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DEVINDER SHARMA

Challenges facing Indian Agriculture

Agriculture, Food Security and Hunger

By Increasing food production to keep pace with the growing demand, while retaining environmental sustainability and social equity, is colossal both in its magnitude and complexity. New technologies such as the breeding and popularisation of improved strains of crops, capable of responding to soil fertility and water management, have for the the time being helped provide a breathing space for achieving a balance between population growth and food production. Over-dependence on the tools of modern agriculture like chemical fertilizers, pesticides, farm power and water have created an 'ecological crisis'. Coupled with the shifting focus on export-oriented agriculture in an age of growing international trade, the urgent need is to safeguard and strengthen the ecological foundations essential for sustainable agriculture. This paper examines a number of crucial contemporary issues afflicting Indian agriculture and suggests a series of measures aimed at ensuring sustainable food security¹ without any further destruction of the natural resource base.

1. The Fatal Legacy of The Green Revolution

Forty years after the dawn of 'Green Revolution', Indian agriculture is once again at the crossroads. With agriculture becoming unremunerative over the years, and with input-output ratios faltering, the growth in agriculture has decelerated. When forests are destroyed or soil fertility is diminished or the water table plummets to dangerously low levels, the rural poor often have no option but to migrate to towns and cities in search of jobs. Such inequitable development will lead to social disintegration.

Confronted by mounting evidence of environmental destruction of industrial agriculture, the pre-fix sustainable is now being invariably used before terms denoting various aspects of development and growth. Sustainable agriculture has come to mean all things to all people. The question therefore arises: "Sustainable agriculture" for whom? Whose interests are we seeking to sustain? More so, these questions need to be addressed by looking beyond narrow – and frankly, sterile – debates on the technologies that might make for a more 'sustainable agriculture' and confronting instead the political and economic forces that have driven farmers into agriculture's present disastrous cul-de-sac.²

The tools for measuring sustainable agriculture have to be, therefore, enlarged in such a way that it incorporates economic viability with the protection of natural resource base, social and gender equity with agricultural productivity. Such a paradigm shift in approach will first require a change in mindset among policy makers and professionals. The prevailing agrarian crisis being multi-dimensional, needs a holistic approach that matches productivity goals to economic, environmental and social viability. It is primarily with this objective that this paper begins with five prevailing scenarios that provide an overview of the kind of policy approaches being made and pursued globally.

A dissection of these policies and approaches shows us the way forward. In India, at a time when the country is faced with its worst agricultural crisis in recent times, the control of the village community over its natural resources shows the way forward.

Scenario 1: It was too late. By the time, Jai Lal, a landless agricultural worker of Bandali village, in Sheopur district of Madhya Pradesh, in the heartland of India, returned to share the good news with his wife – that he'd finally managed to get a petty job with a shopkeeper – she had succumbed to hunger. A week later, graves were dug for his two children, both unable to continue with the prolonged fight against hunger.

Jai Lal's family paid a heavy price for the faulty agricultural policies that are being relentlessly promoted and pushed in the name of economic growth and development. Jai Lal is not the only victim of a development paradigm that turns a blind eye to the resulting human suffering. Travelling around the country, I am no longer shocked at the plight of the rural masses, who unknowingly continue to pay a heavy price for the faulty agrarian policy thrust upon them. What hurts me is to see that even fifty-five years after Independence, growing hunger and inequalities do not prick the conscience of the nation. Moreover, in the era of free markets and ruthless competition, human compassion has become the biggest casualty.

There is no other plausible reason that can explain why Jai Lal lost his family. After all, Jai Lal's family died of hunger when more than 45 million tonnes of foodgrains were stacked in the open, much of it rotting for want of adequate storage facilities. This was in early 2003. Two years earlier, the country had a record 65 million tonnes of food surplus, at a time when nearly 320 million – a third of the world's estimated 840 million hungry – looked in disbelief at the mountains of the food stocks that lay decaying in front of their dry eyes. In fact, hunger and poverty have proved to be robustly sustainable.

While people die of hunger, the government sits atop a mountain of food grains. In 2001, starvation deaths were reported in over 13 states while the sto-

rage facilities of the Food Corporation of India (FCI) - were full of grains, some of it rotting and rat-infested. There was a proposal to dump it in the sea, to make storage space for the next crop, when export markets could not be found for this surplus. Such was the quantity of food kept in the open, that if each bag was stacked one upon the other, there was no need to launch a scientific expedition to put a man on the moon. You could simply walk to the moon and come back.

A report of the Standing Committee of Parliament estimated that the government was spending Rs 62,000 million (roughly 1,24 billion Euros) every year to maintain these food stocks. Mainline economists and agricultural scientists did not question the necessity of maintaining the surplus stocks when millions were sleeping with empty stomachs. Instead of making the surplus grain available to the poor, nearly 24 million tonnes from the unmanageable food surplus was diverted for exports in 2002-03, and that too at a price that was actually meant for people living below the poverty line. Another six million tonnes were released for the open trade at the same price. The poor and hungry however were not the beneficiaries. They are expected to live on hope.

Despite the Planning Commission pulling down the percentage of poor and poverty stricken from its unread documents, the magic trick of playing with numbers hasn't made any difference to the growing disparities. Amidst recurring political elections, and the brazen marketing hype to sell images of growth and development, the shameful paradox of hunger at times of plenty has been quietly buried under heaps of grain that continue to rot in the open. That 7.5 million people, more than the population of Switzerland, had applied for a mere 28,000 lowly-paid jobs in the Indian Railways (in Nov 2003), is no longer a matter of concern at times when the country is on a fast track information highway. Not to discount the achievements in information technology, the fact remains that IT has provided only half a million job opportunities.

Scenario 2: Far away, Argentina, the world's fourth biggest exporter of food, faces an unprecedented socio-economic crisis. As the vast, fertile country continues to increase exports of meat, wheat, corn and soy beans this year, a catastrophe has hit the under-privileged in the countryside. As hunger multiplies, images of stunted, emaciated children have scandalised Argentina, long known as the grain store of the world.

Perceived by the neo-classic pundits as the glorious model of economic growth, an unprecedented humanitarian crisis confronts Argentina. *The Guardian* (Nov 25, 2002) explains the dichotomy of economic growth in Argentina, quoting the Centre for Child Nutrition Studies, which advises the World Health Organisation, as saying that 20 per cent of children in the Latin Ame-

rican country are suffering from malnutrition. Dr. Oscar Hillal, the deputy director of the children's hospital in Tucumán, said: „This is not Africa, this is Argentina, where there are 50 million cattle and 39 million people - but where we have a government which is totally out of touch with the people's needs.“

Some of the children pictured in northeastern Tucumán province had bloated stomachs, blotchy skin and dry hair associated with severe protein deficiency. The national charity *Red Solidaria* said that 60 children a month were being taken to hospital with severe malnutrition, and 400 were being treated as outpatients. Five non-government organisations from Tucumán province had filed a legal suit against Tucumán's governor for „wilful neglect“ of the children who have died of malnutrition in his province, where 64% of people live in extreme poverty. They accused him of diverting national funding for social programmes into „clientelism and corruption“.

In India too, with the increased domination of market forces in the food sector, and reduced public policy intervention for food security, food prices have increased. Government has promised to further cut down subsidies and reduce the government's intervention in foodgrain procurement. Already, India's Export-Import Policy of 2001-02 lays a major thrust on promotion of agricultural exports, the third largest global producer of food. Meanwhile, exports have increased by ten per cent every year since 1991. They rose from Rs 29.7 billion (594 million Euros) in 1994 to Rs 76.7 billion (1,53 billion Euros) in 1997.

Scenario 3: The recent spate of farmers' suicides that began in Andhra Pradesh, and caught the national attention in the aftermath of the stunning electoral verdict that unseated the BJP-led government at the electoral hustings in 2004, has been baffling. Ever since the new government in Andhra Pradesh was sworn-in on May 14, 2004, more than 600 farmers have committed suicide. This was the death toll in the suicide register till July 15.

The situation in several other states, including the frontline agriculture states of Punjab and Haryana, is no better. In the Vidharba region of Maharashtra, for instance, more than 200 farmers have committed suicide during the year (Menon 2004). Karnataka, West Bengal, Orissa, Tamil Nadu, Kerala, Madhya Pradesh, Rajasthan, and Uttar Pradesh are all faced with the unexplained phenomenon of farmers taking their own lives (Frontline 2004). What has been shocking is that the spate of suicides shows no signs of ending even after short and long-term relief packages aimed at relieving farmer's misery were announced.

Although the newly-elected government of Andhra Pradesh (and followed closely by Tamil Nadu) have moved in quickly by announcing free power to

farmers,³ what is more depressing is that the governments are clueless of the reasons that forces farmers to commit suicide. The reason is obvious. No one has the political courage to point a finger at the clear verdict against the industrial farming model being forced down the throat of small and marginal farmers (Sharma 2000).

With the high-chemical input based technology that mined the soils and ultimately led to the lands gasping for breath, with the water-guzzling crops (hybrids and Bt cotton) sucking the groundwater aquifer dry, and with the failure of the markets to rescue the farmers from a collapse of the farming systems, the tragedy is that the human cost is entirely being borne by the farmers (Nair 2004). In Punjab, for instance, of the 138 development blocks, 84 have already been declared dark zones, the level of groundwater exploitation in these blocks has been in excess of 98 per cent against the critical limit of 80 per cent. Six of the twelve districts in the State have recorded groundwater utilization rates of 100 per cent. The National Bureau of Soil Survey and Land Use Planning in India estimates that nearly 120 million hectares of the total cultivable land of 142 million hectares in the country is degraded. The fundamental issue of destruction of sustainable livelihoods is not at all being addressed (Sharma 2004).

Scenario 4: At first impression, news reports that appeared in 2002 in the US media looked like emanating from a drought-stricken village in India's hinterland. Until of course you see the dateline. You continue to read in utter disbelief. About 100 desperate farmers and rural residents praying for rain at the St. Patrick parish church in Grand Rapids, Ohio. With hands clasped and eyes cast downward, they seek divine intervention. „None of us have control over whether it is going to rain or not,“ said Sister Christine Pratt, rural life director for the Catholic Diocese of nearby Toledo told Reuters, the news agency. „But the people are praying for one another and there is some hope.“

Another report in the Washington Post stated President George Bush did not extend finances under drought relief in addition to the support that came from \$180 billion farm bill he signed in May 2002. The president however underscored his commitment to helping farmers under current programs, including the Agriculture Department's decision that provides \$150 million in surplus milk – „spoiled milk,“ as Democrats called it – to be made available for use in animal feed in four drought-stricken states, including South Dakota.

Cattle were dying and crops shrivelled. Fodder become scarce, and, therefore, the need to feed surplus 'milk' instead. There was a scramble for new water sources as town and city residents were asked to stop watering lawns and washing cars. In heat-baked fields ranchers sold off herds rather than letting them starve for lack of pasture. „I have never seen it like this and I'm 60 years

old," said Richard Traylor, who owns 37,000 acres in Texas and New Mexico but had sold off much of his cattle herd.

Serious hydrological problems with wells and reservoirs emerged. Streams went dry. The groundwater table fell drastically. Wildfires became more rampant, and an estimated 4.6 million acres, had been scorched, twice the average acreage burnt in the previous decade. „It is pretty dire," Mark Svoboda, climatologist for the National Drought Mitigation Center was quoted as saying. From southern California to South Carolina and from Montana to New Mexico, individuals and industries were suffering, the news agencies reported.⁴

The USA were faced with their worst drought since the days of the great 'dust bowl' of the 1930s. By a strange coincidence, far away, India too was reeling under its worst drought of the century. As many as 26 of the 50 US States were reeling under a severe drought, with „exceptional drought" conditions – the worst level of drought measured – prevailing in thirteen states, including New Mexico, Arizona, Colorado and Utah. In India, drought had ravaged through twelve of the 28 states. Such was the crop damage that like the drastic reduction in foodgrain production in 2002-03 in India, the US wheat production too was anticipated to fall to its lowest levels in nearly 30 years.

Scenario 5: At every national and international conference, it is not unusual to see slide projections that point at the low productivity in India and for that matter in other developing countries. The projections for area and productivity under cereals, including wheat and rice, and crops like sugarcane, cotton and vegetables points to the prevailing dichotomy. India ranks among the top five countries (often among the first two) having the largest area under crops such as wheat, rice, cotton, sugarcane, and vegetables. India's ranking in productivity brings it to the bottom of the chart, with per hectare yield or productivity hovering amongst the lowest five or ten countries. The conclusion therefore is that increasing productivity will bring more income to farmers and thereby increase their presence and competitiveness in the international market.

Farmers are being misled to believe that diversification from staple grains to cash crops is the only way out to escape an uncertain future. At the same time, farmers are being asked to increase crop productivity to remain competitive in an era of 'free' trade. Since the global trade parameters are being relaxed and phased out, increasing productivity is being touted as the new survival mantra. The high productivity refrain comes in handy for the biotechnology industry to bring in expensive and risky technologies thereby further compounding farmers' woes. In the bargain, it is the farmer who faces the brunt, often opting for the fatal route to escape the humiliation and distress that such half-baked advice brings in.

Take the case of rice, the most important staple food crop of India. In the year 2000, India's rice (paddy) yield was hovering at 3008 kgs per hectare. In Thailand, the major rice exporter, paddy productivity stands at 2329 kgs. In the United States, the average yield per hectare was more than double at 7037 kgs. If productivity alone was the criteria, the US should have captured the entire world market in rice. And at the same time, Thailand shouldn't have been able to export rice considering that its average productivity is lower than even India's.

Moreover, even with such low rice productivity, India had a record procurement of 20.9 million tonnes of rice in the 2001-02 marketing season. The grain stock build-up over the last few years has seen India's rice and wheat surplus increase to an unmanageable level of 51.4 million tonnes in October 2002 (against a record 65 million tonnes in June 2001). In fact, chief ministers of surplus rice producing states of Punjab, Haryana, and Andhra Pradesh have been repeatedly asking their farmers not to produce more of rice as they have no place to stock it. The central government too has been toying with the idea of getting out of food procurement leaving farmers to the vagaries of the market.

In the United States, however, despite the high rice productivity, farmers find its cultivation uneconomical. The US government, therefore, continues to subsidise the American farmers. Estimates point that American farmers receive an average subsidy of US \$ 30,000 per farm per year. As if this were not enough, the new Farm Bill brings an additional federal support of US \$ 180 billion for the next ten years. If high productivity is the criteria for global competitiveness, there is no plausible reason why the American farmers would depend upon government doles for survival.

To ask the Indian farmers, therefore, to increase paddy productivity is to merely push them into a death trap. Already, rice farmers in Punjab and Andhra Pradesh continue to suffer for producing more. For the past two years, with the Food Corporation of India (FCI) refusing to buy paddy under one pretext or the other, distress sale has become a common phenomenon. At many a place, a number of rice farmers preferred to commit suicide waiting endlessly for buyers in the markets. The scenario for wheat producers is no different. They too are faced with the 'produce and perish' syndrome.

Every day, some 5,000 children somewhere in India succumb to diseases related to malnutrition and hunger. Everyday, thousands of rural people – without land and adequate livelihoods – constituting a reservoir of frustration and disaffection, trudge to the cities, their abject poverty contrasting vividly with the affluence of the urban centres.

In remote Kalahandi district of Orissa, synonymous with drought, hunger and misery, starvation exists amid plenty. Millions of hapless, deprived and landless wait endlessly for the rice they produce. The crop they harvest finds its way to the food reserves of the nation, much of it being devoured by rats or exported. Kalahandi is among Orissa's biggest contributors of foodgrains to the FCI.

The paradox of plenty no longer is confined to the terrains of Kalahandi. A nation burdened with the guilt of one Kalahandi, refuses to even look for numerous other pockets of hunger and destitution. India too is meanwhile faced with a Kalahandi syndrome – foodstocks piling up at a time when a third of the world's 840 million hungry and poor, living in India, do not have the means to purchase it. In addition, the resulting damage to the resource-base, on which were laid the strong foundations of the traditions of agriculture, have been ruinous and threaten the survival of the nation.

For a country, which emerged from the throes of a 'ship-to-mouth' existence, to be subsequently able to build up foodgrain reserves from homegrown wheat and rice, sustainable agriculture was the unmistakable path to equitable growth, development, and national food security. The green revolution technology, which ushered in 'food self-sufficiency', however came with enormous environmental costs. It used massive amounts of chemicals, fossil fuels and water. In energy terms, it was less efficient than many traditional farming systems. Monoculture, mechanical ploughing, soil erosion, the extension of crops into forests and the use and abuse of chemicals has contributed to the second-generation environmental impacts that the intensively-farmed lands of the country are grappling with.

Fertilisers and pesticides were aggressively promoted, with huge subsidies being doled out to keep the fertiliser companies afloat, without realising the resulting devastation these chemical inputs have wrought on the sustainability of agriculture. At no stage, did the scientists call for a mid-term correction to rectify the imbalance and destruction of the soil fertility through excessive application of the chemicals (see Box 1). The second-generation environmental impacts became so serious that the Consultative Group on International Agricultural Research (CGIAR), which governs the 16 international agricultural centres, launched an initiative for studying the negative impact of the green revolution model on sustainability of agriculture in the Indo-Gangetic plains but the results were never made public.

Box 1: Pesticides are a waste of time and money

Three decades after the launch of the Green Revolution, agricultural scientists are now discovering that chemical pesticides are a complete waste of time and money. They have realized the grave mistake only after poisoning the lands, contaminating the ground water, polluting the environment, and killing thousands of farmers and farm workers.

Says an IRRI press release (July 28, 2004): Imagine 2,000 poor rice farmers in Bangladesh, whose average farm income is around US\$100 per year, suddenly take on the role of agricultural scientist. Over the course of two years – four seasons – they prove that insecticides are a complete waste of time and money. IRRI senior entomologist Gary C. Jahn, states: “To my surprise when people stopped spraying, yields didn’t drop – and this was across 600 fields in two different districts over four seasons. I’m convinced that the vast majority of insecticides that rice farmers use are a complete waste of time and money.” (People and Planet (2004): <http://www.peopleandplanet.net/doc.php?id=2297> Aug. 2, 2004.)

This is the outcome of a joint IRRI-British DFID’s Livelihood Improvement Through Ecology (LITE) project, which has demonstrated that insecticide can be eliminated and nitrogen fertilizer (urea) applications reduced without lowering yields. “We’ve reduced insecticide use among participating farmers by 99%, and by 90% among non-participating farmers in the same villages”, Dr Jahn added.

What’s more, if LITE continues as it has started, in less than a decade, most of Bangladesh’s 11.8 million rice farmers – almost a twelfth of the country’s population of 141 million, according to the Bangladesh Rice Research Institute, a key project partner – will have eliminated insecticides and optimized their fertilizer use.

Similar studies in the Central Luzon province of the Philippines and in certain parts of Vietnam have already demonstrated that pesticides were not required. Does it not mean that agricultural scientists had pushed and promoted chemicals all these years without looking for viable and sustainable alternatives? Does it not mean that the technology for productivity increase was not based on sound ecological and environmental parameters? Does it not mean that the land grant system of research had ignored the potential of agriculture growth that existed in the

developing countries, based on time-tested technologies and sustainable farming system?

If it has taken 30 years to realize that the technology promoted by USAID and blindly aped by the National Agricultural Research Systems in the developing countries, and that too after inflicting an irreparable damage to human health and environment, was faulty; what is the guarantee that genetically engineered crops will not leave behind still more damaging consequences? Who will be responsible for the destruction that is being enforced through genetic manipulations?

For several years now, almost two decades, basking in the afterglow of the green revolution, and with abundant monsoons to boost it, farming and agriculture ceased to attract attention. Policy-makers began to believe that there was no cause for undue concern since the country had the capability to 'reproduce' another Green Revolution. Not realising that the Green Revolution had run out of steam, and rural despair was growing. Slow on-farm agricultural employment and the overall employment growth trailing behind the growth of the labour force, more and more people began migrating to the cities.

The alarm bells have been ringing for quite some time. The spectacular yield growth recorded in the post-Green Revolution years in Punjab and Haryana have receded into history. Among the multiplicity of problems confronting agriculture, rapid fragmentation of land holdings is keeping pace with increasing population. In 1976-77, the average size of the holdings was estimated at two hectares, and in 1980-81, it came down to 1.8 hectares. Today, it stands at a mere 0.2 hectares. The total number of land holdings in 1981 were around 89 million, today these have crossed 100 million.

Thirty years after the dawn of Green Revolution, Indian farmers realised that their love affair with intensive agriculture was on the decline. Despite a bountiful monsoon (14 normal monsoons in a row), harvests were not as plentiful as could have been expected. As intensive farming began to bare its fangs, mining the ground water and destroying the soil fertility, sustainable livelihoods began to fall apart. At the same time, by the turn of the century, per capita foodgrain availability had dropped to an abysmal low of 152 kgs, nearly 23 kgs less than in the early nineties (Patnaik 2002). This compared favourably with the stark hunger that prevailed in sub-Saharan Africa, and was no better than the crisis-laden food situation that existed at the time of the Bengal Famine.

The Green Revolution had not only gone sour, it has now turned red. The unexplained number of huge number of farmer suicides is a testimony to the entire equation going wrong (Sharma 2004: Deccan Herald).

The philosophy of agricultural planning is changing. Gone are the days when the nation's emphasis was solely on attaining self-sufficiency in food-grain production. Gone are the days when farmers were the newly independent India's heroes, revered for their role in keeping hunger and sure starvation at bay. Today, at a time when food production struggles to barely keep pace with the burgeoning population growth, farmers are being asked to diversify, produce crops that are suitable for export and to compete in the international market. With promise of cheap food available off the shelf in the global market, the focus has shifted from agriculture to industry, trade and commerce, from the small and marginal farmers to the agri-processing companies, which alone can bring in investments and add value to produce.

2. Whither The Second Green Revolution?

The reforms being introduced in the name of increasing food production and minimising the price risks that the farmers continue to be faced with, is actually aimed at helping the agribusiness industry. Whether it destroys the production capacity of the farm lands and leads to further marginalisation of the farming communities does not figure in the policy planning process. Encouraging contract farming, future trading in agriculture commodities, land leasing, forming land-sharing companies, allotment of homestead-cum-garden plots, direct procurement of farm commodities and setting up of special purchase centres will however drive a majority of the 600 million farmers out of agriculture.

In a country where land holdings are meagre, the biggest challenge is to ensure how agriculture can be made more attractive for these small and marginal farmers. At the same time, in the Green Revolution areas, comprising Punjab, Haryana, western Uttar Pradesh, parts of Andhra Pradesh, Tamil Nadu and Karnataka, agriculture faces a severe crisis in sustainability. As a result, Punjab and Haryana are fast heading towards desertification – a process that leads to the inability of the lands to sustain the production levels achieved at the height of the Green Revolution era.

Although the land holding size is diminishing, the answer does not lie in allowing the private companies to move in by way of contract farming. Private companies enter agriculture with the specific objective of garnering more profits from the same piece of land. These companies, if the global experience is

any indication, bank upon still more intensive farming practices, drain the soil of nutrients and suck ground water in a couple of years, and render the fertile lands almost barren after four to five years. The once fertile and verdant landscape will fast turn grey. These companies would then hand over the barren and unproductive land to the farmers who leased them, and would move to another fertile piece of land.

Rebuilding ground water resource should be an essential parameter for any meaningful agriculture reforms. Unfortunately, at a time when excessive withdrawals of underground water have already become a major political issue, cropping pattern continues to play havoc with the irrigation potential. The lessons from the other contract farming models should be only too apparent. Sugarcane farmers, who follow a system of cane bonding with the mills, actually were drawing 240 cms of water every year, which is two and a half times more than what wheat and rice requires each on an average (indiaagronet). Rose cultivation that was introduced in Karnataka a few years back, required 212 inches of groundwater consumption in every hectare.⁵ Contract farming will therefore further exploit whatever remains of the ground water resources.

Legal recognition of land leasing is therefore no protection to farmers. Once the production capacity of the land has been destroyed, what can the farmer be expected to reap thereafter? Knowing this, the government is talking of homestead-cum-garden plots for those who lease out their lands. The objective is simple: to pacify those who question the impact of contract farming on household food security. Policy makers and planners are not even aware of the basic objective behind encouraging contract farming. Often it is said that these companies will only be there for helping the farmers in marketing. What is deliberately not being mentioned is that nowhere in the world are private companies involved with contract farming just to help the farmers find a marketing outlet.

Punjab, Andhra Pradesh and subsequently other states' foray with contract farming therefore is a misplaced adventure. It is actually accentuating the sustainability crisis on the farm front by destroying whatever remains of the farmland's production capacity with more intensive and destructive farming systems. The resulting monoculture also destroys the agriculture biodiversity in the region thereby hitting sustainability parameters. In simple words, contract farming is the modern version of the 'slash and burn' agriculture (jhum cultivation) that the tribals followed in the northeast parts of the country. Tribals were doing it for environmental reasons, whereas the private industries are forcing this for commercial motive alone.

Already contract farming has done irreparable damage to agriculture in countries like the Philippines, Zimbabwe, Argentina and Mexico (IBON Databank 1998).

Allowing direct procurement of farm commodities, setting up special markets for the private companies to mop up the produce, and to set up land share companies, are all directed at the uncontrolled entry of the multinational corporations in the farm sector. Coupled with the introduction of the genetically modified crops, and the unlimited credit support for the agribusiness companies, the focus is to strengthen the ability of the companies to take over the food chain. Significantly, the state governments have opposed the agriculture reforms, terming it as a recipe for the entry of multinational corporations in agriculture.

Agribusiness companies in reality hate farmers. Nowhere in the world have they worked in tandem with farmers. Even in North America and Europe, agribusiness companies have pushed farmers out of agriculture. As a result, only 900,000 farming families are left on the farm in the United States. In the 15 countries of the former European Union, the number of farmers has come down to less than 7 million. The underlying message is crystal clear: farmers should get out of agriculture. In India, the same prescription will lead to an unforeseen catastrophe, worsening food insecurity and multiplying hunger.

To expect farmers to collectively mobilise the land resources to facilitate access to modern technology and professional management in the farm sector, a concept being floated in the name of land sharing companies, is also aimed at private control of the farmland. In India, except for a handful of such cases, farmers do not have the ability to pool land resources unless backed by a private company. In other words, land sharing is another name for contract farming. All such experiments would be forcing the farmers to shift from staple foods to cash crops like cut flowers, tomato, strawberries, melons, which do not meet the food security needs at the macro level. At the same time, the intensive nature of cash crop cultivation, requiring more external inputs, would do more damage to the environment.

3. Agriculture Reforms – The Way Ahead

Sustainable agriculture thus sustains rural livelihoods. This in turn is directly linked to the nation's as well as the household food security. Any development alternative to ensure long-term food security therefore has to be linked to sustainable agriculture.

Let me therefore draw the outline of the sustainable farming systems that the country needs to focus on. This is the overall framework under which location-specific alterations and adaptations need to be tried.

What is needed is a fresh approach that takes the ground realities into consideration before embarking upon any policy imperatives. I am trying to make an attempt, presenting a collection of five of the important rational decisions, which would certainly initiate the revival of Indian agriculture:

3.1 Sustainable farming

Indian agriculture faces an unprecedented crisis in sustainability. Food-grain productivity in the food bowl, comprising Punjab, Haryana, and western Uttar Pradesh, is on the decline. The Green Revolution areas are encountering serious bottlenecks to growth and productivity. The dryland areas (comprising nearly 70 per cent of the cultivable lands) continue to drown in misery and apathy. Excessive mining of soil nutrients and groundwater have already brought in soil sickness. Indiscriminate use of chemical pesticides has done serious harm to the environment, human health and ecology. Introducing new Centrally Sponsored Schemes or contract farming to improve production in these areas is going to be counter-productive. Banking upon genetically engineered crops to take care of the second-generation environmental impacts is sure to worsen the existing crisis. Outlays earmarked for genetic engineering in agriculture also need to be diverted to sustainable agricultural practices.

Encouraging sustainable⁶ and traditional farming practices therefore is the only way ahead. Agricultural research must reorient itself to meet the new challenges resulting from the collapse of the Green Revolution technology. Investments and increased outlays for agricultural research that is based on external chemical inputs like fertiliser and pesticides need to be discouraged. Instead, financial allocation should be made for reviving low-input agriculture, which uses cheap and locally available technology and in turn improves production and protects the environment. This has been amply demonstrated in several parts of the world (see the accompanying box). Water productivity and efficiency has to be the hallmark of agricultural research based on the local conditions.

3.2 Local Solutions

For the past three decades, more so after the introduction of the land-grant system of education, the focus is on finding global solutions to local problems in agriculture. The World Bank/IMF, the Consultative Group on International Agricultural Research (CGIAR) and now some of the major donors like DFID

and GTZ have been embarking on translocating alien approaches to agricultural improvement and have thereby exacerbated the crisis on the farm front. The Indian Council for Agricultural research (ICAR) too has blindly followed the land grant system of research and education, the negative results of which are now becoming apparent. Ignoring the traditional knowledge⁷ and time-tested technologies has created a crisis on the farm front. This process must be immediately stopped, if not reversed. Given the diversity of the agro-ecological regions, sustainable agriculture needs location-specific solutions.

International agricultural research, as well as the national agricultural research systems, should reorient the focus of farm research based on the principles of farmer friendly, environment friendly and long-term sustainability. Instead of the 'Lab-to-Land' approach, which has done immense damage to agriculture globally, the emphasis should be on learning from the land, meaning going back to farmers and the traditional farming systems. Technology need not always be high-tech and sophisticated. It can be simple and effective. This can only be ensured if the effort is to fit the new and improved technology to farmers' need rather than asking farmers to fit into the technology package developed. This can only happen if farm research is brought back to the public sector. All technology should be freely available, and should not come with any proprietary tags.

3.3 Dryland farming

Despite the former Prime Minister Indira Gandhi's emphasis on dryland farming, agricultural scientists as well as the policy makers have failed the dryland farmers. This is essentially because the entire thrust of dryland research was to bring in an external model in which the dryland farmer, who manages to survive against all odds, would fit in. No effort was made to improve the existing technology base under numerous location-technology specifications.

At the same time, drylands continue to be plagued with recurring drought engulfing vast tracts of central and north-western India. The increased emphasis on water harvesting notwithstanding, the reduced availability of water is emerging as a major social and economic crisis. This is because much of the investment is going into a faulty technology of rainwater harvesting, called the "Ridge to valley" system, a technology imported from the United States. In addition, the cropping pattern has to be evolved keeping in mind the water availability. At present, the more the water requirement for hybrid crop varieties the more is its cultivation in the water-scarce regions (see Box 2). This is scandalous and unless the cropping pattern is rectified, no measures to protect and preserve water resources will be effective.

Box: 2: Improved Crops Mine Water

High-chemical input based technology has already mined the soils and ultimately led to the lands gasping for breath, with the water-guzzling crops (hybrids and Bt cotton) sucking the groundwater aquifer dry, and with the failure of the markets to rescue the farmers from a collapse of the farming systems, the tragedy is that the human cost is entirely being borne by the farmers. In Punjab, for instance, of the 138 development blocks, 84 have already been declared dark zones, the level of groundwater exploitation in these blocks has been in excess of 98 per cent against the critical limit of 80 per cent. Six of the 12 districts in the State have recorded groundwater utilization rate of 100 per cent. The National Bureau of Soil Survey and Land Use Planning in India estimates that nearly 120 million hectares of the total cultivable land of 142 million hectares in the country is degraded. Green Revolution was projected to have saved the country some 58 million hectares of additional land to be brought under the plough to produce more food, whereas almost twice that land mass has been rendered degraded and ecologically devastated in varying degrees in its aftermath.

The Green Revolution has not only gone sour, it has now turned red. The huge number of suicides is a testimony that the entire equation is going wrong. However, the fundamental issue of destruction of sustainable livelihoods is not at all being addressed. All these years, for instance, the dryland regions of the country, which comprise nearly 75 per cent of the total cultivable area, have increasingly come under the hybrid crop varieties. While the crop yields from the hybrid varieties was surely high, the flip side of these varieties – these varieties are water guzzlers – was very conveniently ignored. For the sake of comparison, let us take the example of rice.

Not only rice hybrids, all kind of hybrid varieties that require higher doses of water – whether it is of sorghum, maize, cotton, bajra, and vegetables are promoted in the dryland regions. In addition, agricultural scientists have misled the farmers by saying that the dryland regions were hungry for chemical fertilisers. The harmful combination of chemical inputs with water guzzling crops has played havoc with the drylands turning the lands not only more unproductive but also barren. The water table plummeted, the impact of deficient rainfall became more pronounced forcing farmers to abandon agriculture and migrate. As if this was not enough, Bt cotton requiring more water than hybrid cotton, was knowingly promoted so as to allow the seed industry to make profits.

Investments in rainwater harvesting need to be immediately shifted to the revival of the traditional forms of water conservation – ponds and tanks. Fodder cultivation, crop planning according to the water needs and availability and the emphasis on the local breed of cattle (and improving its productivity, rather than importing exotic breeds) need to be encouraged. Dryland crops, and that include coarse cereals, pulses and oilseeds require adequate policy measures that bring shine to these forgotten grains.

Farmers in the rainfed areas also need to be insured against drought. This can be ensured by making it mandatory for the foreign insurance companies to invest at least 40 per cent of their funds for farm insurance.

3.4 Sugar mills

Sugarcane is the biggest threat to India's food security. The unprecedented addition of new sugar mills by successive governments has created a major crisis on the agriculture front. Requiring good fertile and irrigated land for cultivation, its growth is at the cost of staple foods like wheat and rice. With the per hectare productivity of foodgrains on the decline in the frontline agricultural states, diversion of good fertile land to sugarcane is not without the accompanying hiccups. What makes the switchover to sugarcane a pernicious trend is its enormous water requirement. Sugarcane, in fact, is the biggest threat to India's food security.

Since there is no shortage of sugar in the country, and with a large number of mills actually being rendered unviable over the past two decades, an immediate ban needs to be imposed on setting up any new sugar mill. All budgetary support to the sugar industry needs to be withdrawn as it has led to a serious environmental crisis. Reduce the area under sugarcane, improve productivity, disband most of the unproductive sugar mills, and give a new lease of life to the cane areas.

Instead the focus should shift to pulses and fodder crops. Pulses are essential for the country's nutritional security and fit very well into the harsh environments. Sugarcane growers in most parts of the country can easily be made to shift to pulses cultivation given the right incentive. Such a renewed emphasis will not only help farmers and consumers alike but also rejuvenate the environment and help in restoring soil health. Pulses have the inbuilt capacity to draw nitrogen from the atmosphere.

3.5 Marketing

Providing an assured and remunerative market for agricultural producers cannot be left to the market forces. The food policy imperatives of public distri-

bution system and announcing the procurement prices before the crop season have to be further strengthened. Agri-processing too needs to be strengthened, but not at the cost of the domestic producers. The food-processing sector should be directed to use the abundant raw material available within the country. The 'rainbow' revolution that everyone talks about is actually aimed at helping the industry to exploit the farm sector. Already a number of manufacturing units, for instance, have begun to source the agricultural raw material, including oranges, grapes, popcorn, peas etc., from America and Europe. Domestic production in these crops is going to waste. Farmers have repeatedly and in different parts of the country been dumping tomatoes, potatoes and other fruits onto the streets to express their frustration at the lack of adequate marketing infrastructure.

Creating a global market for farm produce is the bane of modern agriculture. The seed multinationals, the food giants, and the supermarkets, have cornered the food chain in the process thereby destroying livelihoods, local markets and also drastically reducing food choices. Such a market strategy has resulted in the disappearance of locally produced nutritious foods as a consequence of which micro-nutrient deficiency in human populations have grown manifold. Encouraging local markets will also reduce the dependence upon long distance transportation thereby minimising global warming. It will also help in bringing back the traditional and neglected crops, and help in changing the food habits.

3.6 Farm incomes

Growing indebtedness in agriculture is forcing an increasing number of farmers to end their lives. This unsavory phenomenon is a manifestation of the declining farm incomes and lack of farm credit. Institutional finance and credit has almost disappeared over the years. Banks are no longer treating agriculture for priority sector lending. Rural banks and cooperatives are deep in the red, with a majority of them eating into their own reserves. Agriculture credit has to be revived. Schemes that encourage banks to provide easy credit facilities to farmers need to be spelled out. On top of it, agriculture credit has to be extended to sustainable farming systems. So far the banks are only providing credit for technology-oriented farming systems. This has to be extended to organic agriculture, for which an Organic Bank needs to be created by NABARD (like the technology credit that goes through the private Robo Bank). Crop insurance should be extended to cover the entire farm sector immediately.

4. Food Security – The Way Ahead

Although India is following the WTO dictates of doing away with the food procurement system, any tinkering with what is generally regarded as the “famine-avoidance” strategy, can be catastrophic. Corrective measures are needed to reduce inefficiency in the system while at the same time making it broad-based and widespread.

4.1 Multiple Cropping

Emphasis on commodities approach during the Green Revolution has encouraged monocultures, loss of biodiversity, encouraged food trade in some commodities, distorted domestic markets, and disrupted the micro-nutrient availability in soil, plant, animals and for humans. Thrust on farm commodities have also pushed in trade activities, encouraged food miles, adding to greenhouse emissions, water mining, and destruction of farm incomes. The need is to revert back to the time-tested farming systems that relied on mixed cropping and its integration with farm animals, thereby meeting the household and community nutrition needs from the available farm holdings.

Reverting back to multiple cropping will also provide the answer to the acute malnutrition that prevails in the countryside. The availability of nutritious crops, vegetables and fruits was once a part of the cropping pattern, abandoned in the wake of the Green Revolution. The second Green Revolution that is being talked about will further exacerbate the malnutrition crisis. This can only happen when the focus shifts away from encouraging cash crops.

For the past two decades at least, the World Bank/IMF and some other academia and donors have been pressing developing countries to diversify from staple foods to cash crops (UNDP 2003) in what is being projected as the right approach to add to farm incomes. This is a politically motivated advice and runs counter to the sustainable approach spelled out above. Many Latin American countries are faced with a serious land degradation crisis as a result. It also pushes farmers into a death trap⁸ since the developing countries do not have the resources to provide for adequate marketing infrastructure.

Public Distribution System (PDS) also needs to be strengthened and extended to upcoming agricultural areas in Bihar, Orissa, West Bengal and the northeast. Similarly, financial allocation must be made for assured food procurement at remunerative prices. In addition, procurement needs to be extended to coarse cereals, pulses and oilseeds to provide farmers an incentive to produce more. Food procurement operations, linked to the announcement of assured prices for agricultural commodities, were the two planks of the ‘famine-avo-

idance' strategy that India had adopted in the wake of the Green Revolution. Whether the economists like it or not, the fact remains that a combination of these policies helped India to emerge from the dark days of 'ship-to-mouth' existence.

The emphasis by IMF, the World Bank and WTO to force India to dismantle PDS is based on the corporate need. India's massive food procurement operations are coming in the way of the expansion of the food trade that the United States and the European Union are looking for. If the US doesn't find an assured food market in a country as huge as India, with one sixth of the world's population, the chances are that its own agriculture will collapse under the artificial weight of its own federal subsidies.

That the threat is real, is clearly evident. Take a look at the recent developments in neighbouring Pakistan. Under pressure from IMF and the World Bank, Pakistan's military government has begun lifting its decades-long support price system for key commodities – despite protests that this would be disastrous for small farmers. In India too, economists are asking the government to 'decentralise' the food procurement system, a euphemism for dismantling the PDS.

Once the government withdraws from announcing procurement prices for agricultural commodities, it is under no obligation to purchase the surplus that flows into the *mandis*. Farmers would thus be left at the mercy of the trade and the market forces, and if the past experience is any indication it simply means rendering the farming community vulnerable to exploitation thereby threatening the country's food self-sufficiency, so assiduously built over the past three decades.

The biggest crisis afflicting the farm sector is the inability to manage the agricultural surpluses. It is here that the policy planning effort has to be redirected with an effort to ensure that the surplus does not become a national liability. The approach has to be different for the rural and urban areas. Since this paper focuses on the link between agriculture, food security and hunger, a framework for rural India is hereby proposed.

4.2 Community Grain Banks

The answer to the intricately complex, economically unsound and politically sensitive issue of public distribution rests with the poorest of the poor and is a tribute to human ingenuity, cooperation and traditional knowledge. Effectively targeting the public distribution system to reach the needy and the poorest of the poor has been a serious concern. Moreover, for several years now, the exclusion of the well-to-do beneficiaries, including income tax payers, from

the provisions of the PDS have been resisted by all political parties, irrespective of their ideological leanings.

While the debate goes on, Bolangir in Orissa and Kodagu in Karnataka have demonstrated that the real beneficiaries, the poor in the villages, are not dependent upon food doles. Such a system of sharing the benefits of the harvest with the village community also exist in several other parts of the country. This is perhaps the only viable path for the nation to wriggle out of the growing threat from food insecurity.

Starvation and hunger no longer stalks a cluster of 20 villages, about 150 kms away from Bolangir town. At a time when recurring drought has brought acute misery and suffering for tens of thousands of people in the district, and with the latest controversy shrouding the starvation deaths and sale of children from western Orissa showing no signs of healing, hundreds of families in and around Sundhi Munda village have built a food insurance system that keeps certain hunger and death at bay. That the food security system has successfully withstood varying degrees of natural calamities and has, in fact, grown and multiplied clearly demonstrates its social relevance and effectiveness.

It all began in 1990-91, when a social activist Bansi Dhar Behera, coordinator of the Anchalika Jana Sewa Anusthan in Sundhi munda village, was looking for a permanent solution to mitigate human suffering arising from the non-availability of foodgrains, especially at times of distress. His appeal to fellow villagers to donate surplus paddy and rice after the harvest so as to build a grain reserve brought in 22 quintals of paddy. In all, 150 families from eight villages, almost all of them marginal farmers, responded to his call. The village grain bank was thus formed.

The grain bank became a pivot of food security. Farmers have since then deposited their 'surplus' produce with the bank after each paddy harvest. They withdraw an equal quantity of paddy at the time of need without having to pay any interest. For others, who are landless or do not have any 'surplus' for the grain bank, borrowing paddy at the time of distress is routine. But at the time of harvest, the grains borrowed have to be returned with half a bucket of paddy as interest. For those, who cannot repay the foodgrain loan, the village *samaj* decides whether the loan can be waived or not. For the villagers, the grain bank was an escape from the clutches of the money-lenders, who often gave foodgrains to the needy to be returned in double the quantity received, and that too within three months.

Sometimes, depending upon the immediate requirement of the participating villages, the beneficiaries are asked to contribute by way of human labour. In the village Batharla, a community temple and a grain store house was

constructed by the beneficiaries. Their wages were paid in kind from the interest (surplus grain) that builds up over the years. In Banjupadhar village, a traditional water harvesting tank was rejuvenated for which the society distributed 16 quintals of paddy as wages. The grain bank, in other words, is also being utilised for 'food for work' programmes, all depending upon the need of the village community.

In five years, the grain bank had grown in size and volume. In 1996, the society received and disbursed 220 quintals of paddy. A year later, in 1997, it got back 253 quintals. In all, the number of people donating to the grain bank had grown by almost ten times, with a thousand families depositing paddy this year. The number of beneficiaries too increased over the years reaching 1,066 families this year, in the 20 participating villages. More than the numbers what is important is to understand that these families have perfected a social model that gives them freedom from hunger.

The ten grain banks in Kodagu district are, however, registered under the Cooperative Act. Successfully in operation for over 30 years now, these grain banks also work on the same principle. After every paddy harvest, each member brings not less than 100 kgs of paddy as their contribution to the grain bank. And during the lean months of December-January, paddy can be borrowed as a loan by members. The loan is normally repaid after the next harvest with an interest of twelve per cent in terms of paddy. After the harvesting season ends, the left over paddy stocks are sold in the market. Consequently, members receive dividend varying between ten to 20 per cent of the total share capital.

Such is the underlying spirit of cooperation that like in Bolangir, each member in Kodangu district also deposits about five to ten kgs of paddy every year towards what is called the *death fund*. The basic idea being that at times of bereavement, the village community comes to the rescue of the family in mourning. It is invariably because of the strong community ties in the villages that the grain banks have succeeded. Also, because these grain banks have remained outside the gambit of government interference. Its replication, therefore, has to be through the *panchayats* and the grassroot NGOs or perhaps an amalgamation of both.

4.3 Village Republics

Focus on tackling the causes of poverty, hunger, the inequitable distribution of income and low human resource base with the objective of providing everyone with the opportunity to earn a sustainable livelihood. The Green Revolution areas are encountering serious bottlenecks to growth and productivity. Excessive mining of soil nutrients and groundwater have already brought

in soil sickness. If the livelihood of the marginalised in the society (and that in the majority world is in agriculture) it must be secured by economic activities that are sustainable, that do not threaten the integrity of the environmental assets on which they depend. Food security and hunger are directly linked to the community's control over the natural resources, and also on the long-term sustainability of the resource base.

Contrary to commonly made projections and assessments, hundreds of villages in rural India have made their own effort to chart a different but equitable path to growth and human development. Deviating from the mainstream approach, these villages have put up sign boards outside the village boundary warning government officials and private company executives from entering their village. The reason: these villages have become self-reliant.

A conservative estimate based on different reports shows that close to 1500 villages have imposed self-rule and have declared themselves village republics. In these villages the residents have taken control over their natural resources – namely forest, land, minerals and water sources – and have formed strong institutions to manage them. They plan, execute and resolve all affairs inside the village and government officials and programmes are accepted only after getting approval of the residents through Gram Sabha (village assembly consisting of all adult members). In many such villages, the forest department, the police and other officials just execute programmes and plans chalked out in village meetings.

Self-reliant villages are the answer to India's multiple and complex problems of food insecurity, hunger and malnutrition.

- 1 Dr M.S.Swaminathan, architect of India's 'Green Revolution', defines sustainable food security as: "Sustainable food security involves strengthening the livelihood security of all members within a household by ensuring both physical and economic access to balanced diet, including the needed micro-nutrients, safe drinking water, environmental sanitation, basic health care and primary education." In "Sustainable Agriculture : Towards Food Security", Konark Publishers, New Delhi, 1996.
- 2 Hildyard, N / Clunis-Ross, T (1992): The Politics of Industrial Agriculture. London: Earthscan Publications.
- 3 World Bank has expressed its displeasure over the move to supply free power to farmers.
- 4 There isn't a time when an educated Indian doesn't search for answers from "America – the dream land" for the problems that crop up time and again back home. The solutions to India's crisis on the farm front, whether it pertains to sustainability, role of markets, or the recurring drought – rest in the way America has managed its crop lands. After all, the United States has put together

a drought-mitigation strategy, which many feel India needs to follow immediately. The author had earlier analysed the faulty agriculture model that is being imposed onto India. <http://www.fpiif.org/outside/commentary/2002/0208indiafarm.html>, 12.8.2005.

- 5 Considering the high plant density of 60,000 plants per hectare, and the need to maintain international quality standards, the use of agro-chemicals is stupendously high. On an average, two pesticide sprays per week are necessary to keep away the insects and diseases. More than 47 tonnes of chemical fertilisers and 108 tonnes of manure per hectare is added to the soil. In addition, excessive use of groundwater at 212 acre inches per hectare is four times more than what is required for food crops. For more details, refer to Dr T.N.Prakash and Dr Tejaswini of the University of Agricultural Sciences at Bangalore.
- 6 'Sustainable' refers to the maintenance or enhancement of resource production on a long-term basis. A household may be enabled to gain sustainable livelihood security in many ways – through ownership of land, livestock or trees; rights to grazing, fishing, hunting or gathering; through stable employment with adequate remuneration; or through varied repertoires of activities. (Chambers 1983)
- 7 Traditional knowledge or 'local' knowledge is in conformity with general scientific principles, but which, because it embodies place-specific experience, allows better assessment of risk factors in production decisions. One such example would be where farmers reject or modify standard extension recommendations concerning fertilizer or pesticide use because they have detailed knowledge of the way in which crops and soils, or crops and pests, interact, under a variety of local climatic conditions. This kind of knowledge arises where local people undertake their own experimentation, or where they are able to draw inferences from experience and natural experiments (Paul Richards 1994)
- 8 In Andhra Pradesh, India, more than 300 farmers, a majority of them cultivating cash crops, have committed suicide between May 14-June 24, 2004 (Sharma June 25, 2004)

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Abstracts

Dieser Artikel belegt mit anschaulichen Beispielen, dass die sogenannte Grüne Revolution in Ländern wie Indien nicht nur verheerende Folgen für Ökologie und Grundwasser hatte, sondern auch langfristig keine höheren Erträge bringt. Gleichzeitig geraten AgrarproduzentInnen unentrinnbar in Abhängigkeit von großen Agrarkonzernen, die auf jede Krise des Systems mit neuem Technologieinsatz antworten. Kleinbäuerinnen und -bauern in mehreren indischen Bundesstaaten sehen zunehmend im Selbstmord den einzigen Ausweg aus Existenznot und Überschuldung. Es werden aber nicht nur die Krisenerscheinungen, sondern auch Alternativen aufgezeigt, die sich in einzelnen Regionen bereits bewährt haben. Ihnen ist die Rückbesinnung zu ökologischen Wirtschaftsformen und die Selbsthilfe der Zivilgesellschaft gemeinsam.

This paper proves with descriptive examples that the so called Green Revolution not only wreaked havoc on the environment and water supply. In the long run it produced no better yields than traditional farming. But farmers be-

come increasingly dependent on agribusiness which reacts to each crisis with more technology. In several Indian states, a growing number of small farmers see no alternative to suicide in order to escape the debt trap. The author does not limit himself to naming and blaming. He offers a number of alternatives which are already working in different regions. What they have in common is a return to ecological farming methods and the empowerment of civil society.

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