were not invested in a Green Revolution for Africa, then where were they spent? If they were spent on the Green Revolution, then why does Africa need another one? Either the Green Revolution's institutions don't work, or the Green Revolution itself doesn't work-or both. The Green Revolution did not "bypass" Africa. It failed. Because this new philanthropic effort ignores, misinterprets, and misrepresents the harsh lessons of the first Green

Revolution's multiple failures, it will likely worsen the problem.

The foundation also has hired heavyweights from the agricultural industry, such as Monsanto vice president Robert Horsch, a scientist who led genetic engineering of plants at the seed giant. As senior program officer,

Horsch will apply the technology toward improving crop yields in regions including sub-Saharan Africa, where the foundation recently launched a major drive with the Rockefeller Foundation.

http://seattletimes.nwsourc.com/html/business/technology/2003308397_gateshires17.html

The report discusses the following ten reasons why:

1. The Green Revolution actually deepens the divide between rich and poor farmers
2. Over time, Green Revolution technologies degrade tropical agro-ecosystems and expose already vulnerable farmers to increased environmental risk.
3. The Green Revolution leads to the loss of agro-biodiversity, the basis for smallholder livelihood security and regional environmental sustainability.
4. Hunger is not primarily due to a lack of food, but because the hungry are too poor to buy the food that is available.
5. Without addressing structural inequities in the market and political systems, approaches relying on high input technological solutions fail.
6. The private sector alone will not solve the problems of production, marketing and distribution.
7. Introduction of genetic engineering - the driving force behind AGRA initiative - will make smallholder systems more environmentally vulnerable in Sub-Saharan Africa.
8. The introduction of GE crops into smallholder agriculture will likely lead to the indebtedness of these farmers.

9. AGRA's assertion that "There Is No Alternative" (TINA) ignores the many successful groecological and non-corporate approaches to agricultural evelopment that have grown in the wake of the Green Revolution's failures.

10. AGRA's "alliance" does not place smallholder farmers - the principal actors in agricultural improvement-in the driver's seat. In fact, peasant organizations have already put forward a more coherent alternative, called "food sovereignty," which more accurately addresses the underlying causes of rural poverty and hunger in Africa and other regions of the world.

<http://www.foodfirst.org/policybriefs>

Consumer groups attack move to milk cloned cows

PROTEST *Consumer groups in the US have united against government plans to allow milk and meat from cloned animals into the food chain, highlighting a potential dilemma for dairy firms interested in the technology.*

One consumer lobby, the Center for Food Safety, has filed a legal petition asking the US Food and Drug Administration (FDA) to launch a moratorium on food from cloned animals.

Debate was re-ignited last week after the FDA said a draft of plans to regulate food from cloned animals could get government backing by the end of the year.

If approved, the move holds both opportunities and risks for dairy firms, which may use cloning to improve breeding but could also face a storm similar to that surrounding genetically modified foods.

The FDA said studies showed meat and milk from cloned cows were as safe as produce from

conventional herds, a view it has voiced several times in the last four years.

One main study published last year said it found no difference in milk quality, including protein, fat, antibody and lactose content, from cloned cows.

The study, conducted jointly by the University of Connecticut and the Kagoshima Prefectural Cattle Breeding Development Institute (CBDI) in Japan, has been used to support the FDA's argument.

Opposition to apparent FDA plans to approve food from clones came immediately. *"The FDA has never made its full risk assessment or scientific studies available to the public nor provided an opportunity to comment,"*

said Carol Foreman, of the Consumer Federation of America.

Both she and the Center for Food Safety questioned whether consumers would buy products from cloned animals.

Almost two thirds of Americans said they were uncomfortable or strongly uncomfortable with animal cloning, in an independent survey last year. And a similar number said they would not buy food from cloned animals even if the FDA said it was safe, a survey by the Pew Initiative on Food and Biotechnology found.

Opposition to food from cloned animals could be reinforced by concerns for animal welfare, amid reports that claim animal cloning research has led to

premature deaths and abnormalities.

These issues, together with moral arguments against cloning, may be enough to make dairy firms nervous

about using the technology.

Supporters of animal cloning said dairy and meat producers could improve their products and their

businesses by selecting the best performers in terms of quality and yield, however.

<http://www.foodnavigator.com/news/ng.asp?n=71515&m=1fneo24&c=cjtqkfrgndoeov>

World's most important gene banks now under international plant genetic resources treaty: New agreement ensures open access, benefits sharing for all

During the World Food Day celebrations at FAO headquarters, Director-General Dr Jacques Diouf, acting on behalf of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture, signed agreements with international agricultural research centres holding collections of around 600 000 samples of the world's most important plant genetic resources for food and agriculture.

The most important gene bank collections of the world's key food and forage crops came under the International Treaty on Plant Genetic Resources for Food and Agriculture, ensuring that plant breeders, farmers and researchers will be able to access these plant genetic resources under standard conditions and share in the benefits arising from their use.

During the World Food Day celebrations at FAO headquarters, Director-General Dr Jacques Diouf, acting on behalf of the Governing Body of the International Treaty on

Plant Genetic Resources for Food and Agriculture, signed agreements with international agricultural research centres holding collections of around 600 000 samples of the world's most important plant genetic resources for food and agriculture.

"Countries around the world will need to draw on these collections to respond to growing environmental pressures, such as climate change and unknown pests and plant diseases, and to feed a rapidly expanding population," said Dr Diouf.

"These genes are the building blocks for the

development of new plant varieties that are better suited to our needs and to the constraints of our ecosystems," he added.

The international treaty, which was approved by the FAO Conference in November 2001, entered into force on 29 June 2004. There are now 105 member countries and the European Community. The treaty's main objectives are ensuring that plant genetic resources for food and agriculture, which are vital for human survival, are conserved and sustainably used and that resulting benefits are equitably and fairly distributed.

Biodiversity under threat

The agricultural biodiversity on which food production depends is in sharp decline due the effects of the modernization of agriculture, environmental changes and increasing population density.

Since the beginning of agriculture, the world's farmers have developed roughly 10 000 plant species for use in food and fodder production.

Today, only 150 crops feed most of the world's population, and rice, wheat, maize and potato

alone provide more than 60 percent of dietary energy from plants.

It is estimated that about three-quarters of the genetic diversity found in agricultural crops have been lost over the last century, and this genetic erosion continues.

The genetic vulnerability of modern varieties can be seen in the threat facing commercial banana production from a fungal disease known as 'black sigatoka', as all five major commercial varieties derive from one original banana variety. The treaty and today's agreements are a

direct response to this kind of threat.

Global capital

"The theme of World Food Day this year is investment in agriculture for food security," said Dr Diouf. "These collections represent a substantive investment by the international community. They are a global capital on which all can now draw."

www.fao.org

'The environment fights back'- article by Jeffery D Sachs.

Our political systems and global politics are largely unequipped for the real challenges of today's world. Global economic growth and rising populations are putting unprecedented stresses on the physical environment, and these stresses in turn are causing unprecedented challenges for our societies. Yet politicians are largely ignorant of these trends. Governments are not organized to meet them. And crises that are

fundamentally ecological in nature are managed by outdated strategies of war and diplomacy.

Consider, for example, the situation in Darfur, Sudan. This horrible conflict is being addressed through threats of military force, sanctions, and generally the language of war and peacekeeping. Yet the undoubted origin of the conflict is the region's extreme poverty, which was made disastrously worse in the 1980's by a

drought that has essentially lasted until today. It appears that long-term climate change is leading to lower rainfall not only in Sudan, but also in much of Africa just south of the Sahara Desert.

Darfur has been caught in a drought-induced death trap, but nobody has seen fit to approach the Darfur crisis from the perspective of long-term development rather than the perspective of war. Darfur needs a water strategy more than a

military strategy. Its seven million people cannot survive without a new approach that gives them a chance to grow crops and water their animals. Yet all of the talk at the United Nations is about sanctions and armies, with no path to peace in sight.

Water stress is becoming a major obstacle to economic development in many parts of the world. The water crisis in Gaza is a cause of disease and suffering among Palestinians, and is a major source of underlying tensions between Palestine and Israel. Yet again, billions of dollars are spent on bombing and destruction in the region, while virtually nothing is done about the growing water crisis.

China and India, too, will face growing water crises in the coming years, with potentially horrendous consequences. The economic takeoff of these two giants started 40 years ago with the introduction of higher agricultural output and an end to famines. Yet part of that increased agricultural output resulted from millions of wells that were sunk to tap underground water supplies for irrigation. Now the water table is falling at a dangerous pace, as the underground water is being

pumped much faster than the rains are recharging it.

Moreover, aside from rainfall patterns, climate change is upsetting the flow of rivers, as glaciers, which provide a huge amount of water for irrigation and household use, are rapidly receding due to global warming. Snow pack in the mountains is melting earlier in the season, so that river water is less available during summer growing seasons. For all of these reasons, India and China are experiencing serious water crises that are likely to intensify in the future.

Just as pressures on oil and gas supplies have driven up energy prices, environmental stresses may now push up food and water prices in many parts of the world. Given the heat waves, droughts, and other climate stresses across the U.S., Europe, Australia, and elsewhere this year, wheat prices are now shooting up to their highest levels in decades. Thus, environmental pressures are now hitting the bottom line - affecting incomes and livelihoods around the world.

With rising populations, economic growth, and climate change, we will face intensifying droughts,

hurricanes and typhoons, powerful El Nino's, water stress, heat waves, species extinctions, and more. The "soft" issues of environment and climate will become the hard and strategic issues of the twenty-first century. Yet there is almost no recognition of this basic truth in our governments or our global politics. People who speak about hunger and environmental crises are viewed as muddle-headed "moralists," as opposed to the hard-headed "realists" who deal with war and peace. This is nonsense. The so-called realists just don't understand the sources of tensions and stresses that are leading to a growing number of crises around the world.

Agriculture ministers by themselves will not be able to cope with water shortages that farmers will face. Health ministers will not be able to cope with an increase in infectious diseases due to global warming. Environment ministers will not be able to cope with the pressures on oceans and forests, or the consequences of increasing extreme weather events like last

year's Hurricane Katrina or this year's Typhoon Saomai - China's worst in

many decades. A new powerful ministry should be

charged with coordinating the responses to climate

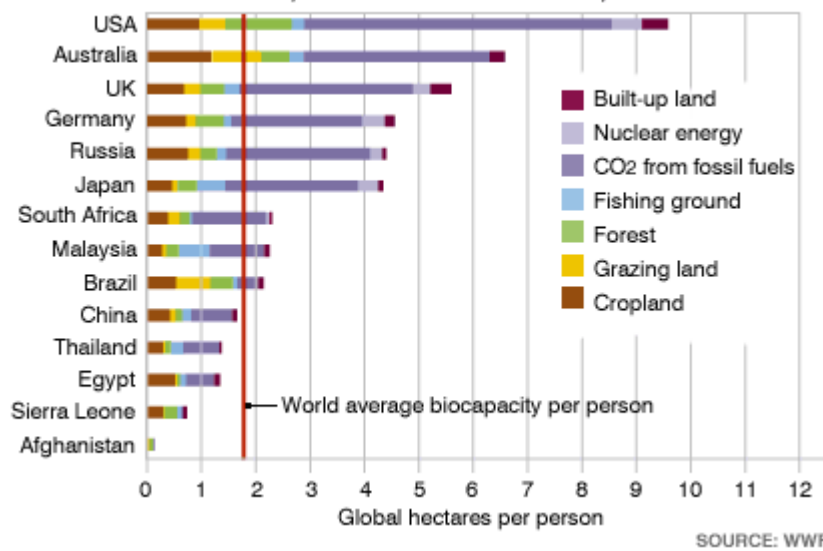
change, water stress, and other ecosystem crises.

http://www.koreaherald.co.kr/SITE/data/html_dir/2006/10/23/200610230053.asp

WWF STUDY: The living planet: facts and figures

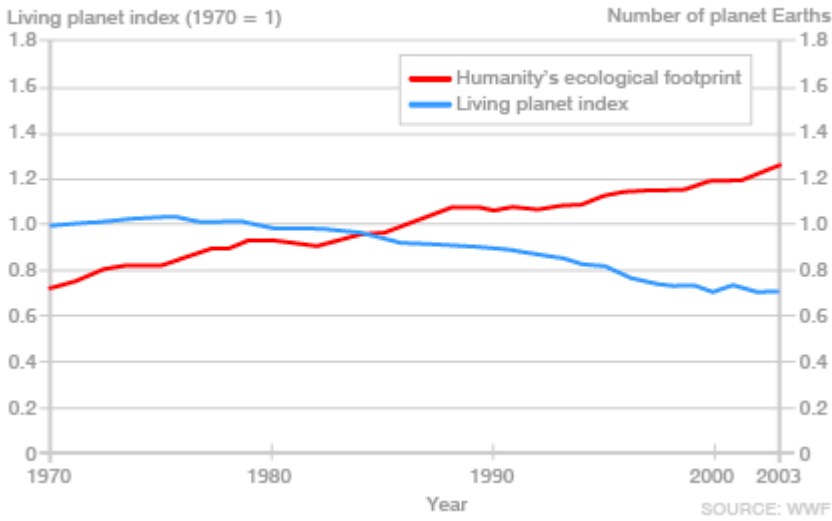
The planet's natural resources are being consumed faster than they can be replaced, according to the WWF. If current trends continue two planets would be needed by 2050 to meet humanity's demands.

ECOLOGICAL FOOTPRINT, PER PERSON BY COUNTRY, 2003



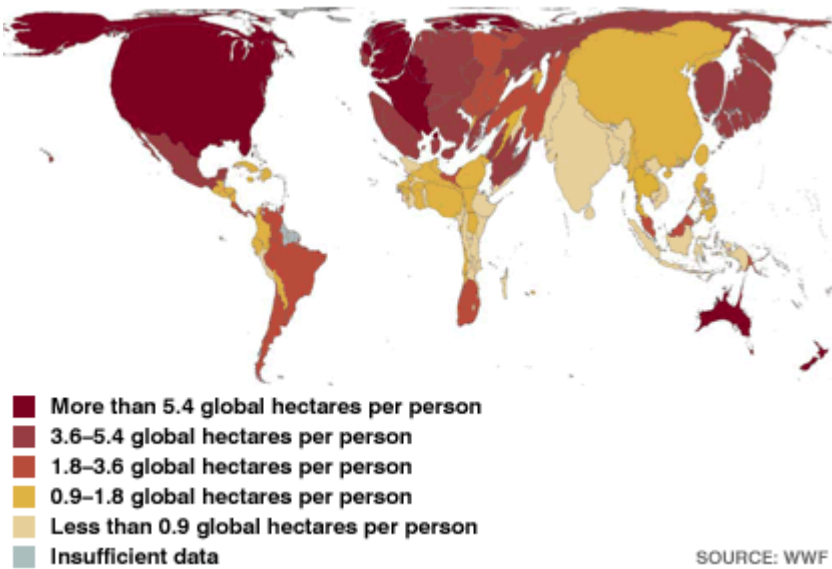
Lifestyles and the consumption of resources vary wildly from country to country. On average each person needs 2.2 global hectares to support the demands they place on the environment, but the planet is only able to meet consumption levels of 1.8 global hectares per person.

HUMANITY'S ECOLOGICAL FOOTPRINT, AND THE PLANET'S HEALTH



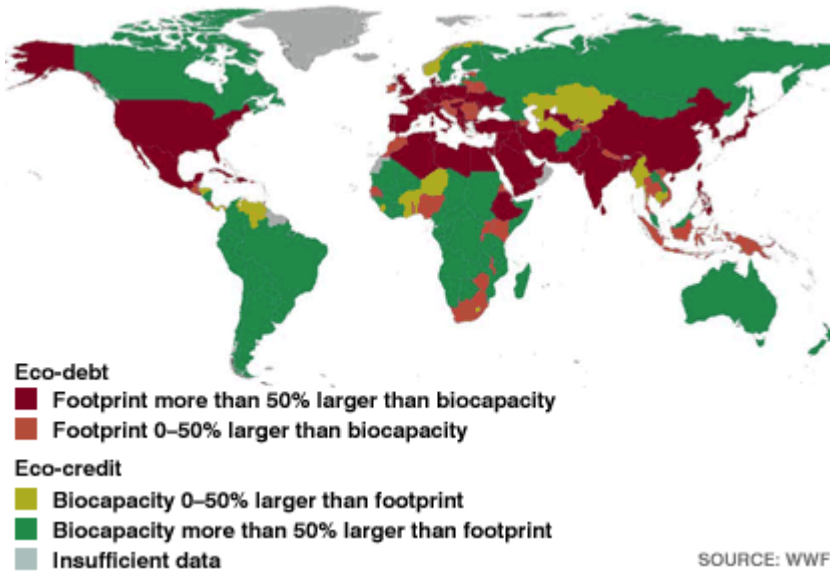
Humanity's demand for resources is now outstripping supply by about 25%, as the growth of our ecological footprint shows. Meanwhile the health of the planet's ecosystems, measured by the living planet index, is falling, at "a rate unprecedented in human history," according to the WWF.

GLOBAL ECOLOGICAL FOOTPRINTS



Countries are shown in proportion to the amount of natural resources they consume.

ECO DEBTORS AND CREDITORS



Debtor countries are defined as consuming their own natural resources, or resources from elsewhere, more quickly than they can recover, or they may be releasing more CO₂ than they can absorb themselves.

<http://news.bbc.co.uk/2/hi/science/nature/6080074.stm>

TESTIMONY: A quiet revolution

“Gliricidia means rat killer in Greek. It kills only rats, not cattle that feed on it,” we are informed very matter-of-factly. We accept that piece of information about the forage crop glyricidia sepium and its toxic properties. Half a day with the man and his kind have taught us not to question his wisdom.

Talking to us is a small built man, sporting a Gandhi cap and dressed in the gear of a farmer. He is

Devappa Maitri and he is a small farmer from Devarnambargi village in Bijapur. A pretty well informed one at that.

Besides penning lyrics on eco-friendly agriculture and singing them in tuneful and strong notes, Maitri, like many of his fellow farmers, knows a lot about the land and what it yields.

For instance, Mahadev G Lalsangi, another small farmer, knows that it is best to plant togari and green gram together. The former

has deep roots and digs deep into the soil for nutrients while the latter has shallow roots. Together they draw a mix of nutrients between the top and bottom parts of the soil, cycling the same in the process and making use of the moisture at different soil depths.

Chandrakanth is categorical that a combination of cow urine and bio agents or cow urine and cow dung was better than using bio agents alone as fertiliser.

Aro Biradar will tell you that the fungal disease affecting the green gram in his field can best be treated with trichoderma seed treatment.

These are no agricultural scientists but they are no less. It would be no mistake to call them the 'farmer scientists'. They combine a rare mix of traditional knowledge and scientific inputs. They are just beginning to realise the harm that chemical fertilisers and pesticides pose and are opting for organic farming without losing out on profit.

Helping them achieve this through one of the area units located at Bijapur, is AMEF - Agriculture Man Ecology Foundation. The institution that has been working at strengthening agricultural system, especially in dry lands, spreads awareness on sustainable agriculture through capacity building of farmers. AMEF works in Karnataka, Andhra and Tamil Nadu. In the State the areas they focus on are Bijapur, Raichur and Bellary.

Since 2002, farmers participating in the programme acknowledge a reduction of 8-10 sprays of chemicals, almost a 50% reduction in use of

chemical pesticides. Prior to AMEF's arrival, the farmers were fighting a certain disease in tomato using fungicides. Now they realise that it is a calcium disorder that needs a simple nutrient intervention, which is much cheaper.

The PTD process

A unique process by which AMEF empowers farmers is PTD - Participatory Technology Development. The PTD process enables farmers to be involved right from problem identification, testing potential solutions and evaluating results while combining scientific and indigenous knowledge. This process enables reigniting the spirit of experimentation and innovation in the farmer. According to Madiwalar, PTD is about combining scientific with indigenous knowledge. "It not only enables scientific knowledge reaching the farmer but also allows the scientist to know more about farmers' needs and grassroot realities." As part of the PTD, scientists from agricultural universities are also involved in the process.

In an area, AMEF begins by forming farmer affinity groups in each of the 2-3 villages in a cluster. With a

lead farmer who is an active member, the groups meet once a week and follow the developments in the PTD trial plots. There are 25 such groups in Bijapur now working with AMEF.

Learning by doing

Farmers in Bijapur working with AMEF are also involved in season-long discovery learning through Farmer Field School (FFS), where farmers learn about sustainable agriculture on their own.

A facilitator from AMEF helps to keep the sessions going. For instance, Yogesh initiates a topic for the day on whether the blister beetle is a pest or beneficial pollinator of the sunflower. In the day's FFS class, farmers decide to find out through experimenting. They leave the beetle with the flower and in an hour all the petals are eaten up. PEST! cries the class. Next question is how to deal with the pest. There is no need for pesticide is the unanimous decision. Why? Because the size of the beetle and the numbers (few) mean the best way is to catch them physically.

The class also initiates a lesson in mulching. Is it best to use rocks or bajra

stalk or green gram stalk? There are no readymade answers. It is all based on direct experience. The groups try out all three methods and leave the plants till next week when they will check which one has retained moisture most.

Everything that the farmers are now practising on their land in terms of moisture retention, soil fertility, increasing yield, cutting down costs, have all been the result of experiments they have conducted and verified. Baburaj Biradar did not uproot the wheat stalk after harvest and burn as is usually done but left it on the land to be ploughed back into it. Compared to the neighbouring land that looks neat and clean, his land looks shoddy but looks are not what matter. One has to just take a handful of soil in hand and it clumps like clay. He informs us that the stalks help loosen the soil further and let water seep in! As you walk across the land, your feet sink into the soil. This is a land that hardly gets 700 mm of rainfall yearly.

Sujatha Teli grows groundnut in 14 acres of <http://www.deccanherald.com/deccanherald/oct172006/spectrum1754120061016.asp>

land and is now getting three bags more per acre. G N Salotagi knows the importance of conserving soil, water and seed. He grows five varieties of chillies for seed multiplication.

Mahadev Lalsangi once used 50 kgs of DAP on his two acres of land. With no water available, it had meant no jola. Now with strip cropping of jola with groundnut, using bio fertilisers, seed treatment, bund cropping, it is a different story. Sustainable yields, grains for home consumption and produce for market. He has his kitchen garden grown in a 'surya mandal' style designed to see that every necessary vegetable is grown.

Some farmers like Joshi split their land into one where chemicals were used and one where only bio manure and bio pesticides were used. And they saw through these PTD trails what gave more yield at less cost. "Thanks to the AMEF initiative we now come together and discuss things with other villagers too," says Joshi.

Conclusion

Just recently, a Delhi government laboratory had found in many fruits and vegetables disturbing limits of contaminants, which could cause many diseases. With over 30 to 35 per cent metallic content and pesticides than permissible levels there can be no doubt that these are not fit for consumption. Lead concentrates were the most disturbing find. The samples had excess levels of pesticides.

In the light of these findings as also what the farmers have discovered is happening to their land due to overuse of chemicals, the transformation is welcome. More so when it is being done in a sustainable manner, without resorting to mining of scarce groundwater or sacrificing on quantity and quality of output.

The thirst for knowledge is evident even on a short visit to the villages. The 'mind' treatment has definitely led to 'land' treatment, in the words of my friend Shashikala.