

# Voices from the South

**The Third World Debunks Corporate Myths  
on Genetically Engineered Crops**

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A joint project of Food First/Institute for Food and Development Policy and  
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## **Note**

In this report several different phrases and acronyms are used for genetic engineering and genetically engineered crops. These include GE (genetically engineered), GM (genetically modified) and GMOs (genetically modified organisms).

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# Introduction

by Anuradha Mittal

For proponents of genetically modified food, these are dark times. Led by Zambia, and recently followed by India, more and more countries in the Global South are spurning genetically modified (GM) food aid, and questioning the wisdom of a corporate-controlled food system. Zambia is the mouse that roared. A country facing widespread famine, Zambia refused genetically contaminated food aid from the U.S., after a review by its scientists of studies on GM foods showed insufficient evidence to demonstrate its safety.

## Better dead than GM fed?

The pro-GM lobby, and its media outlets, did not take well to this. “Better Dead than GM Fed?” was the derisive response of *The Economist* magazine (Sept. 23, 2002). Tony Hall, U.S. ambassador to the United Nations food agencies, went a step further, equating Zambia’s rejection of food aid to a crime against humanity. He wanted to hold Zambia accountable if its policy, guided by the precautionary principle, caused starvation deaths. Claiming that Africa is on the verge of a catastrophe with food crisis worsening, he accused “well fed” European experts and lobbyists of being selfish, ignorant luddites for their opposition to U.S. food aid. “All of it has passed U.S. food safety and environmental impact testing—the most rigorous in the world. For this reason, U.S. biotech and non-biotech foods are mixed together. We do not, and see no need to, separate them,” he claimed. It seemed ludicrous to Hall, a representative of the “bastion of democracy,” that there should be a debate inside African countries over human health and environmental risks posed by the *corn that millions of Americans eat daily*. Or perhaps it just seemed ludicrous that there was any debate at all! Ambassador Hall’s statement might best be described as *poorwashing*—confering legitimacy, and preventing debate over a policy by spurious suggestion that the poor will benefit from it, and that any objection necessarily contradicts the interests of the poor.

Poorwashing also involves a degree of official amnesia. Consider, for example, the StarLink corn controversy

that rocked the United States’ food supply system in September 2000. Made by Aventis CropScience and only approved for animal feed due to concerns that it might cause allergic reactions in humans, the StarLink biotech corn slipped into the U.S. food supply sparking a nationwide recall of more than 300 kinds of corn-based foods. In December 2002, traces of unapproved StarLink corn were found in a U.S. shipment bound for Tokyo’s markets, much to the surprise of U.S. Department of Agriculture (USDA) officials since they believed all remaining StarLink corn was destroyed in 2001.<sup>1</sup> Tony Hall seems to have forgotten this.

While the United States tries to convince reluctant trading partners like the European Union and southern Africa that genetically modified crops are safe for consumers, traces of corn genetically engineered to produce an “edible vaccine” to protect piglets from diarrhea were found in the autumn soy harvest in November 2002—mixed with beans that would soon be processed into dozens of groceries, from ice cream to salad dressing.

I wish to inform the nation that government has finally decided not to accept genetically modified foods even in our current food deficit situation. In the absence of a national biotechnology and biosafety policy framework as well as inadequate national capacity to deal with GMOs it would be risky for the country to receive GM products. The acceptance of GMO maize in the light of absence of evidence of its safety on human health would pose a danger to the lives of our citizens and environment. The immediate possible threat of contaminating local indigenous and hybrid seed stocks would also be another serious risk posed by GMOs. In this regard, all GM food stuff including maize that is already in the country should not and will not be distributed.... Government on its part is putting in place adequate safeguards to make sure that people do not starve as a result of the decision to reject genetically modified foods, particularly genetically modified maize grain. ... Furthermore, government is putting in place adequate mechanisms to monitor and to ensure that there is sufficient supply of maize to last until the next harvest.

*Statement of Hon. Nestead L. Zimba, Minister of Information and Broadcasting Services, after Zambia refused U.S. food aid of genetically engineered maize.*

The discovery rattled America's food industry. The manufacturers of those groceries were infuriated by the mix up. Joining forces with the anti-biotech activists, food lobbyists are pushing for much tougher restrictions on the genetic revolution. Fearing a threat to public health and to their business interests, they are demanding federal regulation to place strict limits on where and how the experimental plants are grown. In fact, they would prefer that U.S. follow the path chosen by Zambia!

The domestic failure of regulatory agencies in the U.S. to safeguard the interests of the consumers, sustainable food producers and the environment, has not prevented the U.S. government and its business interests from conducting a concerted international pro-GM campaign. Kofi Annan, United Nations secretary-general, together with the leaders of the World Food Programme, the World Health Organization, the United Nations Development Programme, and the Food and Agriculture Organization, have all obediently endorsed the U.S. policy on GM food, perhaps in the hope that this will encourage the U.S. to pay its dues to the United Nations. They issued a joint policy on biotechnology stating that marketed genetically modified/biotech foods present no known risk to human health. But Zambia stands firm.<sup>2</sup>

### **Conveying a false sense of need, urgency and safety**

Multilateral institutions and U.S. policy makers are in the pockets of those who stand to gain from GM foods—the corporations. Massive corporate expenditures on public relations are creating a false sense of need, urgency and safety concerning new technologies. Just one biotech industry consortium, the Council for Biotechnology Information, has a \$250 million war chest which has helped it place ads promoting biotechnology on television and in the print media. The key arguments being used in this pro-industry publicity blitz are *green washing*—“biotech will create a world free of pesticides,” *poorwashing*—“we must accept genetically engineered foods if we are to feed the poor in the Third World,” and *hope dashing*—“there are no alternatives.”

The public relations industry has, of late, discovered a new tactic called astroturf activism. It looks like regular grassroots activism, except that it's fake. To this end, we've seen an increasing number of “credible spokespeople”—Third World representatives, scientists, professors, farmers, doctors and government ministers—in print

media via opinion pieces, interviews and articles and over the airwaves. These “Southern Missionaries” preach the benevolence of biotech with an evangelical zeal. But how often do those cited as “Third World representatives” supporting GM crops in developing countries have a vested interest in the technology's acceptance?

Dr. Florence Wambugu from Kenya, poster child of the biotech companies, is a Monsanto-trained biotechnician. Wambugu claims that the critics' real agenda is to keep the South dependent on the North: “They don't want Africa to embrace biotechnology because they know the technology has the potential to solve Kenya's famine problems.”<sup>3</sup>

But Wambugu's whole career is a litany of dependency on the North. Under a scholarship from the United States Agency for International Development (USAID), she became the first African scientist to take up a fellowship in biotechnology at Monsanto's Life Sciences Research Centre in Missouri, USA. In 1994 Dr. Wambugu returned to Kenya to take up the post of Director of the African Centre of the International Service for the Acquisition of Agri-biotech Applications (ISAAA) that promotes the growth of GM in the developing world. In addition to being funded by USAID, ISAAA's other donors include biotech companies such as Bayer CropScience, Monsanto, Pioneer Hi-Bred, Syngenta, AgrEvo, Cargill, Dow AgroSciences, and KWS, and the USDA. Until recently, Monsanto was on ISAAA's board and has now been replaced by Novartis. Currently working as the director of Harvest Biotech Foundation International in Kenya, Wambugu herself sits on boards of Consultative Group on International Agricultural Research (Private Sector Committee), International Food Policy Research Institute, DuPont/Pioneer Company Biotech advisory panel, and African Biotechnology Stakeholders Forum.<sup>4</sup>

Dr Wambugu's support for genetic engineering is cited in numerous articles on [www.monsantoafrica.com](http://www.monsantoafrica.com), [www.dupont.com](http://www.dupont.com), among many other pro-industry websites, with her views being projected as those of a disinterested “African scientist” taking on self-centered European activism. But her words at [www.dupont.com](http://www.dupont.com)/biotech betray a different concern: “The North is looking for additional markets for the technology they have developed. The South represents untapped markets for the North.”

Quoted alongside Wambugu on these websites is another high-profile genetic engineering enthusiast, Dr. C.S. Prakash, director of the Centre for Plant Biotechnology Research at Tuskegee University, Alabama. Though he lives and works in the United States, Prakash claims to represent the people of the Third World. “Western anti-biotechnology activists represent a new imperialism that would condemn developing nations to permanent poverty and despair,” lashes out Prakash.<sup>5</sup>

At a lecture sponsored by the Institute of Public Affairs in 2000, Prakash lamented that anti-gene technology activists were trying to vilify the achievements of the Green Revolution in the 1970s and ’80s. “Before the Green Revolution, India grew only 10 million tons of wheat. This year it produced 80 million tons.” He accused the groups opposed to biotechnology, of having “a broader agenda—they want to control the production and distribution of food, on their terms. But I would rather see it done by multinational companies with enormous skills, resources and investment.”<sup>6</sup>

Prakash ignores the bottom line that the Green Revolution did not decrease hunger. In the year 2000 while 80 million tons of excess food grains rotted in the granaries of the Food Corporation of India and was eaten by rats, newspaper headlines screamed starvation deaths in 13 states and nearly 300 million Indians went to bed hungry.<sup>7</sup> The Green Revolution did increase environmental degradation and production costs for farmers who now must depend on purchased pesticides and fertilizers. The Green Revolution sounded the death knell for those Indian farmers, who unable to sell their crops, have consumed the same pesticides to end their lives.

Lending himself promiscuously to the U.S. State Department to promote biotechnology in the Third World, Prakash has traveled to Malaysia, Tanzania and other “developing countries”—trips often arranged by the U.S. embassies based there. His enthusiasm has been amply rewarded. Prakash, an official USAID advisor, has managed to bring funding to the tune of US\$5.5 million by USAID to Tuskegee University. In addition, the U.S. Department of Agriculture recently signed an agreement with Sub Saharan African countries and Tuskegee University to facilitate technology transfer related to agricultural biotechnology.<sup>8</sup>

Prakash also runs one of the most influential pro-GM websites, AgBioWorld, with Greg Conko of the

Competitive Enterprise Institute (CEI), the far-right lobby group funded by companies such as Philip Morris, Pfizer and Dow Chemical. The website is connected to the public relations agency Bivings Woodell, the secret author of several of the websites and bogus citizens’ movements which have been coordinating campaigns against environmentalists and whose clients include Monsanto, Kraft Foods, Dow Chemicals and Philip Morris. In addition, Prakash works closely with the International Policy Network (IPN), whose prime mover is Julian Morris of the Institute of Economic Affairs (IEA), who has advocated that African countries should be sold off to multinational corporations in the interests of “good government.” It was on AgBioWorld that the fake persuaders invented by Bivings launched their assault on an article submitted to the journal *Nature*, showing the genetic contamination of the center of maize biodiversity in Mexico. AgBioWorld drew up a petition to have the paper retracted. Prakash claims to have no links with Bivings but as reported by George Monbiot in “Monsanto’s World Wide Web of Deceit,” *The Guardian* (May 29, 2002) an error message on Prakash’s website suggested that it is or was using the main server of the Bivings Group. A full technical audit of AgBioWorld found 11 distinctive technical fingerprints shared by AgBioWorld and Bivings’ Alliance for Environmental Technology site. This is a textbook case of astroturf activism, and one of hundreds of critical interventions with which public relations companies hired by big business have secretly guided the biotech debate over the past few years.

Another biotech zealot is India’s Liberty Institute and its director, Barun Mitra, who gathered hawkers and farmers at the World Summit on Sustainable Development in Johannesburg to protest the “sustainable poverty” agenda of environmentalists who want to retard economic development in the Third World. A crusader for the Third World, Mr. Mitra does not inform the listeners that Liberty is part of the deceptively named Sustainable Development Network which shares offices and its personnel with the International Policy Network (of which, recall, Prakash is a member), a group whose Washington address happens to be that of the Competitive Enterprise Institute.

It’s a small world.

### Southern opposition

The biotech industry's carefully planned response, with its handful of "Third World" spokespeople, by muting the genuine voices of grassroots activists in the global South, aims to further Northern corporate profits. It wishes away the big public debate organized by Zambia's President and consultation in parliament by which Zambia reached its decision. It hides from us that aid was not offered to Zambia. Zambia was given \$51 million as a loan to the private sector to import maize from the U.S. When this maize was imported, Zambia was not informed that it was contaminated; nor did the U.S. seek its prior consent before shipping contaminated food. While the U.S. accuses Zambia of starving its citizens, offers of GM-free maize have come from Kenya, Tanzania, Uganda, India and China to make up for the shortfall.<sup>9</sup>

Africa has, however, been largely united against U.S.-pushed GM, opting instead for self-sufficiency. In 1998, all African delegates (except South Africa) to the UN Food and Agriculture Organization (FAO) negotiations on the International Undertaking for Plant Genetic Resources released a statement, "Let Nature's Harvest Continue" (see page 5).

During the past few weeks European citizens have been exposed to an aggressive publicity campaign in major European newspapers trying to convince the reader that the world needs genetic engineering to feed the hungry. Organized and financed by Monsanto, one of the world's biggest chemical companies, and titled, "Let the Harvest Begin," this campaign gives a totally distorted and misleading picture of the potential of genetic engineering to feed developing countries. We, the undersigned delegates of African countries participating in the 5th Extraordinary Session of the Commission on Genetic Resources, strongly object that the image of the poor and hungry from our countries is being used by giant multinational corporations to push a technology that is neither safe, environmentally friendly, nor economically beneficial to us... We think it will destroy the diversity, the local knowledge and the sustainable agricultural systems that our farmers have developed for millennia and that it will thus undermine our capacity to feed ourselves. We invite European citizens to stand in solidarity with Africa in resisting these gene technologies so that our diverse and natural harvests can continue and grow.

The farmers' movement in India has found a new use for the slogan of the Indian liberation struggle. They have re-issued the "Quit India" ultimatum to multinational corporations such as Monsanto, and burned their field trials of genetically engineered crops. Inspired by Gandhi, they have resorted to direct action to chal-

lenge the colonizing force of multinational corporations. Emphasizing food sovereignty, producing safe nutritious food for their families and communities, they want safe access to domestic and regional markets. Food is sacred in this struggle and not a commodity to be exported to international markets. Others such as the Kerala Karshaka Munnani, a farmers' organization in the Indian state of Kerala, formed under the initiative of a Catholic priest, is determined to educate the farmers' on the harms caused by GM crops which are being rejected by European nations.

*Voices from the South: The Third World Debunks Corporate Myths on Genetic Engineered Crops* is part of our mandate to expose the real southern views. The South is viewed by the corporations as an "untapped" market to further their profits—a dumping ground. Its people, the farmers, the poor, and the dispossessed of the South, have been the most directly impacted. Unsurprisingly, they are also its most astute and ardent critics. It is crucial, particularly in this time of poorwashing, greenwashing, hope dashing and astroturf activism, that their voices be heard.

*Voices from the South* is a collection of views and comments by the leading voices of southern opposition to genetic engineering and tells stories of their struggles. It is our hope that it will break through the rhetoric, debunk the corporate myths and ensure that these voices shift the terms of the debate on genetic engineering from a politics of despair to a politics of hope.

*Anuradha Mittal is co-director of Food First/The Institute for Food and Development Policy in Oakland, California.*

### Notes

- 1 Randy Fabi, "Japan finds StarLink in U.S. corn cargo," Reuters, December 27, 2002.
- 2 "UN statement on the use of GM foods as food aid in Southern Africa," FAO Press release, August 27, 2002, <http://www.fao.org/english/newsroom/news/2002/8660-en.html>.
- 3 "Fighting Over New Ways To Raise Food," COMTEX Newswire, *The Nation* (Nairobi), April 21, 2000, <http://www.netlink.de/gen/Zeitung/2000/000421a.html>.
- 4 Florence Wambugu's resume, September 2001, [http://nutrition.tufts.edu/pdf/conted/agri\\_biotech/cvwambugu.pdf](http://nutrition.tufts.edu/pdf/conted/agri_biotech/cvwambugu.pdf).
- 5 Expert Lashes Poor's New Enemy, *Herald Sun*, July 9, 2000, <http://www.monsantoafrica.com/news/afrenshowlib.phtml?uid=3695>.
- 6 Ibid, <http://www.monsantoafrica.com/news/afrenshowlib.phtml?uid=3695>.
- 7 "Prevent starvation deaths, SC tells States," *The Hindu*, October 30, 2002, <http://www.hinduonnet.com/thehindu/2002/10/30/stories/2002103004601400.htm>.
- 8 U.S. Department of State, Assistant Secretary of State Sandalow on Biotechnology to Fight Hunger, Poverty, July 13, 2000, <http://usinfo.state.gov/topical/global/biotech/00071301.htm>.
- 9 ISIS miniseries: Hidden Lights at the Earth Summit, September 2002, Africa Unites Against GM to Opt for Self-sufficiency, <http://www.i-sis.org.uk/AfricaRejectsGMAid.php>.

# Myth #1

## Genetically Engineered Crops Are Necessary to Feed the Third World

The biotech industry persistently argues that we must accept their contention that genetically engineered crops are needed to feed the hungry. They say that because of concern for the poor, we should put aside “elitist” concerns for consumer health and environmental safety. Their argument hinges on two assumptions: 1) that people are hungry because there isn’t enough food, or that conversely, we need to produce more food to end hunger, and 2) that genetic engineering of crops is a way, or a good way, or the best way, or the only way, to produce more food.

Extensive research on hunger by Food First reveals that the first assumption is not based in fact. The world today produces more food per inhabitant than ever before. In fact, over the past 35 years, per capita food production has outstripped population growth by 15%. The real causes of hunger are poverty, inequality and lack of access. Too many people are too poor to buy the food that is available (but often poorly distributed) or lack the land and resources to grow it themselves.

However, there is no denying that we may need to produce more food in the future, or even today, in some parts of the world. This is where the second assumption comes in. Industry public relations touts potential yield increases of 25–35% should genetically engineered seeds be widely adopted in place of conventional seeds.

While this is quite pie-in-the-sky (genetically engineered soybeans actually yield on the average 7% *less* than conventional soybeans, for example), it still falls far short of productivity gains that could be attained, according to current research and documentation, by simpler and safer methods. For example, there is a huge productivity penalty the world pays today for overly large and inefficient farm sizes. Smaller farms produce, on the average, 100 to 1000% more total food per unit area than large farms. Great productivity gains could be achieved by reducing average size in most countries. Other productivity enhancing methods, like intercropping and the integration of crops and livestock, can provide more modest gains, which still surpass the best-case scenarios for adoption of genetically engineered crops. When they ignore the evidence and make the claim that there is no alternative to genetically engineered crops, industry and their apologists are practicing what we call “hope dashing”—dashing hopes of healthier and environmentally sustainable alternatives.

The task before us is to challenge the myths—of need, of safety and environmental soundness, of lack of alternatives—that lie behind the tactics of poor washing, green washing and hope dashing.

*For more information on the causes of hunger, visit the Food First website at <http://www.foodfirst.org>.*

## Let Nature’s Harvest Continue

### African Delegates Reject Monsanto’s “Harvest”

Monsanto is seeking to win acceptance of genetically engineered crops in Africa and other developing countries around the world. Global Business Access, an international consulting firm acting on Monsanto’s behalf, approached African leaders in 1998 asking them to sign a declaration supporting genetic engineering entitled “Let the Harvest Begin.” In response, African experts who do not believe genetically engineered crops are the solution to food security, issued a counter-statement, “Let Nature’s Harvest Continue.”

#### **Statement by all African delegates (except South Africa) to the UN Food and Agriculture Negotiations on the International Undertaking for Plant Genetic Resources, June 1998**

During this past summer, European citizens have been exposed to an aggressive publicity campaign in major European newspapers trying to convince the reader that the world needs genetic engineering to feed the hungry. Organized and financed by Monsanto, one of the world’s biggest chemical companies, and titled “Let the Harvest Begin,” this campaign gives a totally distorted and misleading picture of the potential of genetic engineering to feed developing countries.

We, the undersigned delegates of African countries participating in the Fifth Extraordinary Session of the Commission on Genetic Resources, June 1998, strongly object that the image of the poor and hungry from our countries is being used by giant multinational corporations to push a technology that is neither safe, environmentally friendly, nor economically beneficial to us.

It is time to look at some of the facts about the company behind this campaign:

- Monsanto is one of the world's largest pesticide companies. During the past two years only it spent billions of dollars to take control over other seed and biotechnology companies and is now the major industrial player in this field. Its major focus is not to protect the environment, but to develop crops that can resist higher doses of its best-selling chemical weed killer "Roundup."
- Rather than stretching a helping hand to farmers, Monsanto threatens them with lawsuits and jail. In the U.S., the company employs detectives to find and bring to court those farmers that save Monsanto soybean seeds for next year's planting. Backed by patent law, the company demands the rights to inspect farmers' fields to check whether they practice agriculture according to Monsanto conditions and with Monsanto chemicals.

In "Let the Harvest Begin," the Europeans are asked to give an unconditional green light to gene technology so that chemical corporations such as Monsanto can start harvesting their profits from it. We do not believe that such companies or gene technologies will help our farmers to produce the food that is needed in the 21st century. On the contrary, we think it will destroy the diversity, the local knowledge and the sustainable agri-

cultural systems that our farmers have developed for millennia and that it will thus undermine our capacity to feed ourselves.

In particular, we will not accept the use of Terminator or other gene technologies that kill the capacity of our farmers to grow the food we need. We invite European citizens to stand in solidarity with Africa in resisting these gene technologies so that our diverse and natural harvests can continue and grow.

We agree and accept that mutual help is needed to further improve agricultural production in our countries. We also believe that Western science can contribute to this. But it should be done on the basis of understanding and respect for what is already there. It should be building on local knowledge, rather than replacing and destroying it. And most importantly: it should address the real needs of our people, rather than serving only to swell the pockets and control of giant industrial corporations.

*Signers included delegates from Angola, Algeria, Benin, Burundi, Cameroun, Chad, Congo, Cote d'Ivoire, Ethiopia, Lesotho, Morocco, Madagascar, Mozambique, Rwanda, Senegal, Sudan, Tunisia and Zambia.*

Global Pesticide Campaigner, *Volume 8, Number 3, September 1998: African Delegates Reject Monsanto's Harvest.*

## Voices

### GMOs: The Wrong Answer to the Wrong Problem

#### Interview with Rafael Mariano, Head of the Peasant Movement of the Philippines

At the head of the influential Peasant Movement of the Philippines, rice farmer Rafael Mariano explains why people from across the region are on the march against pesticides and genetically modified seeds.

#### **Can you briefly describe the situation of agriculture in the Philippines?**

Agriculture is still the cornerstone of the Philippine economy: it employs 40% of the active population (11.6 million in 1999). A majority of farmers use only simple tools and draught animals. Most farms are very small: only 2.1 hectares on average. Landlessness is a major problem: seven out of ten farmers do not own the land they till. They are bound by feudal and semi-feudal relations of exploitation as tenants, farm workers or lease-holders. A few families control vast tracts of land:

60% of the agricultural lands are in the hands of 13% of the land-owners. The biggest landlords own more than 20% of all agricultural land.

#### **How does the use of agrochemicals affect Filipino farmers?**

It started with the Green Revolution in the '70s which farmers were almost forced to join as the use of "high yielding varieties" was then part and parcel of the bogus land reform program of the Marcos dictatorship. I remember that before we always brought something home from our farms even between harvesting seasons. There were mudfish, snails and frogs.



In this respect, our farms were much more productive then. It was only after the introduction of the so-called miracle rice that we started to incur debts because we always had to buy new pesticides every time there was a new pest ravaging the fields. Because of their debts, many farmers were driven from their land.

**It is often argued that GMOs are the only way to boost food production and meet the demand of a rising population. Why do you refute this?**

GMOs are the wrong answer to the wrong problem. The problem is not that there is not enough food, but that too many people have no access to adequate food. Four out of five hungry people live in countries that are exporting food, while Europe and North America are facing a food surplus problem. That is why they want to break open the markets of poor countries for their agricultural products. Besides, GMOs will increase the stranglehold of transnational corporations. The top five

agrochemical companies also dominate the transgenic seed business. They will dictate the terms. The farmers will be at the losing end. So what's the use of increasing yields when you're pushing millions of small farmers deeper into perennial poverty? And then there's the question of whether GMOs will actually increase productivity. I doubt it. Farms that produce an adequate and diversified food supply for the local market are much more productive than those that produce only one crop destined for cities or export.

*Excerpted from the Unesco Courier, January 2001, [http://www.unesco.org/courier/2001\\_01/uk/doss24.htm](http://www.unesco.org/courier/2001_01/uk/doss24.htm).*

*Kilusang Magbubukid ng Pilipinas (KMP) is a nationwide federation of Philippine organizations of landless peasants, small farmers, farm workers, subsistence fisherfolk, peasant women and rural youth. It has over 800,000 rural people as members, comprising roughly 9% of the Philippine agricultural labor force. It has 55 provincial and six regional chapters nationwide.*

## The Fallacy of Genetic Engineering and Small Farmers in Africa

by Timothy Byakola, Pesticide Action Network—Eastern Africa, Uganda

Genetic engineering, the “wonder science,” has made a rapid entry into agriculture.

Proponents of this technology claim that by transferring genes from one organism to another, genetic engineering can overcome the productivity constraints of conventional plant breeding. It is claimed that the new transgenic crops will reduce pesticide use and increase food productivity in developing countries, ending hunger in Africa. It is assumed that economies in many African countries will be built on genetic engineering.

Agricultural biotechnology is big business, and the mission to feed the world has the irresistible ring of a noble obligation. Unfortunately, amidst the enthusiasm for genetic engineering, there is little space for critical reflection. Questions need to be asked about whether the new technology is appropriate for African agricultural systems and what the implications are. The experiences of other countries suggest that the leap into genetic engineering (GE) brings a wide range of biosafety issues and broader socio-economic impacts. GE, for instance, encourages the privatization of public

research to the detriment of African farmer-based innovation. What will this mean for Africa and its small farmers?

### **What is the context of the smallholder African farming system?**

In Africa some 60 million farmers, or 50% of the total farming population, live and work in areas of comparatively low agricultural potential,<sup>1</sup> areas that can be classified as “complex, diverse and risky” (CDR).

These areas are often relatively remote, with no ready market for farmers' surplus production, and with no easy access to external farm inputs. They tend to have relatively infertile soils, lower and more variable rainfall and are often outside the plains and valley bottoms, so they are prone to problems related to cultivation on steep and unstable slopes. Traditionally, these areas and the crops grown there have received little attention from the agricultural research institutions for a number of reasons: the potential returns to research are low in these areas; it is difficult to produce results using formal





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sector agricultural research methods; and it is difficult to reach the large number of small farmers living scattered throughout these areas with any suitable innovations that have been developed. Accordingly, farmers in CDR areas have developed highly diverse farming systems to cope with these constraints. They have tended to rely on their social relations in the local community and family connections for credit, agricultural information and access to new technologies, such as new varieties of seed.

These farmers often have limited land; in cases where they have access to large areas of land, almost invariably it is of low potential. They usually also have limited capital resources; much farm production does not enter cash market systems and what cash there is from crop sales must be used for other household needs. Many farmers are ineligible for credit, because they do not have titles to their land and/or because they cannot repay loans in cash and/or because they do not want the modern production packages of which institutional agricultural credit generally consists. This kind of credit is often also available from local moneylenders but usually at very high rates of interest. As a result, it is used only for emergency consumption needs.

Thus, the only resource over which farmers have some control is labor. Even this may be in short supply for agricultural production. There is often a higher return

to the household's most productive labor resources (mobile, adult males) in off-farm employment in towns or as migrant labor, so only the children, the old people and the women are left to work the fields. Women, in particular, face conflicting demands on their time from domestic chores such as water and fuel-wood collection, child care and food preparation.

As a result, the agricultural system in these areas is geared primarily to meeting domestic needs for food and other products such as roofing and fencing materials, animal fodder, etc. Local agriculture is still strongly influenced by the social relations of production operating within the wider community. However, it may also include production of some cash crops or commercial transaction such as the sale of surplus food crops, beer-brewing etc. Accordingly, the farming system has to be highly diverse to meet these needs.

The home garden is an important feature in traditional African farming systems, and perhaps the most widespread. These gardens contain a great deal of plant diversity, since they serve as a source of vegetables, medicines, local brew for ceremonies and even clothing.

Maintaining this diversity is critical to African livelihood and food security. Abundance of food resources therefore would not necessarily ensure that communities

# Myth #1

have sustainable livelihoods. It is run and managed for many diverse reasons.

### Farmers' seed needs

Because of these factors, farmers require seed for many different types of crops. In addition, farmers want seeds of numerous different cultivars of each crop, to allow for varied physical environments in which they plant the crop (valley, bottom and hillside, different soil types), whether the crop is inter-planted, stagger planted or pure stand, and when the seed is planted (main season or off-season). Even on a small piece of land, it is common to find different crop varieties. This is the farmers' strategy against uncertainties—a way to spread out his/her risk.

In Karamoja, Northeastern Uganda, aid agencies supplied high-yielding maize seed after the devastating 1980 drought. After the first season, the seeds did not sprout. When the same seed was distributed to farmers the next season, they simply ate the seed and went on to plant locally adopted and tested seeds.

Numerous end uses of each crop—human consumption of the grain, leaves and roots; beer-brewing; straw and stovers for animal fodder; and fencing—are also important reasons for a wide variety of cultivars.

Coping with the uncertainty of seasons in complex, diverse and risky areas without the use of external inputs requires that farmers grow a variety of cultivars—some that are early maturing, some late maturing, others may be able to withstand dry spells, etc. Crops with a high degree of intra-varietal variation can be very important for this purpose; if there is some variation in the characteristics of different plants within one crop stand, the chances of producing some harvest are greatly increased.

The varieties must yield without large applications of external inputs, and characteristics, other than high yield, remain important. These include taste and processing and cooking quality, particularly in African homes where energy sources are dependent on the dwindling forest resources. Other important qualities might be resistance to bird and pest attack.

To summarize, it is difficult for formal sector seed breeders (often biotechnology corporations) to provide the kind of seeds wanted by the majority of farmers in Africa. This is because the formal sector seed system is geared towards generating a limited number of varieties,

## Kenya, Monsanto and the Sweet Potato Project

Research on GE crops is moving ahead despite the fact that most countries in Africa do not have a national position or established policy on genetically engineered crops.

Most of the GE research and development taking place is being undertaken in partnership with donor agencies and cash-strapped research agencies. African governments themselves are eager to attract the much-needed foreign exchange.

As a result, funders (such as corporations, international financial institutions and foundations) exert significant influence over agricultural research and development in Kenya, especially when it comes to biotechnology. Over the period 1989 to 1996, these contributions supported 65% of overall expenditures on agricultural biotechnology.<sup>1</sup> Donors exert particular influence over the Kenya Agricultural Research Institute (KARI), which was built with funds from the World Bank. In 1996, 86% of its funds for biotechnology came from donors.

In 1991, Monsanto and KARI began a collaborative effort to develop GE sweet potatoes for virus resistance. The first phase of funding, from 1991–1998, came from USAID and Monsanto; the second phase, covering field-testing and release, was covered by the World Bank Agricultural Research Fund. Monsanto is said to have paid for around 70% of the research and development costs.

Under the project, KARI scientists and Kenyan policy makers have been sent for training at Monsanto's headquarters in the United States and have participated in various training workshops on bio-safety and intellectual property rights.

Once Monsanto and KARI developed the GE potatoes at Monsanto's laboratories, they applied to have them imported and field tested in Kenya. As noted by another participating institution at the time: "The plant's imminent arrival is serving as a catalyst for the established National Biosafety Committee (NBC) to draw up biosafety regulations.<sup>2</sup> Within two years the application went through, and the first season of field trials is now complete.

Since then, however, U.S. donors and their Kenyan project partners have come to occupy a much more influential position. Those trained through the sweet potato project and other "capacity building" exercises supported by USAID have taken critical positions in policy-making and advisory circles. John Wafula, for example, one of the first KARI scientists involved in the project, is a member of the national Biosafety Committee and heads the African Biotechnology Stakeholders Forum, which has taken over from the Kenya Agricultural Biotechnology Platform, as the coordinating agency for the development of a five year national strategy for biotechnology. With new collaborative projects for GE cotton with Monsanto and GE maize with Syngenta, the lobby for biotechnology emanating from KARI is only getting stronger.<sup>3</sup>

Kenya also launched a project called Insect Resistant Cotton for Africa in collaboration with Monsanto. However, with the cotton project KARI is only evaluating Monsanto's transgenic cotton to see if it is "feasible" for Kenya. In other words, Monsanto is financing Kenya's evaluation of a Monsanto product. The chances for responsible evaluation of GE health and food security concerns under such unholy alliances are nil.

### Notes

- 1 David Alvarez (2000), "Connecting People to the Promise of Biotech: Update of the ISAAA Fellowship Program in Africa and Southeast Asia," *ISAAA Briefs*, No. 15, ISAAA: Ithaca, NY.
- 2 Devlin Kuyek, Working Paper, Research Network of African NGOs, March 20, 2002.
- 3 Barbara Dinham, (2001) GM Cotton—Farming by Formula? *Biotechnology and Development Monitor*, No. 44.

each of which is distinct, uniform and stable, displays a wide environmental adaptability, and has a potential in terms of high yield if grown with applications of external inputs. Variation is dealt with by releasing a stream of new varieties over time, each to replace the previous, rather than by generating a large range of varieties at any one time, among which farmers can choose.

High research and development costs for genetically engineered crops will severely limit the available selection of crop species and varieties. Therefore the technology favors monocropping with high-yielding hybrids and all its associated economic and ecological risks. Use of a restricted number of high yielding GE varieties threatens to hasten the already serious genetic erosion in Third World countries. Reliance on these high yielding varieties will easily lead to genetic susceptibility and the loss of well-adopted regional varieties.

#### **But how about the seed diffusion system in small farm areas?**

What is the most economical and convenient method for farmers in Africa to obtain fresh seed when they require it? There is an important distinction between the acquisition of fresh seed of cultivars already in use and that of seed of new varieties.

New varieties by definition require an initial infusion of seed from outside. For varieties produced by the formal sector, seeds are most often included in packages of inputs distributed by the extension, agricultural credit services, or via sales from local seed company stores or their appointed dealers. Farmers can buy the seeds with cash or through loans. In practice, only a very small proportion of African farmers are ever provided with new varieties this way because of the limited capacity of these systems in Africa. Few farmers can pay cash for seed or are willing to try out new varieties before they are widely proven locally. The farmers who buy these seeds are usually those with relatively more land and more formal education.

So, the majority of farmers in complex, diverse and risky areas more often obtain new varieties secondhand, i.e. from the initial adapters within the community. Resource poor farmers may receive seed as a gift, as a loan to be re-paid in kind at harvest, in return for labor or less commonly they may pay cash. The advantages of this system are that farmers can get very small quantities

and do not have to pay cash, and they can get hold of the seed in good time for planting.

Small quantities of each cultivar are required because each farmer grows many different cultivars. Thus, only a handful of fresh seed may be required each year, rather than the amounts provided by seed companies in their standard signed packs. Delivery of seed in good time for planting is critical for farmers in CDR, for two reasons. Firstly, because delayed planting has a much greater impact on eventual yield in these areas than in higher potential areas and secondly because when farmers in CDR areas have cash they can not afford to tie it up in buying stocks of seeds far in advance of the planting season. Seed distribution is also more difficult in remote areas without good roads.

#### **Africa's Green Revolution?**

Genetic engineering is often considered an extension of the Green Revolution, a paradigm that failed to address the needs of Africa's small farmers and even exacerbated their problems. Now, genetic engineering is rapidly being "smuggled" into the continent. The corporate players are strong, and the situation raises questions for even the democratization process in Africa and the ever-increasing debt burden.

The major difference between the African experience of the Green Revolution and the Asian, is that Africa had fewer areas with suitable conditions for the Green Revolution technologies. The Green Revolution was not developed for local conditions; rather, local conditions were expected to adapt to the technologies. The technologies did not bypass Africa, they were available but were unpopular and ineffective.

For example, fertilizer use increased substantially from the 1970s in Sub-Saharan Africa while per capita agricultural production fell. The Green Revolution's high yielding varieties fared no better. In Malawi, despite the widespread release of hybrid maize, the average maize yield remains about what it was in 1961.<sup>2</sup> Yield increases were also low or stagnant across Africa with other important crops such as cassava, yams, rice, wheat, sorghum and millet.<sup>3</sup>

Even players like the Rockefeller Foundation admit that Africa's experience raises serious questions about the Green Revolution approach: Consistently low yields among African farmers for crops such as maize and rice,

where adoption of improved varieties has been appreciable, calls into question the overall value of the improved germplasm to local farmers.<sup>4</sup>

Two major lessons can be drawn from this failed Green Revolution. Firstly, “breakthrough technologies” can only have a limited success in Africa’s complex ecology. By and large, African soils are unsuitable to intensive monoculture production because of insufficient or excessive rains, high incidences of diseases and pests and other factors.<sup>5</sup>

Secondly, the social, economic and political conditions throughout Africa are also ill-suited to these technologies. The World Bank estimates that half of their agriculture projects in Africa failed because they did not take into consideration domestic infrastructure limitations.<sup>6</sup> Farmers in Africa lack access to markets, infrastructure, research extension services and almost all other forms of support.

Under these conditions, food security is the main priority—something that external technologies simply cannot provide. For example, in 1992 in Zimbabwe, drought wiped out a large percentage of the traditional maize crop, and hybrids were brought in for the following season. As Violet Mandisona of the Zimbabwe Farmers Union said, “Initially the hybrids were a breakthrough, but the costs of inputs have become very expensive for the farmers.” According to the Kenya National Farmers Union, the same is true in Kenya. After market liberalization drove up prices of fertilizers and hybrid seeds, small farmers that had taken up the Green Revolution technologies are now moving back to subsistence agriculture.

### **Forces driving GE in Africa**

The biotechnology industry is now interested in bringing its products to Africa. South Africa with its large commercial farming sector and suitable policy conditions was the first country to accept GE crops and continues to be the most popular destination for GE seeds. Industry is now trying to introduce GE crops in other African countries.

Its major targets are the commercial maize and cotton growing areas, since these crops already have well-established commercial market structures. For the same rea-



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sons, applications to introduce GE fruits and flowers for export production are probably not far off.

Like the Green Revolution before it, GE crops have come to Africa as a result of developments in the North. While a number of interrelated factors were involved in the development of GE crops in the North, the driving force behind them is the pesticide industry. Essentially, biotech companies are pesticide companies and genetic engineering is one way to keep farmers on the pesticide treadmill and to keep profits growing.

### **Plan for the Modernization of Agriculture in Uganda**

The most striking thing about Uganda is the abundance of food compared to other African countries. It is a very lush country with incredible crop diversity and nearly all of the agriculture based on small farms. All of this is accomplished with very little support from the state. However, instead of addressing the problems of small farmers, the government is intensifying its modernization efforts. Under the guidance (or thumb) of the World Bank and USAID, the government of Uganda legislated a Plan for the Modernization of Agriculture in February 2001. The objective of the plan is to “graduate” as many small farmers as possible to become commercial farmers. As part of the plan, the National Agriculture Research Organization (NARO) is re-orienting its activities to meet the needs of commercial farmers. Its focus must be to increase productivity by developing high-yielding varieties of seeds and developing markets for the crops. The extension service has been privatized and former extension workers have been

“reformed” into private providers. The private extension workers are encouraged to seek partnerships with private input providers. The scheme may turn the public extension service into a sales agency for the input industry.

The “modernization” process has actually been going on for several years now. The seed sector was opened up some years ago and the national seed project was privatized. Since then, hybrids have flooded the market and all kinds of NGOs, such as Sasakawa Global 2000, have launched hybrid seed programs. Today, hybrid maize accounts for 50% of NARO’s maize breeding activities. NARO releases its own hybrid lines to private breeders and evaluates hybrids for seed companies like Monsanto and Pioneer. The hybrid-breeding program operates in collaboration with CIMMYT (Center for Research on Wheat and Maize) and is funded by U.S. Agency for International Development and the Rockefeller Foundation. When working with farmers, we have found that they have very little information about the hybrid seeds and most are not told when they buy them that they cannot save the seeds from their harvest.

NARO is also trying to acquire the transgenic sweet potato with disease resistance that the Kenya Agriculture Research Institute has developed with Monsanto. This technology would make very little sense in Uganda. Farmers have no problems with disease. In each plot they typically grow over four different varieties of sweet potatoes that have decent yields and good eating qualities. They receive no support from the government and farmers regularly share cuttings with each other. If a variety was developed that could increase production it would probably only drive down prices since the marketing channels are not well developed for large surpluses. Biotechnology has nothing to offer in this case except trouble.

This technology is increasing the dependency of farmers on outside actors. Most of the research and biotech development work is being funded by aid and grants. The ramifications of this are very obvious when one looks at the increasing debt burden faced by many African countries.

#### **Biosafety concerns**

With GM crops either already in the field or on their way into the fields in a number of African countries there is reason for concern. These are new technologies that have not been in the fields for very long and have

not been subjected to extensive independent study on their impacts to human health. The risks presented by GM crops are in many ways similar to those presented by the introduction of pesticides into rural communities.

Once again, populations in the South are most at risk. With pesticides, a number were introduced and later restricted or withdrawn in the North as their effects on human health and the environment became known, but they continue to be widely used in Africa and other parts of the South. Similar risks exist, since there is a total lack of information on GE crops in many parts of Africa. In Zambia, for instance, the extension services and education system lack the capacity and trained personnel to inform farmers about GE crops, there are no university courses in biotechnology, and journalists have little access to reliable information.

The lack of information is compounded by the increasing collusion between governments and the biotech industry lobbies. Instead of information, the public gets propaganda.

#### **Conclusion**

The push for GE crops is part of a shift towards corporate-led agriculture research and development that has been happening in other areas of the world for some time now and is spreading to Africa. GE crops bring a very different dimension, one that gives transnational corporations more control over farmers’ seeds. With the patents they have on GM crops, corporations can prohibit farmers from saving seed from year to year.

Potential benefits of improving food supply in Africa would be accompanied by overwhelming new risks to traditional farming systems and to ecological systems. Biotechnology’s promise to fight hunger is doomed to fail.

Rather than a technology fix, small farmers in African countries need the support of rural development strategies that give farming communities control over their own resources and build on local knowledge and technology systems. Farmers must be able to choose to avoid a cycle of debt and dependency. Alternative strategies that rely to a greater extent on locally available inputs and provide farmers with tools to analyze what is happening in their fields, to make appropriate variations in their practices, to understand when pests threaten economic loss and to take preventive measures to improve

soil by the addition of organic matter have proven effective.<sup>10</sup>

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## The New Generation of Genetically Engineered Crops: Will They Feed the South?

by Silvia Ribeiro, ETC Group, Mexico

Around the world, consumers, civil society organizations, many governments, distributors and sellers have rejected transgenic food and crops. Why? An important factor is that the first generation of genetically engineered crops was rashly introduced into the market. The industry did not take into account that these crops had nothing to offer consumers and were of little benefit to farmers.

The first generation of genetically engineered crops is primarily related to agricultural inputs—that is, plants are genetically engineered to be resistant to weedkillers or to produce their own pesticides. The objective is to increase or modify the use of pesticides by farmers so that the market for agrochemical corporations' products will continue to grow.

The second generation of transgenic crops are engineered for a number of post-harvest characteristics that are in many cases intended to reduce costs for the food processing industry. This includes engineering crops to reduce processing and storage costs. Calgene's slow maturing genetically engineered tomato is an early example of this second generation of GE crops.

Even the biotechnology industry admits that its strategy to introduce transgenics to the marketplace was a flop. Genetically engineered foods are not cheaper, safer, better tasting or more nutritious—so why should consum-

ers accept any level of risk? But we need to be prepared for the next generation of genetically engineered products. We are facing important shifts in marketing and control strategies that are intended, above all, to manipulate how consumers perceive genetic engineering.

The third generation of GE crops are products that the corporations claim will bring nutritional and health benefits; they are aimed primarily at people with money to spend. Biotech's third generation refers to products designed for food and drug wholesalers and retailers, and includes plants and animals modified to produce drugs, vaccines and plastics as well as "biofortified" foods (fortified with vitamins, minerals, etc.).

With the third generation, it will be difficult to distinguish the boundaries between farms and pharmacies, foodstuff and medicines. The third generation will include "nutraceuticals" and "functional" foods—foods that have perceived health and nutrition benefits. Currently, many products with extra vitamins and minerals are already on the market, but if the Gene Giants have their way, future products will be transgenic.



Of course, it doesn't mean that third generation products will necessarily be healthier, cheaper or more nourishing. Nor will they be necessary since there are natural alternatives for these engineered products, but they will be skillfully marketed to make people with money want to pay for them.

The industry is also looking for moral legitimacy to convince us that genetically engineered products will benefit the poor. That's why we hear so much propaganda about products like AstraZeneca's "Golden Rice." According to proponents, this rice, genetically engineered to contain Vitamin A, is a product that will feed the poor and hungry and will heal their nutritional deficiencies. However, there are many healthy, natural alternatives that those people could enjoy if they had access to land and resources, and were able, among other things, to continue using their traditional farming methods and their diverse food culture. These limitations are becoming more severe with increasing corporate control of the food supply.

The third generation of transgenic products will be marketed in the name of feeding the South's poor and hungry. But one thing is for sure—it won't have anything to do with feeding the poor or with sustainable agriculture. The pressure to introduce transgenics into the Southern countries is also related to the biotech industry's need to sell its surplus products (or those products rejected

in Northern markets). The multinationals are exerting pressure to enter markets in developing countries and to use poor people in the South to legitimate their production and sales in the North.

Genetically engineered crops are instruments of industrialized agriculture; the beneficiaries of those products are multinational corporations, not the public. They are products designed to take the production of food away from local communities and to create greater dependence on huge agribusiness corporations. While the first two generations of transgenic crops offered little in the way of consumer benefits, the third generation will be promoted as a solution to many of the world's problems.

We need to think about this and be prepared for the next generation of genetically engineered crops—and ask ourselves, constantly, who controls these technologies and who gets the benefits from them. When the roots of the problem are injustice and inequality, technology is never the solution.

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*The ETC Group is the Action Group on Erosion, Technology and Concentration, formerly RAFI. This article is based on ETC Group collective research.*

## Voices

### Industrialized Agriculture and Biotechnology: Threats to Sustainable Agriculture

by Chee Yoke Ling, Third World Network, Malaysia

Sustainable agriculture, food security and food safety are more urgent goals than ever as we enter the new millennium.

In the developing countries the agricultural sector has multiple roles: to help ensure food security, anchor rural development, provide resources for the livelihood and adequate incomes of a majority of people, and to do this without destroying the ecological base. There are thus two inextricably linked components, social and environmental, to agricultural sustainability.

In the industrialized countries, the structural flaws of the industrial food production system are rapidly emerging. Over the past two years alone, the European public has confronted the health and environmental hazards of such a production system, both in crops and animal husbandry. At the same time, increasing evidence of ecological and health dangers from genetic manipulation through modern biotechnology is galvanizing deep public and scientific concern, starting in Europe, and spreading to Africa, Asia, Latin





America and in recent months to North America, which is the largest producer of genetically modified crops.

Meanwhile, the ecological, social, health and economic fallout of chemical-based agriculture continues to unfold despite the acknowledgment in Agenda 21<sup>1</sup> by the world's political leaders that such production systems were proving to be environmentally unsustainable.

This crisis of industrial agriculture is not accidental. It is the systematic result of more than 40 years of the prevalent socio-economic system that promotes monocultures and the use of high-input technologies and agricultural practices. The underlying cause is the predominance of agricultural policies based on production targets rather than an integrated approach towards sustainable livelihoods, human development and poverty eradication in rural areas. Economic and technological strategies in the agricultural sector promoted by large donors and implementing agencies tend to be based upon a neo-liberal development model which believes the integration of small farmers into the global agricultural market is the best strategy for their human development. This macro-economic model disregards both the physical and biological boundaries of agro-ecosystems, and the ecological quality of the human environment in general, as well as other aspects of human development such as education and health services in rural areas.

Industrial agriculture, coupled with the impetus of international trade and consumption patterns that strain the planet's natural resources, has also destabilized the social and cultural fabric of farming communities. The impact has been even more dramatic for Southern societies, particularly for indigenous peoples. In many societies, women who had critical roles in farm decision-making and the conservation of seeds, found themselves displaced when commercial monocultures were introduced. Moreover, women and children tend to be the main victims of the malnutrition such monocultures have failed to solve, and even contributed to.

Thus the problem of agricultural production cannot be regarded only as a technological one; attention to social, cultural, political and economic issues that account for the crisis is crucial. This is particularly true today where the economic and political domination of the rural development agenda in both the global North as well as the South by certain large agribusiness corporations and large donors and implementing agencies has thrived at the expense of the interests of farm workers, small family farms, rural communities, the general public, wildlife and the environment.<sup>2</sup>

Unfortunately, even as one chapter of Agenda 21 acknowledged the unsustainability of chemical agriculture and the limits of the Green Revolution, the same

corporate interests that championed and benefited from the first “revolution” aggressively promoted the “Gene Revolution” as the panacea. Hence the fulsome promises of the biotechnology chapter in Agenda 21. However, the new biotechnologies that involve genetic engineering or modification are among the most serious threats to sustainable agriculture and the future of farming communities, especially traditional farmers and indigenous peoples. The Commission on Sustainable Development in its third session called for a more balanced assessment of the new biotechnologies, in light of new scientific evidence of hazards. Since then the case against these technologies has strengthened.<sup>3</sup>

Fortunately, civil society’s increasing access to information and awareness, accompanied by a growing public scientific debate in the past year, provides a valuable opportunity for preventive actions before these technologies are diffused throughout the world. For example, the public condemnation in a number of countries of Monsanto’s “Terminator Technology” which was designed to suppress the reproductive ability of seeds, led to bans by some governments and eventually to a withdrawal by Monsanto of commercialization plans, at least for the time being. The two-year de facto moratorium on commercial planting of transgenic crops in the European Union is also a vital development, and public debates on this option for the future of agriculture is mounting all over the world

The lessons from the chemical era, and especially the Green Revolution, remind us that long term sustainability can only be achieved through a comprehensive ecological, social and economic assessment of sustainable livelihoods, poverty eradication and human development in rural areas, and the production systems which serve these goals. Otherwise, any short term increase in yields will soon be offset by environmental, health and social costs, which eventually lead to a total net loss. Caution is even more urgent where new technologies can cause irreparable damage to the ecosystem and human health, and the benefits have yet to be fully assessed against the hazards and risks.

There is already a rich spectrum of technologies and practices, even entire systems of sustainable agriculture, alive and flourishing all over the world. Many are traditional or indigenous systems, especially in the South, that are surviving the onslaught of globalization of industrial agriculture. There is a significant increase

in the North of organic/ecological farming reaching commercial scales, that build on practices that had been abandoned when monocultures and chemicals took over. As scientific understanding about the holistic imperative of agriculture becomes more interdisciplinary itself, there will be a mainstreaming of sustainable agriculture into national and international policies on agriculture. The issue is not technique or experience, or even economic viability, but rather the vested interests and policy/institutional obstacles set up by current trends of globalization.

Therefore, the protection of, and in many cases the transition to, sustainable agriculture systems can only take place if the underlying obstacles are overcome, and policies are re-directed to addressing poverty eradication and malnutrition itself. This requires the reshaping of the entire agricultural policy and food system, and a realignment of the power relations which currently favor transnational corporations, supported by a few key governments. Given the extent of globalization, priority must necessarily be given to international actions so that sustainable alternatives on the ground can be strengthened and spread.

A more radical transformation of agriculture is needed, one guided by the notion that ecological change in agriculture cannot be promoted without changing the strategic goals in agriculture and comparable changes in the social, political, cultural, and economic arenas that also constrain agriculture. Change toward a more socially just, economically viable, and environmentally sound agriculture will be the result of social movements in the rural sector in alliance with urban organizations.<sup>4</sup>

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*This article was taken from a paper, Choices in Agricultural Production Techniques, Consumption Patterns and Safety Regulations: Potentials and Threats to Sustainable Agriculture, prepared by Chee Yoke Ling, Third World Network, with substantive input from members of the UN CSD NGO Sustainable Agriculture and Food Systems (SAFS) Caucus.*

Myth #1

*Sustainable Agriculture Dialogue Paper 1, 1/20/00, United Nations Commission on Sustainable Development (CSD) 8, April 2000. [http://csdngo.igc.org/agriculture/agr\\_dia\\_Paper1.htm](http://csdngo.igc.org/agriculture/agr_dia_Paper1.htm)*

#### Notes

1 Agenda 21 is "a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, governments, and major groups in every area in which human impacts on the environment." Agenda 21 was adopted by more than 178 Governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, June 1992.

- 2 Miguel Altieri, "Ecological Impacts of Industrial Agriculture and the Possibilities for Truly Sustainable Farming", *Hungry for Profit*, Monthly Review Press, 1999. Vandana Shiva, *Violence of the Green Revolution*, Third World Network, 1991.
- 3 Jane Rissler and Margaret Mellon, The ecological risks of engineered crops, MIT Press, Cambridge, 1996. S. Krimsky and R.P. Wrubel, Agricultural biotechnology and the environment: science, policy and social issues, University of Illinois Press, 1996. Mae-wan Ho, Angela Ryan and Joe Cummins, "Cauliflower Mosaic Viral Promoter—A Recipe for Disaster?" *Microbial Ecology in Health and Disease*, Vol.11(4), 1999. Angela Ryan and Mae-wan Ho, "Transgenic DNA in Animal Feed," Institute of Science in Society, 1999.
- 4 Altieri, op. cit.

## Genetically Engineered Crops Threaten Food Security in Zambia

by Bernadette Lubozhya, Zambia

The push for the adoption of genetically modified (GM) crops in Zambia is posing a serious challenge to the present and future agricultural infrastructure of Zambia, with consequent danger to the viability of food production to meet the needs of our ten million-plus population. Indeed, it poses a particular threat to the survival of the powerless majority (small-scale farmers) of the farming population. In their quest to increase their profit margins in the agricultural business, a powerful minority group of the farming population is attempting to use the small-scale farmer to persuade the government to allow them to bring GM crops into the country.

The proponents are presenting these crops as part of the solution to boosting and stabilizing rural incomes. They are also being offered as part of the answer to the national problem of food insecurity. However, the current commercial GM crops have in fact little if anything to offer the small-scale farmers on one hand, while on the other hand, these crops are likely to exacerbate the rural household food insecurity and further erode the little cash income which might be there.

Food security is much more than simply the production of food for a country. In this sense, an argument as to whether genetic modification technology can feed Zambia is somewhat simplistic. Significant intermediary factors influence access to, and distribution of, food on country scale and within individual communities.

In Zambia, when maize and fertilizer subsidies reached their peak in the late 1980s, the area under maize cultivation in this country was about one million hectares.

This accounted for about 70% of the total cropped area in the country. During that same period, however, the Nutrition Surveillance Programme data showed that under-nutrition had generally persisted and indeed had worsened in some cases.<sup>1</sup> Clearly, it takes more than the introduction of biotechnology to achieve food security here.

A study conducted by the Soils and Crops Research Branch (under the Ministry of Agriculture and Co-operatives), showed that some improved technologies, while they were beneficial to the poorer farmers and their households in the short run, proved too costly in the long run. An extensive institutional support that was given to the production of hybrid maize (which is usually monocropped) led to a decline in the hectareage of traditional staple food crops such as sorghum and cassava. Since many relish crops (those that are part of a typical Zambian diet such as groundnuts, beans, pumpkin leaves, etc., eaten with maize, sorghum, millets or sorghum as staples) are intercropped with traditional staples, there was also a decline in relish food availability.

This clearly showed that while there were increased cash incomes among some small-scale farming households due to cash crop production, it was at the expense of household food security.<sup>2</sup>

Therefore, the presence of an improved biotechnology such as a hybrid maize seed does not necessarily contribute to the food security of a country. Moreover, because





Farmer weeds a field of cowpeas in northern Zambia.

genetically modified crops are patented, they actually are likely further to threaten food security in Zambia. All GM crops are patented by their owners under the provisions of the Intellectual Property Rights (IPRs) legislation. This deprives others, including the small-scale farmers, the right to plant, replant or propagate the seeds without express authority of the owner of the patent. To do this, they may be required to pay royalties. It is therefore apparent that one of the effects of genetic modification is to make small-scale farmers dependent on external corporations for seed and food production. Thus in a real sense they become dependent on their foreign groups for their very livelihoods. Such a turn of events clearly does not contribute to food security in Zambia.

#### **Some ethical considerations**

*Food is about life.* Therefore, agriculture necessarily calls for ethical reflections. It is not simply a matter of business, of commerce, of profit-making. To deal with the controversial issue of the introduction of GM crops into Zambia in a complete fashion, we must therefore raise some serious ethical considerations. Briefly summarized, the value questions that should be raised include the following:

Is it correct for one person or one company to claim ownership of and patent for a living organism? Until

recently only non-living organisms were patented. Living organisms were in the public domain, with the benefits for everyone and not only for those with the resources to capture exclusive patents. This, of course, has direct ethical bearing upon development for poor people and poor countries like Zambia.

How do we balance the property rights of farmers versus the “Intellectual Property Rights” of a company? Farmers will have to buy GM seed every year and it will become an offense to replant your own GM seed. The farmer may be prosecuted if she or he does so. But farmers have traditionally kept and traded their seed with neighbors for replanting for long centuries. Why should Zambian farmers now lose this fundamental right as a consequence of the actions of profit-seeking companies?

The food system is being controlled more and more by a few transnational corporations (TNCs) based in the rich countries of the North. These TNCs own the seed, the pesticides and in some cases even the grain elevators. For Zambia, a fundamental set of ethical issues arise when we ask: Who benefits from this global food system? Who suffers?

As soon as a GM crop is released, it may contaminate other related non-GM plants through pollination. For example, wild maize in Mexico, which is the origin of new maize genetic material, is now contaminated by GM maize. It is irresponsible to contaminate the wild species of crops with GM material. Once released a GM crop can never be recalled. Should such contamination be allowed, given its impact on future sustainable agriculture in Zambia?

The introduction of GM crops will make it impossible to grow related organic crops such as baby corn because of cross-pollination. But there is a fundamental moral responsibility that one's actions should not harm one's neighbour. Introduction of GM crops into Zambia will contaminate the organic crops and prevent the organic farmer from marketing her or his produce as organic. By what right can such damage be done to a large number of Zambians?

GM crops will favour an industrialized agriculture. An industrialized agriculture will favor large farms and mechanization at the expense of smaller family farms. This will further increase unemployment in Zambia and deepen the serious problem of widespread poverty. The ethical question in fostering industrialized agriculture

over small family farms is: does Zambia want to increase unemployment among its population?

Another ethical question relates to the unknown consequences on other life forms of introducing GM crops. For example, Bt crops could kill some soil micro-organisms upon decaying. Is it correct to kill these life-giving organisms because of the introduction of this new technology? We simply do not know the long term effects on the health of people. There should be a cautious approach to the introduction of this technology into Zambia until we know more about its impact on humans and on the environment.

Genetic resources by themselves are of no value until complemented by an ability to put them to economic use. The TNCs have the economic resources to add value to Zambia's raw genetic resources. Should they be allowed to do this without an effective regulatory structure put in place, especially one that protects the rights of small-scale farmers and local communities?

These and other ethical considerations must enter into the discussion of GMOs in Zambia if we are to build a future that is respectful of human rights, community development, poverty eradication and protection of the environment. Government officials, political leaders, civil society, church leaders, private sector business people and ordinary citizens must be vigilant in putting these points of ethics at the top of any agenda relating to GM crops in this country.

GM crops have been and are being introduced too quickly around the world. Zambia should not blindly follow the lead of countries like the United States, on the grounds of becoming "modern" in our agricultural sector. Rather, we should be prudently cautious like countries in the European Union, since too little is yet known about the possible environmental or ecological and health effects of GM crops. This is particularly true in a developing country situation such as ours.

Our concern here is clear: far from addressing the underlying structural causes of hunger, genetically modified crops will actually exacerbate these causes. Ensuring food security in Zambia requires an approach to agriculture that is, in almost every respect, the *reverse* of that being promoted by genetic engineering companies and their allies in this country.

The way forward for Zambia is thus marked by the need to wait for more clarity concerning potential risks to and long term impacts on human health, the environment and the agricultural infrastructure before the country considers again a possible adoption of GM crops. During this waiting period, however, there is a need to build the capacity to test and control GM crops.

To promote sustainable agriculture in the country, the problems mentioned above should be addressed. A government policy that would encourage farmers (especially small-scale farmers) to rely more on *internal* inputs (within the farm and from its immediate surrounding area) and less on external inputs, must be put in place.

We are aware that the discussion of the introduction of GMOs into Zambia is not simply a theoretical debate. At this immediate moment, it is a policy debate whose outcome will have tremendous consequences for the lives of countless Zambians, now and in the future. It is a debate that must be shaped by understandable and unbiased information and by clear and socially just principles.

Our conclusion in this study is based upon a very straightforward line of argument:

- Our basic thesis is that food security in Zambia for all Zambians requires sustainable agriculture.
- We are convinced by our study that GMOs will have a negative impact on sustainable agriculture.
- Therefore we reach the conclusion that GMOs should not be introduced into Zambia.

*This study was written by Mrs. Bernadette Lubozhya, an agro-scientist dealing with many aspects of agricultural biotechnology in Zambia. Widespread consultation accompanied her research.*

*This article was excerpted from "What Is the Impact of GMOs on Sustainable Agriculture in Zambia?," a research study sponsored by Kasisi Agricultural Training Centre and a Jesuit Centre For Theological Reflection, August 15, 2002. The complete report is available at <http://www.jctr.org.zm/gmos.htm>.*

#### **Notes**

- 1 Comprehensive Agricultural Development and Food Security Programme (1999), UN Food and Agriculture Organization.
- 2 Adaptive Research and Planning Teams Annual Reports of 1986, 1987 and 1988.

## Zambia: Traditional Foods in Abundance to Feed Three Million Starving People

by Zarina Geloo, Inter-Press Service, Zambia

“We have traditional foods in abundance. I do not know why there is this maize mania when some of our provinces do not even grow maize, traditionally,” says Mundia Sikatana, Zambia’s minister of agriculture. Sikatana says there is an unhealthy focus on maize as the only “food” in Zambia, which causes consumers to believe they will starve when it is in short supply.

But, a World Food Programme (WFP) official, who declined to be named, says the people of southern Africa ask donors to give them maize, their staple diet. “It is a common feature in sub-Saharan Africa and we have not been told otherwise,” he says.

Giving Africans other cereals like wheat would mean “teaching” the consumers how to use it—a time consuming exercise that involves mobilization and advocacy, he says. But Charles Banda, an agricultural scientist in Lusaka, says the reason donors insist on maize is simple economics. It is the grain the Western farmers grow in surplus, for stock feed.

“WFP give us maize because that is what the farmers in the north grow and they have to keep them in business by buying up their stocks,” he says. Banda argues that maize is not the traditional food of Zambians or even a native of the Southern African soil; it is an import from South America.

A voracious critic of genetically modified (GM) food, he says, “Look at us now, we are panicking because we do not have maize, but our traditional foods are millet, cassava and sorghum. Let us not only return to our traditional staple foods but also farm the cereals best suited to our soil. Maize is an import, that is why it is problematic to grow in Southern Africa.”

But WFP insists, “We give people what they know to eat.”

Another bone of contention between government and WFP is the procurement of food. While the WFP insists on distributing maize for relief food, government says there is more than enough traditional grains to feed the hungry. Sikatana, quoting statistics from the National Association of Peasants and Small Scale Farmers in

Zambia, says there is a surplus of over 300,000 metric tonnes of cassava, or manioc, in the northern and north-western parts of Zambia “crying out” for a market.

He says Zambia has a long history of using cassava as a key crop for food security. Thirty percent of the country’s population depends on cassava, a drought-resistant crop, as its main source of energy. “If we can buy cassava then we have won the war on this hunger and farmers will become solvent to produce more food for the next season,” says Sikatana.

WFP resident representative in Zambia, Richard Ragan told a donor meeting in Lusaka recently that “the government has been asking us to use the funds mobilized to buy food locally but we are constrained by our regulations.” Sikatana says the government will encourage



A Zambian farmer in his field of cassava.

the UN agency to change its mind. “We have managed to convince some of our friendly donors to stipulate as a condition, that their funds are for local procurement so we are moving slowly,” he says.

This has brought hard feelings, says a source in the ministry of agriculture. WFP is the main agency in mobilizing and channelling food relief in Southern Africa. “As a ministry we are uneasy. We cannot help but believe in the age-old trick of giving with the right hand and taking with the left. The money given for food by the West goes back to it via the purchase of maize from its farmers,” says the source in the Ministry of Agriculture.

Civil society has picked up the slack in the fast losing battle to resolve the food crises. Working with Sikatana, groups comprising churches and nongovernmental organization (NGOs) have formed an alliance to raise funds to buy cassava from areas of surplus and distribute it to the food-deficit areas.

*Inter-Press Service (IPS), January 7, 2003.*

*Zarina Geloo is originally from Zambia and has been a journalist for more than 20 years, and with IPS for 10 years. She covers issues related to the environment, population and HIV/AIDS and works closely with NGOs working on education issues in Zambia.*

## Biotechnology Will Bypass the Hungry

by Devinder Sharma, Forum for Biotechnology & Food Security, India

Agricultural biotechnology advances are being desperately promoted in the name of eradicating hunger and poverty. The misguided belief that the biotechnological silver bullet can “solve” hunger, malnutrition and real poverty has prompted the industry and the development community, political masters and the policy makers, agricultural scientists and the economists to chant the mantra of “harnessing technology to address specific problems facing poor people.” And in the bargain, what is being very conveniently overlooked is the fact that what the world’s 800 million hungry need is just food, which is abundantly available.

Take a look at the biotech industry’s “concern” for the poor and the hungry. It was in March–April 2001 that hundreds of people in the United States, mostly agricultural scientists, signed an AgBioWorld Foundation petition appealing to the seed multinational giant, Aventis CropScience, to donate some 3,000 tonnes of genetically engineered experimental rice to the needy rather than destroy it. More than feeding the hungry, the appeal was a public relations exercise to demonstrate the concern of the biotechnology proponents towards feeding the world’s poor.

The appeal did not, however, motivate the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) to listen to the

“humanitarian intentions.” The genetically modified rice was eventually destroyed.

Aventis CropScience company had expressed concern about the hungry in the world, stating that it is “working hard to ensure that U.S. farmers can grow abundant, nutritious crops and we hope that by contributing to that abundance, all mankind will prosper.” And AgBioWorld Foundation, at the same time conveyed its “disapproval of those who, in the past, have used situations similar to this one to block approved food aid to victims of cyclones, floods and other disasters in order to further their own political (namely, anti-biotechnology) agendas.”

Eradicating global hunger is certainly a pious intention. For a mere 3,000 tonnes of genetically modified rice, the human health risks of which have still not been ascertained, the U.S. agri-biotech industry as well as its “shouting brigade” had made so much of hue and cry. But when told that India has a surplus of 60 million tons of food grains, and that too non-genetically modified, and has a staggering population of 320 million people who go to bed hungry every night, the AgBioWorld Foundation and those who signed the appeal,



were not interested. Suddenly, all their concern for feeding the hungry evaporated, “the humanitarian intentions” vanished into thin air.

All over the world, molecular biologists are screaming over the need to push in biotechnology to increase food production, to feed the 800 million hungry who sleep with an empty stomach. Politicians and policy makers are quick to join the chorus, not realizing that hundreds of million of the hungry in India or for that matter in South Asia are staring with dry eyes at the overflowing food granaries. And if the South Asian governments, aided and ably supported by the agricultural scientists and the agri-biotech companies, were to launch a frontal attack to ensure that food reaches those who need it desperately, half the world’s hunger can be drastically reduced if not completely eliminated now.

Not only biotechnologists, political masters too excel in expressing their concern for the hungry. The Indian Prime Minister, Mr Atal Bihari Vajpayee, for instance, had said in his inaugural address to a national consultation on “Towards a Hunger Free India” in the last week of April 2001, in New Delhi: “Democracy and hunger cannot go together. A hungry stomach questions and censures the system’s failure to meet what is a basic biological need of every human being. There can be no place for hunger and poverty in a modern world in which science and technology have created conditions for abundance and equitable development.”

Laudable words indeed. And if you are wondering whether the international community is in any way genuinely concerned at the plight of the hungry, hold your breath. At the time of the first World Food Summit (WFS) at Rome in 1996, heads of state of all countries of the world had “reaffirmed the right of have access to safe and nutritious food, consistent with the right to adequate food and fundamental right of everyone to be free from hunger.” They considered it unacceptable that more than 800 million people throughout the world did not have enough food to meet their basic nutritional needs.

The WFS vowed to feed half the world’s 800 million hungry by the year 2015, meaning thereby that it would need another 20 years to provide food to the remaining 400 million hungry. And by the time the year 2015 dawns, the number of hungry would have multiplied to 1.2 billion, of which an estimated 120 million would

have died of hunger (the UN Food and Agriculture Organization estimates that 24,000 people die every day from hunger). So in all plausible terms, the heads of state had actually expressed their helplessness in tackling hunger and malnutrition.

Once again, the heads of state met at Rome for the “WFS plus Five” in June 2002, to take stock of the efforts made to reduce hunger since they met six years ago. And once again, they renewed the pledge in the name of “humanity” to eradicate hunger from the face of the Earth. While the WFS failed in all practical terms, the United States succeeded in pushing its own commercial interests. The U.S. Secretary of Agriculture, Ann Veneman, had made no secret of her intentions when she said: “Biotechnology has tremendous potential to develop products that can be more suited to areas of the world where there is persistent hunger,” adding, “there is no food safety issue whatsoever.”

It was primarily for this reason that the U.S. had all along wanted strong language in the final declaration in favor of genetically modified food as the key to solving hunger and malnutrition. No wonder, the U.S. announced a \$100 million program to develop genetically modified crops and products tailored specifically for the needs of the developing countries. Now before you ponder over the real motive behind this benevolence, what emerges crystal clear is that having attained the unique status as the world’s only superpower, the focus is now to emerge as the world’s only food basket.

In agriculture, plant breeding promises to generate higher yields and resistance to drought, pests and diseases. Biotechnology is being promoted as the only or the best “tool of choice” for marginal ecological zones—left behind by the Green Revolution but home to more than half the world’s poorest people, dependent on agriculture and livestock. It is true that the Green Revolution left behind the small and marginal farmers living in some of the world’s most inhospitable areas. But the way the tools of the cutting-edge technology are being applied and are being blindly promoted, biotechnology will certainly bypass the world’s hungry and marginalized.

A third of the world’s hungry and marginalized live in India. And as I said earlier, if India alone were to launch a frontal attack on poverty eradication and feeding its



320 million hungry, much of the world's hunger problem would be resolved.

Never before in contemporary history has humanity been witness to such a glaring and shameful "paradox of plenty." In India alone, in 2002, more than 60 million tons of food grains were stacked, the bulk of it in the open, while some 320 million went to bed hungry every night. In neighboring Bangladesh and Pakistan too, food silos were bursting two years ago. And yet, these three countries are home to nearly 45% of the world's population of hungry and marginalized. While none of these countries has shown the political courage to use the mountains of food grain surplus to address the age-old problem of hunger, the international scientific and development community too is equally guilty by turning a blind eye to the biggest human folly of the 21st century.

After all, science and technology is aimed at removing hunger. The Green Revolution was aimed at addressing the problem of hunger, and did a remarkable job within its limitation. And now, when we have stockpiles of food surpluses, the global community appears reluctant to make the food available to the marginalized communities who cannot afford to buy the rotting stocks. The UN Food and Agriculture Organization, and for that matter the UN Development Programme, which works for reducing hunger, too has shied away from this Herculean task.

The reality of hunger and malnutrition is too harsh to be even properly understood. Hunger cannot be removed by producing transgenic crops with genes for Vitamin A. Hunger cannot be addressed by providing mobile phones to the rural communities. Nor can it be eradicated by providing the poor and hungry with an "informed choice" of novel foods. Somehow, biotechnologists prefer to turn a blind eye to the ground realities, missing the realities from the commercial interests of the biotechnology industries. In their over-enthusiasm to promote an expensive technology at the cost of the poor, they have forgotten that biotechnology has the potential to further the great divide between the haves and have-nots. No policy directive can help in bridging this monumental gap. The twin engines of economic growth—the technological revolution and globaliza-

tion—will only widen the existing gap. Biotechnology will, in reality, push more people in the hunger trap. With public attention and resources being diverted from the ground realities, hunger will only grow in the years to come.

It does not, however, mean that this writer is against technology. The wheels of technological development are essential for every society but have to be used in a way that helps promote human development. Technology cannot be blindly promoted in an obvious effort to bolster the industry's interests. Ignoring food security in the name of ensuring "profit security" for the private companies, can further marginalize the gains, if any. And herein lies a grave danger.

While the political leadership and the development community is postponing till the year 2015 the task to halve the number of the world's hungry, the scientific community too has found an easy escape route. At almost all the genetic engineering laboratories, whether in the North or in the South, the focus of research is on crops which will produce edible vaccines, address the problems of malnutrition or "hidden hunger" by incorporating genes for Vitamin A, iron, and other micronutrients. But what is not being realized is that if the global scientific and development community were to aim at eradicating hunger in the first place, there would be no "hidden hunger."

Who will take on the biggest challenge of all times—the elimination of hunger—which forms the root cause of real poverty and the lopsided human development is an issue no one is willing to stick his or her neck out for. The monumental task to feed the hungry—and that too at a time when food grains are rotting—is eventually being left to the market forces. The underlying message is very clear: the poor and hungry will have to live on hope.

*This article is based on Devinder Sharma's presentation at the "Transgenic Plants and Food Security: Approaches to a Sustainable World Food System Ten Years After The Rio Summit" conference in Berlin on July 28–29, 2002.*

*Devinder Sharma is a food and trade policy analyst, author and a commentator. Among his recent works include two books: GATT to WTO: Seeds of Despair and In the Famine Trap. He also chairs the New Delhi-based Forum for Biotechnology & Food Security.*

# UN Development Programme Buys into Biotech Industry Agenda

In 2001, the UN Development Programme released its *Human Development Report* which pointed to biotechnology and genetic engineering as the solution to hunger around the world. Response was quick throughout the developing world. Here are a selection of critiques of the report.

Voices

## Technology Won't Feed World's Hungry

by Anuradha Mittal, Food First, India/United States

Don't be misled. Genetically engineered food is not an answer to world hunger.

The UN Development Programme (UNDP) released a report last week urging rich countries to put aside their fears of such food and help developing nations unlock the potential of biotechnology.

The report accuses opponents of ignoring the Third World's food needs. It claims that Western consumers who do not face food shortages or nutritional deficiencies are more likely to focus on food safety and the loss of biodiversity, while farming communities in developing countries emphasize potentially higher yields and "greater nutritional value" of these crops.

But the UNDP has not done its homework.

In my country, India, for example, the debate pits mostly U.S.-trained technocrats, seduced by technological fixes, against farmers and consumers who overwhelmingly say no to these crops. The people who are to use the modified seeds and eat the modified food often want nothing to do with them.

The report rehashes the old myth of feeding the hungry through miracle technology. As part of the 1960s Green Revolution, Western technology created pesticides and sent them to developing countries for agricultural use, which may have increased food production, but at the cost of poisoning our earth, air and water.

What's more, it failed to alleviate hunger. Of the 800 million hungry people in the world today, more than 300 million live in India alone. It's not that India does not produce enough food to meet the needs of its hungry. It's that organizations like the International Monetary Fund (IMF) have slashed public services and social-safety nets so that the food can't get to the needy.

More than 60 million tons of excess, unsold food grain rotted in India last year because the hungry were too poor to buy it. In desperation, some farmers burned the crops they could not market and resorted to selling their kidneys and other body parts, or committing suicide, to end the cycle of poverty.



A higher, genetically engineered crop yield would have done nothing for them. And if the poor in India are not able to buy two meals a day, how will they purchase nutritionally rich crops such as rice that is engineered to contain Vitamin A?

The report compares efforts to ban genetically modified foods with the banning of the pesticide DDT, which was dangerous to humans but was effective in killing the mosquitoes that spread malaria. The Third World had to choose between death from DDT or malaria. It's appalling that even today the debate in developed countries offers the Third World the option of either dying from hunger or eating unsafe foods.

Malaria, like hunger, is a disease of poverty. When economic conditions improve, it disappears, just as it did in the United States and Europe.

The focus ought to be on the root causes of the problem, not the symptom. The hungry don't need a technological quick fix. They need basic social change.

In the Third World, the battle against genetically engineered food is a battle against the corporate concentration of our food system. Corporations are gaining control of our biodiversity and even our seeds. This is a

potential stranglehold on our food supply. In response, developing countries are imposing moratoriums on genetically engineered crops. Sri Lanka, Thailand, Brazil, Mexico and China, among others, have already done so.

The UNDP has been snookered about genetically engineered food. The rest of us shouldn't be.

*Anuradha Mittal is co-director of Food First/The Institute for Food and Development Policy, in Oakland, California.*

## UNDP's Human Development Report 2001 Technofixes Within a Sugar Coating

by Ashish Kothari, Kalparvriksh, India

Delight for the technocrat and the multinational corporation, dismay and disappointment for the advocate of justice and sustainability in human development. That, in a nutshell, sums up the latest Human Development Report (HDR) of the United Nations Development Programme (UNDP). Though disguised within a sugar coating of politically correct language on equity and ethics, the HDR 2001 is, deep down, an unashamed pat on the back for the hi-tech bandwagon on which a minority of powerful elites are galloping to even greater riches, even more power.

The UNDP's verdict is clear: the hi-tech world of information technology and biotechnology is the savior of millions of poor, starving, desperate people in the "developing" countries. Sure, some real policy decisions will need to be taken by the countries where these poor people reside, to ensure that the benefits of these technologies percolate down...but it can be safely assumed that these countries will act with alacrity and institute these radical changes as soon as they are sent a copy of the HDR.

In brief, consider the following:

Though the HDR admits that modern technologies should not be viewed as "silver bullets" that can by themselves bring meaningful development to people, it nevertheless focuses predominantly on promoting such technologies. It claims that the benefits of such technologies will reach the poor if they are rooted in a "pro-poor development strategy," but does not lay much stress on what such a strategy will need to have. At various points, it talks of how the "savage" inequalities existing in the world could stop the benefits of new

technologies reaching the poor, but does not take this further to its logical conclusion: that true welfare of the underprivileged and oppressed sections of human societies will require economic and social policies that emanate from people themselves, technologies that build on their own capacities and knowledge rather than bringing in alien ones, community and people's control over the natural and economic resources necessary for life and livelihoods, and sincere political decentralization. Yet, none of these get central focus in the HDR.

Though at times advocating the need to ensure that people have a choice and are not saddled with one global formula, the biases towards only one model of technology are clear in some revealing sentences. It exhorts, for instance, "developing" countries to take action for "bridging the technological divide and becoming full participants in the modern world." It advocates that "farmers and firms need to master new technologies developed elsewhere to stay competitive in global markets." In so doing, it completely and amazingly ignores the scores of technological alternatives to hi-tech and biotech that have been developed by people, ordinary people, around the world, including in agriculture, medicine, industry and energy.

Such biases are seen in its advocacy of biotechnology, for instance. It commends Bt cotton technology for reducing the amount of pesticide sprays, and enabling greater production in countries like China. This completely ignores the fact that hundreds of farmers in India alone have developed organic cotton production techniques that use no pesticides at all, and yet produce high quantities...and in ways that are economically more profitable since input costs are very low. Advocating



FAO/G. Bizzarri

modern biotechnology by citing a few (dubious) success stories, while ignoring natural and organic agricultural techniques that are being used by thousands of farmers around the world, is a clear case of bias.

The report honestly describes the enormous risks associated with genetic engineering, and even suggests that it is wrong to posit only a choice between conventional technologies and biotechnologies, since organic farming is also available....yet does not anywhere even examine, let alone advocate, organic or natural farming technologies. It chides Europe and the U.S. for pushing debates on the safety of genetically modified crops and foods onto poor countries, completely ignoring the growing concern and opposition to these technologies from the marginal and small farmers of the “developing” countries. It indirectly suggests that such farmers cannot “afford” environmental safety! An even more stark example is that of DDT, whose continued use it advocates for controlling malaria...ignoring the growing incidence of resistance to this chemical, necessitating the use of more deadly chemicals, and ignoring also the radically different, hygiene-based solutions to malaria that have been so successful in many countries.

In its advocacy of strong policy measures to contain the risks of the new technologies, and ensure that their benefits reach the poor, the HDR is on strong ground. Unfortunately, it does not take this analysis far enough, in asking: who will push for these measures? Surely not

governments, who have so far ignored them? It will have to be very strong groundlevel mobilization of affected people and communities, truly bottom-up pressure, that would assure such policy changes. Yet the technologies that can facilitate such community empowerment, such as organic farming and decentralized energy sources, are ignored in this report, and the technologies that can only further alienate people, such as complex biotechnology, are pushed! This is double-speak of a sophisticated, but nevertheless transparent, nature. Technofixes are carried to the extreme in parts of the HDR. For instance, at one point the report honestly admits the modernization of agriculture has destroyed on-farm diversity of crops. Yet its solution? International gene banks that can store such diversity! Surely the writers of the report are well aware that farmer level security cannot be achieved by cold storage of seeds in some faraway place, but only by actual use and control over seed diversity on their farms? This, the only way forward if livelihood security and environmental sustainability have to be matched in agriculture, will be even more threatened by the spread of complicated biotechnologies over which marginal and small farmers have no control, which they have had no role in developing, and which carry great risks.

Listen to this: “The broader challenge for public, private and nonprofit decision makers is to agree on ways to segment the global market so that key technology

Myth #1

products can be sold at low cost in developing countries without destroying markets—and industry incentives—in industrial countries.” So now public good has to bend itself to suit private profit!

One can see who is going to be laughing all the way to the bank, using this report! Certainly not the poor and disprivileged millions, in whose name UNDP derives its credibility.

*Asbish Kothari is a founder-member of Kalpavriksh, a 21-year old environmental action group, and is currently the co-ordinator of the Technical and Policy Core Group to formulate India's National Biodiversity Strategy and Action Plan. He is a member of several governmental committees, including the Expert Group on the Biodiversity Act, the committee to revise the National Wildlife Action Plan and the Environmental Appraisal Committee for River Valley Projects. He is also the head of the IUCN Inter-commission Task Force on Local Communities and Protected Areas.*

## Human Development Report 2001 or a Corporate Marketing Strategy?

by Farida Akhter, UBINIG, Bangladesh

The broader challenge for public, private and nonprofit decision makers is to agree on ways to segment the global market so that key technology products can be sold at low cost in developing countries without destroying markets—and industry incentives—in industrial countries.

*UN Development Programme Human Development Report 2001*

The quotation above from the UNDP Human Development Report 2001, launched on July 11 in Dhaka, is a shameless propaganda for proprietary corporate technology, particularly transgenic products. It is a corporate marketing strategy in the name of “development” and “poverty reduction.” The blatant agenda to dump or create effective demand for genetically engineered and information technology products aimed at running the wheel of corporate profit. It is appalling when it comes from the UNDP Human Development Report, which enjoyed a kind of critical support from the social activists and people who work for social justice. Indeed, earlier UNDP Human Development Reports tried explicitly to maintain a balance with which one could live, given the dominance of corporate ideology in the era of “globalization.” It seems that UNDP has decided to tip over to the side of transnational corporations.

The report was launched in other countries more or less at the same time. Immediately it has generated massive protest and criticisms have been mounting.

The danger of the report lies not in its blatant promotion of the profiteering mission of the corporations, but rather in the rhetoric of the poor. It claims that the hi-tech world of information technology and biotechnology is the savior of millions of poor, starving, desperate people in the “developing” countries. It points to world-

wide resistance to the technology, in particular in the developed countries where GMOs are more or less rejected by the conscious consumers. Since markets in industrial countries are increasingly grim, the report claims that the First World's debate about the safety of genetically altered food and cutting edge drugs is forcing poor countries to wait for technology that could already be feeding their hungry and healing their sick. Playing developing countries against the popular resistance against biotechnology and genetic engineering in developed countries is a dangerous game. The safety issue of the genetically engineered food is not a debate anymore, it is a real struggle of all people both in rich and poor countries.

Poor countries do not need genetically altered food; they need to preserve their own food production. The UN Report is trying to undermine the protests and the concerns expressed by the farmers in the poorer countries about genetically engineered food. The Third World does not need the western countries to teach them how to protest. For countries like Bangladesh, we already have bumper crop production from our existing local production. Bangladesh does not need genetic engineering in food. Genetic engineering will create markets for corporate technologies but will destroy the livelihood



of farming communities. Farmers in Bangladesh have already experienced negatively from the hybrid technology and are apprehensive of any technology, which leads to the dependence on the companies for seeds and its associate inputs.

The UNDP failed to see the implications of their proposition in the context of poor countries. It is trying to shift the technologies to the poor countries because those have been discarded by the First World. They have lost their market in the first world, or at least the confidence of the consumers. It is a well-recognized fact that biotechnology and GE have not been able to gain credibility, even in the scientific community. In this context, making the poor the market place to dump and test the questionable technologies of the North is not acceptable. Now the poor have become the market place for the corporations. UNDP's report is a sneaky, desperate attempt to find excuses and justifications for hi-tech companies. It is sad indeed. Unfortunately, the Human Development Reports are now being manipulated by the corporations for promoting their own self-interest in the name of poverty eradication.

The Human Development Report 2001 is being criticized by many progressive groups around the world. It is accused of being a biotechnology industry-sponsored study. It focuses on agriculture, medicine and information technology as the three main areas through which technological innovations are promoted for the world's poor.

Without any scientific evidence and with no sign of genuine homework, the Report claims that in agriculture, plant breeding promises to generate higher yields and resistance to drought, pests and diseases. Biotechnology offers the only or the best "tool of choice" for marginal ecological zones left behind by the Green Revolution but home to many of the world's poorest people, dependent on agriculture and livestock. It says, "Western consumers naturally focus on potential allergic reactions and other food safety issues. People in

developing countries however, may be more interested in better crop yield." This is utterly dangerous, as if food safety is not an issue for the developing countries. Since they are hungry, anything can be dumped on them. This is an absolutely irresponsible statement and obviously is not based on facts. People in developing countries are lured to become interested in so called yield with false and fraudulent measures.

This is nothing but justification of promoting harmful technologies and forcing the poor to use them. Once the poor consume it, they describe them as interested. Even micro-credits are being used by NGOs in Bangladesh to force the poor to accept hybrid seeds along with pesticides and chemical fertilizers. The poor women, who do not even have enough land to cultivate such crops are paying back the credit with high interest rates. The seeds that they have used did not provide better yields.

The HDR's warning that "if the developing community turns its back on the explosion of technological innovation in food, medicine and information, it risks marginalising itself," sheds doubts about the UNDP's real commitment in terms of human development and poverty eradication. If the developing country governments turn their backs to the processes of monopoly control of few corporations over innovation and technology, they will end up becoming nothing more than marketing agents of the companies. The violent efforts to divide the world into segments of markets must be resisted.

*Farida Akhter is the executive director of UBINIG in Bangladesh. An internationally acclaimed feminist activist, Farida heads many women's groups. She is an active member of FINRRAGE (Feminist International Network for Resistance Against Reproductive Technologies and Genetic Engineering) and the Asian editor for the journal, Issues in Reproductive and Genetic Engineering.*

*UBINIG means "Policy Research for Development Alternatives" in English. The group works on policy issues which have implications on the livelihoods of farming communities. UBINIG works in three broad areas: ecological agriculture, rural industrialization and women & health. The group started working with ecological agriculture in 1988, and approximately 105,000 farming households are now members.*



# Food Sovereignty

There is much more to solving the problem of world hunger than growing genetically engineered corn and soy. Food sovereignty is a key component. Via Campesina, the world's largest farmer organization, first presented the concept of food sovereignty at the World Food Summit in Rome in 1996. Via Campesina defines it as the right of countries and peoples to define their own agricultural and food policies that are ecologically, socially, and economically and culturally appropriate.

## Food Sovereignty and Genetically Engineered Crops

by Elizabeth Bravo, Ecological Action, Ecuador

The Food Summit in June 2002 made it official—the problem of world hunger has not been solved. The “experts” proposed solution is to increase the amount of food produced in the world. However, these experts must not be aware that the true cause of hunger is not a lack of food, but rather a lack of access to food or a means of producing food. It is a matter of food sovereignty.

Food sovereignty is a fundamental human right. Every nation has the right to control its food system from production to consumption, to achieve nutritional self sufficiency. Access to land and water are essential components, as are control over seeds and agricultural technologies. Another Green Revolution or the latest agricultural biotechnology will not feed the hungry.

The top priority of food sovereignty is meeting local, regional and national needs, based on an agriculture made up of small farmers, indigenous peoples, fisherfolk and other local communities. The success of food sovereignty means self sufficiency first for the family, then the community and finally the nation. In this way, access to safe and nutritional food can be available to everyone.

To guarantee food sovereignty, we must protect and promote traditional practices and technologies that assure conservation of biodiversity and protection of local and national food production. However, all of this is being eroded by neo-liberal economic policies imposed on our countries through free trade agreements that promote agricultural policies oriented toward export. Structural adjustment programs dictated by international financial institutions have required us to use our best lands for the production of export products and construction of large dams, to destroy our forests with intensive logging, and to contaminate our rivers and oceans by exploiting these non-renewable resources.

We are being forced to produce more food for export, and at the same time import more to eat. Based on this model, in years to come, each country will export whatever it can grow most efficiently and will import everything else needed to feed its population. People will lose control over the food they eat, small farmers will disappear, and the population will become dependent on multinational corporations for their survival. In some countries, small producers have already been displaced to make room for export crops. In Ecuador, for example, populations of fisherfolk have been forced out by companies producing shrimp for export. Today these women can no longer earn their living fishing, their cultural practices have been destroyed, and the amount and quality of food for their families has deteriorated.

If this trend continues, importers will have control of one of the most essential human activities, providing nourishing food. In addition, we will have to pay importers for the food that we need. Our nutritional security will be in the hands of transnational companies, and we will have little choice about what we eat.

### **Transgenics and nutritional security**

Introduction of genetically engineered crops further threatens a country's food sovereignty, for a farmer has no control over this technology—instead, it is once again in the hands of transnational corporations.

Farmers who buy transgenic seeds are obligated to sign agreements that tie them to the seed companies and prohibit them from saving seeds. These contracts go so far as to give the company the right to inspect the fields to ensure that farmers are not saving seeds. Seed saving, however, is a traditional practice that has assured food sovereignty for the last 10,000 years. To eliminate this practice severely threatens a country's food security. In addition, with the case of genetically engineered seeds,



Selling potatoes in Ecuador.

farmers are given little legal recourse. In Monsanto's latest contracts, for example, the farmer must agree that resolutions of conflicts between the corporation and the farmer will be through an arbitration committee rather than through normal legal channels.

Many intergovernmental agencies and the biotechnology industry say that the problem of world hunger is due to a scarcity of food, so they press for an increase in production. It is urgent, they say, to increase productivity by developing crops that have higher yields and that are resistant to soil erosion, droughts or infestations. Nonetheless, if we look at the genetically engineered crops that have been commercialized to date, these crops are not intended to alleviate the problem of hunger—but primarily to increase sales of the agrochemical giants' herbicides.

The most widely grown genetically engineered crop is soy that has been engineered to be resistant to the weed killer glyphosate or Roundup (Roundup Ready soy). In this case, genetic engineering allows the farmer to spray the weed killer directly on the crop, which in turn means higher sales of the herbicide for Monsanto,

the producer of both the chemical and the seeds. With herbicide resistant crops, there is no advantage for the consumer or for those in need of food.

Furthermore, most soy that is grown is not even intended for human consumption, but rather to be used as animal food. Millions of hectares of Roundup Ready soy are being grown in Argentina, where soy is not traditionally eaten. Soy acreage there has been increased at the expense of other crops that could be used to feed the population.

### **Argentina, soy and loss of food sovereignty**

In Argentina, there are more than 20 million hectares of single-crop farming or monocultures (2/3 of the size of Spain). These farms have been in the hands of 2,000 large companies, that coexist with the other Argentina of 35 million inhabitants—of which 15 million are poor and more than four million are indigent. Although exports continue to increase, more than 50% of the food that is eaten in Argentina is imported. In recent years, small producers have been forced off the land, and the size of the smallest economically viable farm has increased from 250 to 340 hectares (Pengue, 2000).

One of the arguments in favor of agricultural biotechnology is that it reduces the use of pesticides and is therefore beneficial to the environment. This is not the case in Argentina. In the 1991/1992 season, one million liters of glyphosate or Roundup were used. In 1998/1999 glyphosate use reached nearly 60 million liters (Pengue 2002). Today approximately 70 million liters are used, an average of two liters of glyphosate per inhabitant (Rural Reflection Group, 2002).

In past years in Argentina, thanks to the fertility of the moist Pampa and agricultural methods that included farming and livestock rotation, approximately six kilos per hectare of fertilizer were applied annually (compared with 100 kilos in the United States and 250 in France). Today, with the industrialization of agriculture in Argentina, use of fertilizer has increased, constituting a new source of environmental contamination and another limitation for small producers. And in spite of record harvests, Argentine producers are being affected by the lowest prices for their crops in the last 30 years and the highest costs for the cultivation of soy.

Food sovereignty is also threatened by foods that arrive in the Third World at subsidized prices. During the

month of May 2001, there was a rural uprising by corn and rice farmers in Ecuador, because of the low price that their products had on the national market. Among other things, the low price was caused by the government of Ecuador importing 60,000 metric tons of corn from the United States at subsidized prices, that is, lower than those on the national market.

In spite of the fact that the provisions of the WTO obligate countries to eliminate agricultural subsidies, so that all countries can theoretically compete under the same conditions, the countries of the North continue their policy of agricultural subsidies. The consequence of this system of subsidies is that Southern producers are forced to compete with the highly subsidized and industrialized system of the North. This produces social, economic and environmental impacts, since it leads the

countries to a gradual loss of food self-sufficiency and a dependence on imported food and thus a loss of food sovereignty.

*Elizabeth Bravo, who has a Ph.D. in biology and micology from the University College of Wales, Aberystwyth, is President of Acción Ecológica, an environmental NGO in Ecuador, and was previously coordinator of the Network for a GE free Latin America.*

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## The Right to Food and Food Sovereignty

by M.D. Nanjundaswamy, Karnataka Farmers' Union–Via Campesina, India

Any discussion on world hunger has to center around mechanisms which are denying the right to feed oneself, rather than on “Right to Food.” The very expression “Right to Food” is ridiculous, as food is such a simple natural nutritional need of living beings.

This right to feed oneself has been all along realized in a system where food sovereignty was guaranteed. Food sovereignty entails the sustainable care and use of natural resources, especially land, water and seeds by communities who have been the stewards of these resources.

Of late, mechanisms of privatization, centralization and commercialization of these resources are becoming the main instruments damaging this right to feed oneself.

Worldwide, the prevailing neo-liberal economic system has been the primary cause of the increasing impoverishment and the displacement of farmers and rural peoples everywhere. It is responsible for the increasing degradation of nature, including the land, water, plants, animals and natural resources, having put all these vital resources under centralized systems of production, procurement and disruption within the frame of a global market oriented system. The international “agrifood

sector” is largely controlled by transnational corporations and the governments that actively support or passively accept the market ideology as the principle on which to base all of agriculture. This economic system treats both nature and people as a means to an end with the sole aim of generating profits. The concentration of wealth and control in the hands of a small minority has created dramatic constraints on farmers throughout the world, pushing them to the brink of irredeemable extinction.

The sustainability of agriculture depends on the kinds of production systems and the role that farming people have within those systems. Agriculture and other policies, the role of governments and industry, as well as the objectives of research and trade, must all be fundamentally reshaped to give priority to protecting biological and cultural diversity, the land and people of the land, in order to reverse the current dangerous destruction. The major impediment to achieving sustainable ways of producing food is not the lack of appropriate technologies or the lack of knowledge among people working the



land. The biggest obstacle is the way in which international and national policies, as well as the agro industry, are interfering in the food production system, forcing farmers to adopt unsustainable methods of production through a model of competition and ongoing industrialization. This undermines all forms of small-scale family farm and peasant agriculture, which are based on the sustainable use of local resources for the production of quality food for local consumption.

Corporations and rich countries mainly finance international and national agricultural research. This research mostly supports the industrialization of agriculture based on increased use of inputs and dependence of external, international markets. It leads to monocultures and a loss of agricultural biodiversity. It is focused primarily on increasing yields. It tends to develop production techniques that can be applied on a worldwide scale without respecting and making use of the unique local resources. Its orientation often favors the production of raw materials to feed industry instead of the production of good quality food for nearby consumers.

Research on genetic engineering, mainly conducted through transnational corporations (TNCs) fits within these parameters. In addition, genetic engineering brings a whole category of new risk into the food system without producing any benefits to consumers or farmers. Through patenting, industry is increasing its control over food production and making farmers (and consumers) more dependent on its inputs and the commercial-

ization of products through its channels. The risks of genetic pollution and loss of biodiversity, the threats to food safety and quality, and the anti-democratic corporate control over an essential good combine to make genetic engineering a technology which undermines the key components of sustainable agriculture and food sovereignty.

*Originally presented at Sustainable Agriculture in the New Millennium: The impact of biotechnology on developing countries, Brussels, May 8-31, 2000. Abstracts, Friends of the Earth, Oxfam, BUND & Dag Hammarskjold Foundation. Session II: Assessing Biotechnology's and their Contribution to Food Security, Panel 5: The Needs of Developing Countries and Biotechnology Research, May 30, 2000.*

*Professor M. D. Nanjundaswamy is president of the Karnataka Rajya Raitha SanghaIn (KRRS), the largest peasant movement in southern India. 1999, Nanjundaswamy spearheaded a movement in Karnataka to "weed out" Monsanto after the Indian government clandestinely allowed the transnational to conduct trials of genetically engineered cotton at 40 locations across India. Nanjundaswamy justified the "weeding" after accusing Monsanto of being behind the spectacular failure of cotton crops in southern India that lead to mass suicides by ruined farmers.*

*KRRS is a member of Via Campesina, an international movement which coordinates peasant organizations of small and middle-scale producers, agricultural workers, rural women and indigenous communities from Asia, Africa, America and Europe.*

*The principal objective of Via Campesina is to develop solidarity and unity in the diversity among small farmer organizations, in order to promote economic equality and social justice; the preservation of land; food sovereignty; sustainable agricultural production; and an equality based on small- and medium-scale producers.*

Myth #1

# Myth #2

## Northern Resistance to Genetic Engineering Creates Starvation in the South

The biotech industry and the U.S. government regularly accuse those who oppose genetically engineered crops in the industrialized North of “keeping food out of the mouths of hungry people.” Below is a statement from a U.S. government representative followed by a response to this type of public relations campaign from Ethiopia’s Minister of the Environment.

“The fear of Europe is keeping food out of the mouths of hungry people in Africa,” David Hegwood, counsel to the Secretary of Agriculture, U.S. Department of Agriculture said, adding that African governments are needlessly concerned that the food aid will end up in crops or beef tagged for export to Europe. These exports then could be rejected by the European Union because of its moratorium, he explained.

“European consumers aren’t sure about biotechnology so hungry people in Africa don’t eat,” Hegwood said. “If European attitudes are influential enough to take food away from hungry people in Africa, imagine what impact it is having in the rest of the world.”

*“GM Foods Debate Hits Latin America,” December 17, 2002, J.R. Pegg, Environment News Service.*

## Using the South to Promote Genetic Engineering in Europe —Once Again!

by Tewolde Behran Gebre Egziabher, Ethiopia

While I was in the United Kingdom recently, I watched a documentary on British Channel Four Television, which portrayed Africa’s poverty and implied that the average British housewife’s resistance to genetically engineered (GE) food would prevent the South from receiving the benefits of GE. The argument was that biotechnology could solve Africa’s rural poverty and could eliminate malnutrition and under nutrition if the development of their genetic engineering were not rejected in Europe. Interviews with scientists from Kenya, India and Mexico were used to show what wonderful solutions to these problems would come from genetic engineering.

We, as informed Southerners, know that the South’s poverty is caused by deep-seated structural economic imbalances which were established during the periods of slavery and colonialism and are continuing now. We know that though individual technological inputs can

help in food production, given that other conditions are equally as important, those single technological inputs are insignificant on their own.

Since it is the transnational corporations which are the beneficiaries of the long history of inequity that has plagued us in our position of disadvantage, I believe that it is our responsibility to reject such a misleading oversimplification of the solution to our problem; especially the use of our condition, by those very beneficiaries of the inequity, to justify the continuation of the benefits that they derive.

### **Letter to Channel Four Television (UK):**

We are appalled at the use made of the poverty of the rural people of the South to justify genetically modified food to Northern consumers. We are appalled for the following reasons:

# Myth #2

1. Poverty in the South is structurally rooted in the prevalent North–South relationships. The present systems of international resource control, commodity pricing, education, training, research, finance, banking, insurance, transportation, etc. are all components of the system that controls wealth and poverty, and which started being put in place during the slavery and colonial periods and have matured in this post-colonial period. Southern poverty, especially rural poverty, is a consequence of this.
2. As such, the solution to rural poverty lies in a multidimensional corrective measure that would enable sufficient local control of the appropriation of the benefits that arise from the use of and trade in resources, as well as the application of labor.
3. The assumption that the complex rural poverty that afflicts the South, would be amenable to solution through single technological inputs is grossly incorrect and totally objectionable since it would misdirect efforts.
4. Though technological inputs have a role to play in rural development, and genetic engineering could be a technology to consider, it would remain but one technology among many. For example, even if potential yields of food crops were to be dramatically improved, if storage, transportation, marketing, distribution, and the ability to buy the food were not simultaneously improved, the effort would still remain ineffective. In fact, as we keep pointing out, it is not shortage of food that is the problem, but it's distribution. More GE food is not the point: it is improving access and local food security. But corporations do not profit from such solutions.
5. There are high yielding varieties in rural areas but their impacts remain limited by the bottlenecks imposed by many of the other variables. The agricultural research stations that are found in Southern countries have also produced many such varieties and the potentials of these varieties remain unrealized because of the other negative factors. But research must continue so that there will always be higher yielding varieties to have their potential impacts realized as and when conditions allow it. It is a gross oversimplification to state that such seed would solve rural food problems. The picture is the same with seed of improved nutritional quality such as Vitamin A rice.



Tewolde Egziabher speaking to farmers and agricultural workers in Ethiopia.

6. At the heart of the inequity that maintains the present poverty of the South is the inherited positive advantage that the Northern transnational corporations enjoy. We consider the use of the South's rural poverty to justify the monopoly control and global use of genetically modified food production by the North's transnational corporations, not only an obstructive lie, but a way of derailing the solutions to our Southern rural poverty. It is the height of cynical abuse of the corporations' position of advantage. Channel Four Television and *The Times* newspaper should be ashamed for allowing themselves to be so manipulated into trying effectively to emotionally blackmail the UK public into using GE.

Yours sincerely,

Tewolde Behran Gebre Egziabher

*Tewolde Bherhan Gebre Egziabher is the General Manager of Ethiopia's Environmental Protection Authority. In 2000, he was a winner of the Right Livelihood Award for leading the negotiations on behalf of developing countries in the Cartagena Protocol on Biosafety. He is also Ethiopia's negotiator for the Convention on Biological Diversity and the chief negotiator of the African Group and Bureau Member in the Cartagena Protocol on Biosafety. Mr. Egziabher is also director of the Institute for Sustainable Development in Ethiopia.*

# Myth #3

## Golden Rice: A Miracle Rice

### Grains of Hope

At first, the grains of rice that Ingo Potrykus sifted through his fingers did not seem at all special, but that was because they were still encased in their dark, crinkly husks. Once those drab coverings were stripped away and the interiors polished to a glossy sheen, Potrykus and his colleagues would behold the seeds' golden secret. At their core, these grains were not pearly white, as ordinary rice is, but a very pale yellow—courtesy of beta-carotene, the nutrient that serves as a building block for Vitamin A.

Potrykus was elated. For more than a decade he had dreamed of creating such a rice: a Golden Rice that would improve the lives of millions of the poorest people in the world. He'd visualized peasant farmers wading into paddies to set out the tender seedlings and winnowing the grain at harvest time in handwoven baskets. He'd pictured small children consuming the golden gruel their mothers would make, knowing that it would sharpen their eyesight and strengthen their resistance to infectious diseases.

Time Magazine, July 31, 2000

**T**ransgenic Golden Rice is not filling the bowls of hungry children. But it is the Trojan horse—the bright hope of biotech companies beaten down by the consumer backlash against the covert introduction of genetically modified organisms into the global food system.

Biotech proponents hail as its virtue that it will rescue at least a million children who go blind from Vitamin A deficiency each year, the most important cause of blindness among children in developing countries, especially in Asia. However, not everyone is buying into the advertised images of mothers with their sickly children that are being used to promote the genetically engineered crops.

The claims surrounding Golden Rice have come under critical scrutiny from various sectors. For example, the fact that the malnourished state of many children in developing countries and the prevalence of intestinal infections make it unlikely that they can benefit from the beta-carotene in Golden Rice. More important, nearly 80% of all malnourished children in the developing world in the early 1990s lived in countries that boasted food surpluses. Nor does anyone seem to know how much rice it would take to avoid blindness, but estimates range from two to 54 bowls of rice every day to get the recommended daily allowance of Vitamin A.

Acknowledging that Vitamin A deficiency is the single most important cause of blindness among children in developing countries, the solution must include the improvement of socio-economic status which would result in improved, more balanced diets.



## Genetically Engineered Vitamin A Rice: A Blind Approach to Blindness Prevention

Dr. Vandana Shiva, Research Foundation for Science, Technology and Natural Resource Policy, India

Genetically engineered Vitamin A rice has been proclaimed as a miracle cure for blindness—“a breakthrough in efforts to improve the health of billions of poor people, most of them in Asia.”

Is the “golden” rice a miracle that is the only means for preventing blindness for Asia or will it introduce new ecological problems like the Green Revolution did and create new health hazards like other genetically engineered foods?

The genetic engineering of Vitamin A rice deepens the genetic reductionism of the Green Revolution. Instead of millions of farmers breeding and growing thousands of crop varieties to adapt to diverse ecosystems and diverse food systems, the Green Revolution reduced agriculture to a few varieties of a few crops (mainly rice, wheat and maize) bred in one centralized research centre (IRRI for rice and CIMMYT for wheat and maize). The Green Revolution led to massive genetic erosion in farmers’ fields and knowledge erosion among farming communities, besides leading to large scale environmental pollution due to use of toxic agrichemicals and wasteful use of water.

The “selling” of Vitamin A rice as a miracle cure for blindness is based on blindness to alternatives for removing Vitamin A deficiency and blindness to the unknown risks of producing Vitamin A through genetic engineering.

### Eclipsing alternatives

There are many alternatives to pills or “Golden Rice” for Vitamin A. Vitamin A is provided by egg yolk, chicken, meat, milk, butter. Beta-carotene, the Vitamin A precursor is provided by dark green leafy vegetables, spinach, carrot, pumpkin and mango.

Women farmers in Bengal use more than 100 plants for green leafy vegetables.

The lower cost, accessible and safer alternative to genetically engineered rice is to increase biodiversity in agriculture. Further, since those who suffer from Vitamin A deficiency suffer from malnutrition generally, increasing the food security and nutritional security of the poor

through increasing the diversity of crops and diversity of diets of poor people who suffer the highest rates of deficiency is the reliable means for overcoming nutritional deficiencies.

Sources of Vitamin A in the form of green leafy vegetables are being destroyed by the Green Revolution

and genetic engineering, which promote the use of herbicides in agriculture. The spread of herbicide resistant crops will further aggravate this biodiversity erosion with major consequences for increase in nutritional deficiency. For example, bathua, a very popular leafy vegetable in North India, has been pushed to extinction in Green Revolution areas where intensive herbicide use is a part of the chemical package.

Genetically engineered rice is part of a package of globalized agriculture which is creating malnutrition. It cannot solve the problems of nutritional deficiency but it can introduce new risks of food safety. Since the Vitamin A in rice is not naturally occurring and is genetically engineered, novel health risks posed by Vitamin A rice will need to be investigated before the rice is promoted by IRRI and aid agencies, or commercialized.

But one thing is clear. Promoting it as a tool against blindness while ignoring safer, cheaper, available alternatives provided by our rich agrobiodiversity is nothing short of a blind approach to blindness control.

*Vandana Shiva is one of India's leading environmentalists. A leader of the international movement against GM foods, she is director of the Research Foundation for Science, Technology, and Natural Resource Policy, and recipient of the Alternative Nobel Peace Prize. Her books include Stolen Harvest, Biopiracy: The Plunder of Nature and Knowledge and The Violence of the Green Revolution.*

*This article is excerpted from Saving Organic Rice, Vandana Shiva, February 14, 2000.*



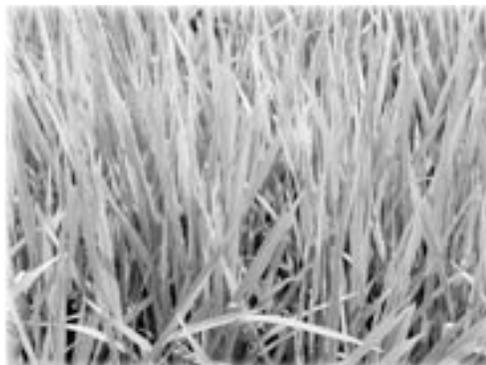
## Grains of Delusion—Golden Rice Seen from the Ground

### Excerpts from a Report by NGOs from Bangladesh, Cambodia, India, Indonesia, the Philippines and Thailand

The biotech lobby is selling the idea that genetically engineered (GE) crops, starting with “Golden Rice,” will solve problems of malnutrition. This is an ambitious goal for a small grain of rice. The malnutrition agenda is drawing support from every major agricultural biotech company, the U.S. Agency for International Development (USAID), the Consultative Group on International Agricultural Research (CGIAR) and its main funder, the Rockefeller Foundation. But at the end of the day, the main agenda for Golden Rice is not malnutrition but garnering greater support and acceptance for genetic engineering amongst the public, the scientific community and funding agencies.<sup>1</sup> Given this reality, the promise of Golden Rice should be taken with a pinch of salt.

Golden Rice has been met with excitement in every corner of the world. It has become a symbol of all the goodness biotechnology has to offer. Among other things, it is supposed to exemplify how genetic engineering can directly benefit consumers, which the first generation of genetically engineered crops has failed to do. It claims to provide a more sustainable, inexpensive and effective solution to Vitamin A deficiency in poor, rice-eating countries where drug-based supplementation and fortification have been ineffective. And in a climate where intellectual property rights (IPR) are the subject of controversy and uncertainty, it promises to provide the IPR-laden Golden Rice technology free of charge to subsistence farmers.

Malnutrition is said to be high in rice-eating populations. But these nutritional problems are not caused directly by the consumption of rice. They reflect an overall impact of multiple causative factors similar to those of other developing countries where rice is not a major staple.<sup>2</sup> Various deficiencies including zinc, Vitamin C and D, folate, riboflavin, selenium and calcium occur in the context of poverty, environmental degradation, lack of public health systems and sanitation, lack of proper education and social disparity.



Poverty and lack of purchasing power is identified as a major cause of malnutrition.<sup>3</sup> These underlying issues that can never be addressed by Golden Rice.

The Green Revolution with its inherent bias towards monocultures of staple crops has led to unbalanced patterns of food production in many places. As the UN Food and Agriculture Organization (FAO) has stated, variety is the key and should be the norm rather than the exception in farming systems. According to Dr. Samson Tsou of the Asian Vegetable Research and Development Center (AVRDC), countries with vegetable consumption of more than 200 grams of vegetables per day do not have Vitamin A deficiency as a major problem.<sup>4</sup> Although animal sources are expensive, inexpensive plant food sources are widely available. It only takes two tablespoonfuls of yellow sweet potatoes, half a cup of dark green leafy vegetables or two-thirds of a medium-sized mango in a day to meet the Vitamin A requirement of a pre-school child.<sup>5</sup> This way, not only is the Vitamin A requirement being addressed, but a whole range of other micronutrients as well.

Malnutrition is not merely a nutrition problem; it is also a social problem,” says Dr. Tsou. “Income generation, healthy diet and proper education need to be improved simultaneously for sustainable development,” he adds. In terms of priorities, increasing vegetable production may be more effective than improving Vitamin A content. In Tsou’s view, “The adoption rate of the so-called modern varieties of cereal crops is still not very high after 30 years of Green Revolution. To introduce a new type of staple food with color will even take a longer time to be popularized. Just like any other technology, the engineered crop will benefit certain growers and consumers but the Vitamin A deficiency will not be resolved by any single technology.”<sup>6</sup>

For local groups like MASIPAG (The Farmer Scientist Partnership for Development Inc.) in the Philippines, combating a socio-economic problem with a technofix solution is reliving the

Green Revolution—which they have totally turned their backs on. “Pro-Vitamin A rice or Golden Rice is but a prescriptive approach to malnutrition wherein only a few varieties will contain the trait thereby further worsening genetic erosion” warns MASIPAG. “Malnutrition will even reach greater heights, as people will have more unbalanced diets based only on a few foods,” it adds.

Golden Rice will supposedly be freely available to poor farmers. Although the notion of “free distribution” means free from royalties or added cost for the technology, for many farmers, cost does not only translate into monetary terms. For Mr. Afsar Ali Miah, a Bangladeshi farmer, “Nothing comes in free anymore, without its consequence, especially if it is driven by profit motives.” He relates this vividly with his experience in the 1960s when Green Revolution seeds were introduced. At that time, the technology was started with all out support from the government and many farmers responded positively, making use of the packaged technology of modern high-yielding varieties together with pesticides, and chemical fertilizers and a certain amount of credit. But when the uncertainty and fear of new was mitigated, the government slowly started withdrawing support and the farmers were left to deal with poor soil, lost seeds and declining diversity in the field, and dependency on pesticides and fertilizers. In the process, farmers lost control of their food system. According to Mr. Ali Miah, “Because of pesticides, people are no longer eating what little edible green leafy vegetables (and fish) are left in the fields. If we allow this Golden Rice, and depend on it for nutrition, we might further lose these crops. Our children would lose knowledge of the importance of other crops such as green leafy vegetables.”

Farida Akhter of UBINIG, an organization working with marginalized farmers and weavers in Bangladesh is quick to point out that biotech companies are looking to the poor in developing countries because of the strong opposition to GE crops in developed countries, such as the EU and Japan. According to Akhter, the poor are a good target because they are less powerful and less able to make technology choices. She adds that, “While Golden Rice is still in its pre-introductory stage, it is being promoted as if the poor have been asked if they wanted it and said ‘yes’.”

According to Daycha Siripatra of the Alternative Agriculture Network in Thailand and the director of

Technology for Rural and Ecological Enrichment, Vitamin A deficiency will not be solved by Golden Rice technology since it does not address the key to the problem of poverty, which is landlessness. “They’re cheating us. If the poor had land, they would have better diets. The poor don’t need Vitamin A. They need Vitamin L, that’s Vitamin Land. And they need Vitamin M, that’s Vitamin Money. Malnutrition is because of poverty, not [a lack of] technology.”

While many doubt the ability of Golden Rice to eliminate Vitamin A deficiency, the machinery is being set in motion to promote a GE strategy at the expense of more relevant approaches. The best chance of success in fighting Vitamin A deficiency and malnutrition is to better use the inexpensive and nutritious foods already available, and in diversifying food production systems in the fields and in the household. The euphoria created by the Green Revolution greatly stifled research to develop and promote these efforts, and the introduction of Golden Rice will further compromise them. Golden Rice is merely a marketing event. But international and national research agendas will be taken by it. The promoters of Golden Rice say that they do not want to deprive the poor of the right to choose and the potential to benefit from Golden Rice. But the poor, and especially poor farmers, have long been deprived of the right to choose their means of production and survival. Golden Rice is not going to change that, nor will any other corporately-pushed GE crop. Hence, any further attempts at the commercial exploitation of hunger and malnutrition through the promotion of genetically modified foods should be strongly resisted.

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#### Notes

1. Potrykus I, “The Golden Rice tale,” 23 October 23, 2000, retrieved from <http://agbioview.listbot.com>, November 28, 2000.
2. Juliano, B. 1993, Rice in Human Nutrition, FAO, Rome, P24.
3. The Hindu, “Key factor in development: nutrition by Dr. K. Venkatasubramanian”, 16 May 2000 accessed at <http://planningcommission.nic.in/key.htm>, December 2000.
4. Email communication from Dr. Samson Tsou, Director General, Asian Vegetable Research and Development Center (AVRDC) to GRAIN, February 16, 2000.
5. Gilbert C., “Preventing blindness,” *Child Health Dialogue*. Appropriate Health Resources and Technologies Action Group, 1997 available at <http://www.who.int/chd/publications/newslet/dialog/7/blind.htm>.
6. Dr. Samson Tsou, op.cit.

# Myth #4

## Patents are Necessary to Ensure Innovation

Although many people find it hard to believe that companies can actually patent plants and plant DNA, the biotechnology industry has used patents to gain monopolies on living things and to usurp traditional knowledge from indigenous people. Since almost all genetic engineering of food crops is oriented toward profit, patents are a crucial part of insuring a high return and are absolutely necessary, the corporations say, if we are to have future improvements in plant breeding.

However, through patents, genetically engineered crops extend agribusiness' control over seeds, and therefore its control over farmers and our food supply. Farmers throughout the world save seeds, freely replanting, trading and sharing them, as well as breeding them to create strains that are well suited to local conditions. Building on the commercialization of modern hybrids, which produce unsuitable seeds and thus require farmers to purchase new seed every year, patented GE crops entail far-reaching restrictions on farmers' use of seeds.

Genetically engineered seeds are licensed to farmers, not owned, generally for one season. The farmer can eat or sell the harvest, but cannot use the seeds produced by the crop. In fact, Monsanto has brought legal action against hundreds of farmers in the U.S. and Canada to assert its control over how seeds are used.

Technology under development will soon allow these restrictions to be enforced biologically. For example, "Terminator" seeds are engineered to give rise to plants that produce sterile seeds. So-called "Traitor" seeds require that external chemicals be purchased and applied to "turn on" or "turn off" certain traits. These restriction technologies are sparking outrage from farmers around the world. Whereas the genetics of crops has been stewarded by farmers for 10,000 to 12,000 years, selection of traits is now increasingly in the hands of biotechnology companies alone.

## No Patents on Rice! No Patents on Life!

### Statement from Peoples' Movements and NGOs Across Asia

Rice means life to us in Asia. It is the cornerstone of our food systems, our languages, our cultures and our livelihoods for thousands of years. Our farming communities throughout the region have developed, nurtured and conserved over a hundred thousand distinct varieties of rice to suit different tastes, conditions and needs.

In the past, the whole cycle of the rice economy, from production to distribution, was under the control of farmers themselves. Today, global corporations are taking over the rice sector. They are establishing their grip through tie-ins with public research, interference in national policy-making, and the further spread of chemical dependent technologies—and now, genetically engineered (GE) seeds.

Throughout Asia, the trend in public and private rice research is to promote new rice varieties that will bring greater control to industry but even more harm to farmers, our health and the environment. For example, rice that is genetically engineered to resist herbicides

or carry Bt toxins will lead to increased pesticide levels not to mention ecological disruption. Other GE rices expressing traits such as resistance to tungro (a virus that infects rice), blast or bacterial blight are being heavily promoted despite the existence of safe and sustainable alternatives developed and practiced by farmers. Meanwhile, F1 hybrid rice is already being commercialized, forcing farmers to buy seed from transnational corporations every planting season and gravely threatening what is left of the genetic diversity in our rice fields.

If technological tools to control the seed were not enough, corporations are now securing the legal tools. The WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) gives global corporations the "right" to claim monopoly ownership over rice through patents and similar mechanisms. Companies have already started to claim intellectual property rights (IPR) on rice. From zero a few decades ago, there are now over 600 biotech patents on rice

genes, plants and breeding methods worldwide. Over 90% of them are held by corporations and research labs in the industrialized countries. IPRs on rice give companies immoral and unethical monopoly control and force farmers to pay for the use of genetic resources and knowledge which originated from them, as in the famous case of the basmati rice patent. While this is unacceptable, governments across Asia are being pressured to recognize patents and plant breeders' rights so that corporations can control the whole agricultural sector, starting with the seed.

Throughout the region, Asian people are working together to counter these trends. This work involves conserving and further developing more sustainable traditional rice farming systems at the grassroots level, while campaigning against any kind of intellectual property regime over life forms.

### **No patents on rice! No patents on life!**

*This statement was endorsed by more than 25 NGOs in Bangladesh, Cambodia, India, Indonesia, Philippines and Thailand. Revised August 2001. The statement is available at <http://www.grain.org/publications/rice-no-patents-en.cfm>.*

## Patents, Genetic Engineering and Bioserfdom

by Silvia Ribeiro, ETC Group, Mexico

Corporations seek to increase control over markets by increasing the scope of patentable things. It is worthwhile to look at this more closely since corporate concentration, genetic engineering and patents mutually reaffirm and strengthen each other.

Patents are powerful instruments for market control. The corporation that has a patent has the "advantage" in that it can retain a monopoly on a product, prevent similar products from coming to market or even stop companies from doing research on similar products. In fact, approximately two thirds of patented products are never produced.<sup>1</sup> Thus it can be argued that the real purpose of patents is to guarantee marketplace monopolies rather than to "protect inventions."

The "theoretical" foundation of the patent system consists of allowing the inventor to benefit from monopoly rights derived from commercialization of his/her invention for a certain period of time, if in return, he/she discloses it. Historically, inventions related to health and other areas such as food were excluded from the patent system for reasons of public interest. The rights conferred through a patent were more or less secured for different lengths of time in different countries and in different sectors or industrial branches. The "optimum" life of a patent is a topic of heated debate in the academic community, and many feel that it should depend on variables like the degree of development of a country,

the evolution of the industrial sector, public interest necessities, etc. In spite of this debate, at the present time there has been an attempt to standardize the duration of a patent to 20 years throughout the world, under new norms approved by the World Trade Organization.

### **How and who patents?**

In order to obtain a patent the inventor is required to fulfill three requirements—the invention must be *novel*, *non-obvious* and *useful*. The first requirement means that discoveries or objects that already exist although not previously recognized are excluded from the scope of patents. The second means that an inventive step should exist, that is to say, that a human intervention was necessary to make it and that it was not obvious to the general public. And the third requirement implies that the invention should have utility or an application that can be exploited.

Patents are issued on a country-by-country basis. To carry out the test of applicability of a patent requires a team of examiners, scientists and technicians in each patent office. In the United States, the U.S. Patent and Trademark Office has around 5,000 examiners, while countries like South Korea has some 800, Brazil approximately 200, and Mexico a few dozen.

In the United States, it may cost approximately \$250,000 to obtain and maintain a patent. However,

lawsuits to defend a patent—more and more frequent in the jungle of protective and preventive patents—are often more than \$1 million per lawsuit in the United States. According to Dr. John Barton of the Stanford Law School, the average cost of patent litigations in 1999 was \$1.5 million per litigant.<sup>2</sup>

With these data, it's not surprising to know that currently more than 97% of patents in the world were issued to applicants in OECD (Organization for Economic Cooperation and Development) countries, basically North America, Europe and Japan. Since the 1960s, geographic concentration of patent ownership has continued, and now it appears that this concentration will increase. More disquieting is knowing that 90% of all technological and product patents are the property of transnational companies.<sup>3</sup> It is important to note that all of these discussions and mechanisms have been developed almost exclusively in Northern countries, while Southern countries, before being bound by impositions of the WTO, were basically not part of these systems because they don't need them nor do they benefit from them.

### **Patenting life**

Requirements to obtain a patent are clearly defined—patents are for inventions and not for discoveries. This, therefore, should mean that living beings cannot be patented. This changed, however, principally with the development of genetic engineering. It was argued that the “invention” and “novelty” criteria was fulfilled by making artificial genetic constructions that did not occur in nature. Although this is still highly debatable, it has opened the door to patenting living things and to increased corporate control of markets.

To circumvent the opposition of some countries to patents on life, multinational corporations at the same time pushed the further development of intellectual property systems roughly equivalent to patents but applicable to plants—also called “plant breeder rights.” To obtain a patent or “plant variety certificate” one is required to fulfill the criteria of *difference*, *uniformity* and *stability* that are applicable to laboratory-created seeds, but not applicable to traditional or farmer varieties.

Breeder rights were formalized with the Union for the Protection of New Plant Varieties (UPOV) Agreement in 1961. Originally, this agreement had only Northern country members (with the exception of South Africa).

In 1994, the inclusion of Southern countries began as a result of intellectual property requirements in the Uruguay Round of the then General Agreement on Trade and Tariffs (GATT), now converted to the World Trade Organization (WTO).

Initially, the major difference between breeder rights and patent rights was that it contained “exemptions” for farmers and researchers. In practice this meant that although a plant variety certificate might be obtained for a plant variety, it could be used freely for non-commercial ends, such as an exchange between farmers, to keep and to re-use the seed for the following harvest, as well as to use these varieties at a level of professional plant improvement to create other varieties. In the 1991 version of the UPOV Agreement, these conditions were restricted, limiting the exemption to researchers only for varieties that were not “essentially derived” and eliminating or strongly limiting the right of farmers to keep and exchange seeds, if this right is not protected by national laws.

### **Intellectual property myths for the South**

Governments of Southern countries tend to believe that if they bend to the wishes of the WTO and the corporations by establishing intellectual property and patent systems, their countries will receive more foreign investment and the transfer of technology will increase, thus encouraging technological innovation and national research.

In reality, these expectations are not fulfilled. According to recent studies, intellectual property systems do not promote technology transfer and investment.<sup>4</sup> Globalization and harmonization of patent systems benefit corporations that can then extend their market monopolies to more countries and more effectively exclude potential local competitors. Foreign investment may even decrease, since corporations will be able to protect their technologies and products in new markets without necessarily achieving any income for the country or generating new jobs. In some cases, for example, in Argentina and Brazil, in the 1990s, national research and development projects were discontinued as well as efforts to adapt imported processes to local conditions. The acquisition of national corporations by multinational corporations (listed, of course, as foreign investment) meant the transfer of more sophisticated research to these corporations' headquarters, leaving less specialized functions in those countries, which in turn had a

negative impact on national research and technology transfer.

The case of agricultural biotechnology research is particularly illustrative. In an overwhelming majority of cases, this type of research is done either by subsidiaries of multinational companies without any technological transfer to the country, or when it is carried out by public institutions in Southern countries, it is generally financed by one of the giant corporations that then directly benefit from the results. There is no significant technological transfer, but rather they transfer the minimum technology necessary—for example, field tests adapting earlier genetic structures to agricultural varieties of that country. These corporations take advantage of local knowledge and the education of the technicians in Southern public institutions to increase their profits.

It is important to note that it is the multinational corporations themselves who in more of 95% of the cases seek and obtain plant breeder rights in our own southern countries and who therefore increase their control of seeds.

### **Controlling Seeds**

More than 1.4 billion people around the world—primarily poor peasants—depend on saving seeds as their primary source of seed for the next year's harvest. Therefore, the current move to eliminate farmers' rights to save seed is especially alarming. Saving and improving seed are ancestral rights recognized in the UN Food and Agriculture Organization framework as "Farmers' Rights."

Seed is the first link in the food chain. Those who control seeds will control food availability. With the advent of genetic engineering, seeds have become an "operative system" that the "Gene Giants"<sup>5</sup> use to develop new genetic technologies. That is why we see such firms as Monsanto spending over US\$8.5 billion to buy seed and biotechnology companies in recent years. That is why Dupont spent over US\$9.4 billion to buy Pioneer Hi-Bred, the largest seed-producer firm in the world. The aim is control. The Gene Giants are using patented transgenic seeds to dictate how farmers will grow their crops and under what conditions. One of the most serious effects on farmers and indigenous peoples, and for public research in general, is that we are losing our right to use and develop diversity.<sup>6</sup>

### **Terminator Technology**

Let's take Terminator technology as an example. These are plants that have been engineered to make their seeds sterile. This is a technology whose prime goal is to maximize industry's earnings by eliminating farmers' ability to store and improve their seeds. Genetic sterilization of seeds goes further than intellectual property. A typical patent gives the owner legal monopoly for 20 years; with Terminator, that monopoly never expires. It is a perfect tool for the corporate control of seeds in the global market.

In 1999, after widespread public opposition to these "suicide" seeds, Monsanto and AstraZeneca publicly agreed not to commercialize Terminator technology. This led many people to believe that the crisis was over. It was far from true, however. Both Monsanto and AstraZeneca merged with other firms after their agreement. In August 2001, the U.S. Department of Agriculture (USDA) announced that it approved a Terminator patent for Delta & Pine Land Seed Co.—the largest cottonseed company. Delta & Pine Land made public its intention to commercialize Terminator seeds. Other companies are still developing and refining the genetic sterilization of seeds. The Terminator patent owners include the largest seed and agrochemical corporations and research institutions such as: Syngenta, Monsanto, DuPont, BASF, Delta & Pine Land, but also the U.S. Department of Agriculture and Cornell, Purdue and Iowa Universities.<sup>7</sup>

Recently, exacerbated because of the tragic case of transgenic contamination of native corn in Mexico, proponents of the technology are arguing that Terminator is a "biosafety" tool—it will prevent genetically engineered pollen from escaping and contaminating nearby plants. If the biotechnological industry doesn't know how to control its technology, it shouldn't be allowed to move forward. More sophisticated technology is not the solution and would only lead to increasing dependence and additional problems. Biosafety in exchange for food sovereignty is an immoral and cynical premise.

There are also other technologies closely related to Terminator, such as Traitor technologies—technically called Genetic Use Restriction Technologies or GURTs. GURTs are potentially even more dangerous and insidious. By using this technology, corporations could engineer a crop so that certain characteristics would

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be switched on or off by applying a particular chemical. For instance, if companies are able to engineer the seed to make it react only to application of their own patented pesticide or fertilizer, they will greatly increase a farmer's dependence on their products. That way, farmers and food security would become hostages of the Gene Giants. Unless governments take urgent action to ban these technologies, they will be commercialized with devastating consequences for farmers, food sovereignty and biodiversity.

To be beneficial, any new technology should first be socially, economically and environmentally evaluated, and built on the informed participation of civil society within the context of truly democratic institutions; it must also be based on respect for culture and the environment as well as on the satisfaction of the people's real needs—not on corporate profits. We need many strategies to stop and turn back these tendencies—at local, national, regional and intergovernmental levels. Some of the key immediate aims include:

- Stop the introduction of genetically engineered crops;
- Stop the patenting of life in all its forms, as well as any element of nature;

- Ban Terminator technologies;
- Promote and enforce Farmers' Rights;
- Promote sustainable peasant agriculture and food sovereignty; and
- Promote direct, shared and decentralized relations between producers and consumers.

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*The ETC Group is the action group on erosion, technology and concentration. This article is based on the ETC Group collective research.*

#### Notes

- 1 Dagsupta, B., (1999) "Patent Lies and Latent Danger: A study of the political economy of patents in India" *Economic and Political Weekly*, April 17–24, 1999, quoted in "IPRs and biological Resources, Implications for developing countries," Cecilia Oh, (2000) Third World Network, Penang, Malaysia. <http://www.twinside.org.sg>.
- 2 RAFI, (2000) "In Search of Higher Ground. The intellectual property challenge to public agricultural research and human rights, and 28 alternative initiatives." Downloadable at <http://www.etcgroup.org>.
- 3 Ibid.
- 4 Kumar, Nagesh, (1996) "Foreign Direct Investment and Technology Transfer in Development: a perspective on recent literature", United Nations University, quoted in *IPRs and biological Resources, Implications for developing countries*, Cecilia Oh, (2000) Third World Network, Penang, Malaysia. <http://www.twinside.org.sg>.
- 5 Loosely defined, the Gene Giants include the transnational enterprises that dominate commercial sale of pesticides, seeds, pharmaceuticals, food and animal veterinary products.
- 6 RAFI, 1999, "The Gene Giants: Master of the Universe?" RAFI Communiqué. March/April.
- 7 For an update on Terminator, see "Terminator: Five Years Later," at <http://www.etcgroup.org/article.asp?newsid=389>.



Ellen Hickey

# Myth #5

## Biotechnology Increases Agricultural Biodiversity

The biotechnology industry maintains that genetically engineered crops actually increase the world's agricultural biodiversity. They claim that growing more food on less land will leave more room for other species to survive and may "play a part in making farms of all sizes more viable." None of the crops that have been commercialized to date, however, have consistently increased yields or biodiversity. Rather, they have presented ongoing threats to centers of diversity in areas around the world.

Centers of diversity are areas that contain populations of relatives of crops, such as corn, rice, soy and wheat. These populations are a reserve of genetic material that traditional crop breeders can use to breed new varieties. The world's agriculture

cannot survive without these centers of diversity which provide the raw genetic material for breeding new characteristics into crops—characteristics such as disease resistance, cold tolerance and drought resistance.

While genetic diversity is already being threatened by loss of small farms and industrialized agriculture, widespread use of genetically engineered crops could intensify this loss. Wild relatives could be displaced by crops or weeds with engineered traits that give them an advantage, such as insect resistance. In addition, farmers may abandon even more traditional varieties as the biotechnology industry aggressively markets genetically engineered crops around the world.

Voices

## Bolivia and Genetically Engineered Potatoes

by Maria Luisa Ramos, FOBOMADE, Bolivia

In Bolivia, which is the potato's center of origin, genetic diversity of the crop is so high that up to 70 varieties can be found within one ayllu (a local family farming unit), from sour to semi-sour to sweet. Recent studies have demonstrated that 235 species of wild or cultivated potatoes exist.

Farmers in the High Andean Region guarantee their food requirements through diversified agriculture with the aid of high biodiversity. The potato is one of the most important staples of the country and assures food sovereignty for Bolivian farming families and for the nation.

Because the preservation of native potato varieties is crucial for farmers in that region, several local community initiatives have been launched to revitalise and improve local potato seeds. One such initiative taken by Agruco (Agroecology of the University of Cochabamba) consists of maintaining more than 45 native potato varieties in one ayllu seedbank. The seedbank functions as a source for varieties not actively cultivated, or for seeds, if planting stock quality diminishes. In this way, potato biodiversity is preserved and revitalized.

### The introduction of GM potatoes: the risks for Bolivia

In April 2000, the Bolivian Biosafety Committee approved a request for field trials of a GM potato resistant to nematodes, a pest. The field trial was to be conducted by the Proinpa Foundation, with plant material originating from Leeds University, England. In Bolivia, genetic contamination through lateral transfer of GM potato genes poses a high risk to traditional varieties and wild relatives. Serious impacts on biodiversity and cultural diversity are possible, for instance genetic erosion and the disappearance of traditional cultural practices connected to the potato.

### People's resistance to the GM potato

When the request to conduct GM potato field trials became known, farmers from different Andean areas rejected the field trials in a letter addressed to the Bolivian Vice-Minister of Natural Resources and Environment.

Bolivia's foremost development NGO (nongovernmental organization) network, the Association of



Agroecology Producers, and the environmental NGO, FOBOMADE, wrote to the Bio-safety Committee to protest. Unfortunately, the committee ignored civil society organizations' wishes on this critical biosafety issue. The plan to introduce the GM potato to its Bolivian centre of origin caused a strong national reaction not foreseen by the project promoters. Andean farmers strongly opposed the project and threatened to destroy the field trials. Meanwhile, statements against the GM potato's introduction came from around the world. Immediately after the Biosafety Committee approved the field trials, the Proinpa Foundation came under heavy criticism at public meetings in La Paz, Cochabamba and Sucre.

### **Precautionary principle and alternatives to the GM potato**

The United Nations Convention on Biological Diversity (CBD) has recognised that the precautionary principle should be used in connection with biotechnology. In the Biosafety Protocol (adopted January 2000) the precautionary principle is recognized as a key element for achieving biosafety. For Bolivia, this means that the critical resource of potato biodiversity should not be risked for a technology that has not proved its worth.

In connection with Bolivian potato case, FOBOMADE delivered a statement both nationally and internationally calling for a moratorium on GM crop releases into

the environment, especially in countries that have traditional varieties or close relatives of the GM crop. The statement also said that Bolivia's problems should be tackled through methods based on the nation's genetic richness, not through methods such as genetic engineering that threaten biodiversity. The use of genetic engineering cannot be justified in Bolivia, when study of the full potential of traditional potato varieties remains incomplete. Furthermore, the study of Bolivian native varieties through traditional hybridization methods is an endeavor that can easily be carried out by the nation's own farmers.

### **Project withdrawn**

On June 5, 2000, the Proinpa Foundation withdrew its project to perform GM potato field trials due to the "debate generated by GM potatoes in the country" and stated that it would "wait for a more appropriate moment."

### **Resistance continues**

In September 2000, the Bolivian Confederation of Farmworkers put the subject of GM food on its agenda, and persuaded the government to sign a decree which stated that, "All production of GM food is stopped during the review period established, and until the final report is issued, with recommendations on amendments to the regulations on access to genetic resources and biosafety" (Decree 25929).



FAO/G. d'Onofrio

Then, in January 2001, the agriculture minister adopted Ministerial Resolution 2001, which decided “To ban, for a period of one year, the import of products, sub-products and foodstuffs of agricultural origin derived from genetically modified crops.” The resolution was a provisional and preventive measure to protect the population’s health.

In new negotiations on August 23, 2001, the Bolivian Confederation of Farmworkers persuaded the national government to extend the above resolution until beyond December 2001 and upgrade it to the status of a Supreme Decree.

### **Corporate influence reverses democratic decree**

However, pressures for field trials of GM potatoes and other crops persisted. Permanent lobbying by transnational corporations put pressure on the Bolivian government and its institutions to open the gate to modern biotechnologies. Led by the Argentinean soya sector the lobby strongly attacked the Bolivian decree that banned GMOs.

A leaked Bolivian memo asserted that “the [Argentinean] soya corporate sector is behind the attack, because it exports almost five billion dollars of genetically modified soya.” In the same memo, Bolivian authorities said the “the present situation is very sensitive, because the Bolivian Mission at the WTO considers that the reasons given by the Argentinean Mission are valid, according to WTO rules, and our country does not have any solid justification to back the measure adopted.

Thus, despite widespread opposition from farmers, and environmental and sustainable development leaders, the corporate lobby succeeded in October 2001 in getting the ban on GM product imports lifted until new regulations are made.

The repeal of the above resolution reveals the Bolivian government’s weakness in the face of Argentinean and agribiotech company pressure. It is an outrage that a small nation like Bolivia should be forced to accept GM foods against public sentiment.

Farmer and environment NGOs in Bolivia have vowed to continue urging their country to regulate GMOs in the face of pressure from abroad. Since products in food aid to Bolivia were found by FOBOMADE to contain GM ingredients, concern is even greater. The Association of Agroecology Producers of Bolivia urges that controls be placed on food and seeds imports from countries like Argentina, Canada and the U.S., and that strong sanctions be imposed on any corporation or organization that markets GM products in Bolivia.

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*Foro Boliviano Sobre Medio Ambiente y Desarrollo (FOBOMADE) is an organization which brings together the Bolivian social and environmental movement, academic institutions, and individuals who work from their communities to promote the defense of the environment and natural resources.*

*Based on an article that originally appeared in The World As a Testing Ground: Risks of genetic engineering in agriculture, 2002, Hivos and Friends of the Earth International, <http://www.hivos.nl>.*



Myth #5

## GE Pollution in Mexico: Native Corn Contaminated

In September 2001, Mexico's Secretary for the Environment and Natural Resources confirmed reports that genetically engineered material had contaminated native corn varieties in Mexico. Out of 22 communities tested by government agencies in the state of Oaxaca, contamination of corn by transgenics was found in 15.<sup>1</sup> It is the first proven case of transgenic contamination affecting a crop at its center of origin—in the region where it evolved, where numerous landrace varieties and wild ancestors still exist.

Mexico placed a moratorium on the planting of genetically engineered corn in 1998 in an attempt to protect the grain's biodiversity base. The government did not, however, eliminate or regulate the import of U.S. corn to be used for human food or animal-feed corn. At least 25% of corn produced in the U.S. is transgenic.<sup>2</sup> Some of the imported U.S. corn may have been planted by Mexican farmers, who had no way of knowing that the corn they purchased might be genetically engineered. Olga Toro Maldonado, a Oaxacan farmer, commented: "We wanted to try out the seed. No one told us that we should not plant the corn."<sup>3</sup>

The original discovery of transgenic contamination in Oaxaca was made by a research team led by Ignacio Chapela, a microbial ecologist at the University of California, Berkeley. Chapela informed the Mexican authorities of his findings in early 2001 and the government set about its own studies.

The high rate of contamination (two out of every three communities tested in the government study) led Chapela to conclude that "this contamination may be much more extensive, and—what would be even worse—it may be affecting corn's wild relatives."<sup>4</sup>

### No action by Mexican government

The Mexican government agencies responsible for overseeing agriculture, biodiversity, imports and the environment have yet to propose emergency measures to deal with the contamination. The Undersecretary for Agriculture, has described the transgenic contamination as "of low frequency"—even though in 13 of the 22 communities tested, 3–10% of the corn contained transgenic material, and in two other communities the percentage was even higher.<sup>5</sup>

Dozens of civil society groups have called for an immediate moratorium on corn imports from the U.S. until such a system of segregation can be established. Chapela calls "eliminating the source of contamination" the necessary first step in addressing the problem.<sup>6</sup>

A statement of demands signed by 30 Mexican NGOs in September 2001 outlines a plan for assessing the magnitude of the contamination,

determining its sources, informing farmers, establishing mechanisms of oversight and detection for imports, disposing of the corn that has already been contaminated and undertaking legal actions against the corporations responsible for the transgenic corn.<sup>7</sup>

### Part of a strategy?

Groups like Greenpeace, the ETC Group (formerly RAFI) and Guerreros Verdes (Green Warriors) argue that support for agri-biotech companies is part of the Mexican government's broader objective of market integration into NAFTA, whereby small farmers in Mexico are being squeezed off the land and forced into underpaid industrial jobs in the cities.<sup>8</sup> Along with imperiling biodiversity, the introduction of transgenic crops allows a handful of corporations to deepen their control of the seed supply and expand pesticide sales. Farmers who want to grow local varieties or who own only a few acres of land are unable to compete with larger farms that buy seeds and pesticides from the agri-biotech giants—especially now that the genetic material of the small farmers' local corn varieties cannot be protected from contamination by the agri-biotech companies' products.

### Notes

- 1 "Transgenic corn found growing in Mexico," *Nature* 413 (September 27, 2001).
- 2 James Clive: "Global Status of Commercialized Transgenic Crops: 2000." International Service for the Acquisition of Agri-Biotech Applications (ISAAA) Briefs No. 21: Preview. ISAAA: Ithaca, NY.
- 3 "Maíz transgénico en Guanajuato y Puebla," *Tendencias*, October 2001.
- 4 "Irresponsable que la SEMARNAT minimice la contaminación transgénica de variedades criollas de maíz: Greenpeace," Greenpeace México, *Boletín* 175, September 20, 2001.
- 5 "Greenpeace tenía razón: hay maíz transgénico en Oaxaca," *Crónica*, September 20, 2001, page 30.
- 6 Op. cit. "Irresponsable."
- 7 Open letter to CIBIOGEM (Interdepartmental Commission for Biosafety and Genetically Modified Organisms), September 24, 2001.
- 8 "Corn and NAFTA: An Unhappy Alliance," *Seedling*, June 2000, <http://www.grain.org/publications/jun002-en-p.htm>; "Campesinos demand end to GM imports," Associated Press, October 17, 2001; Open letter to President Fox, Guerreros Verdes, August 30, 2001; World Food Sovereignty Day seminar press release, October 16, 2001; "Continúa México comprando maíz transgénico de Estados Unidos, pese a tener almacenadas 630 mil toneladas de maíz mexicano," Greenpeace México, *Boletín* 183, October 15, 2001.



## Rice and Biodiversity

### Genetically Engineered Rice: For Whose Gain?

by MASIPAG, The Philippines

Much of the rice diversity, once endowed to farmer communities, has already been lost under the guise of feeding the world during the Green Revolution. Forty years later, the same strategy but under a different name, comes to wreak the same havoc.

A dark cloud of genetic uniformity is already gripping Asian fields today with production being confined to only a few varieties. This is a very dangerous situation for farmers and food security since it increases dependence on toxic chemicals and genetic engineering to help defend crops against inherent weaknesses of biological uniformity.

Diversity in the field is one of the factors to prevent mass infection and traditional rice varieties have an

advantage when planted since they are more adapted to local conditions. Although susceptible to pest attacks, the diverse nature distributes the damages incurred, thus the overall productivity is only slightly affected. There are cultural practices and indigenous knowledge systems being employed to cope with such attacks, which are equally if not more effective without destroying the farm ecology.

*Excerpted from "GE Rice: For whose gain?" Masipag News & Views, June 2, 2000.*

*MASIPAG is a farmer-led, community-managed breeding and conservation program focusing on rice and vegetables throughout the Philippines. It started in 1986 and now involves 50 trial farms maintaining over 500 collections of traditional and improved traditional varieties. Some 534 farmer-bred lines and 75 selections of rice are currently being grown and further improved by well over 10,000 farmers throughout the Philippines.*

## Voices

### Rice 'n Controversy

by Vasana Chinvarakorn, Thailand

What would jasmine rice taste like if it were genetically modified? A street protest against genetically modified rice highlights farmers' fears that there is an ominous threat to the world's most important staples.

Khemporn Songma looked ill-at-ease when asked what he thought about genetically modified rice. But as questions shifted to indigenous species, the 39-year-old Isan farmer suddenly perked up. With just a glimpse at various rice stalks and grains, Khemporn can spot the subtle differences between Khao Dok Mali (jasmine rice), Khao Phama, Khao Por Kaew, and Khao Nang Nual right away. All his life has been spent tending the crop—the first variety for the market, the rest for his family's own consumption.

Now the father of two is worried his days in the fields may be numbered. Last week, Khemporn traveled

almost a 100 kilometers to the town of Roi Et to join 500 other farmers engaged in a peaceful demonstration. The target? To thwart plans to genetically modify the age-old staple food—rice.

"I've heard those genetically modified organisms (GMO) crops have had their innards—what the scientists call 'genes'—tampered with," says Khemporn, his Isan dialect clearly tinged with anxiety. "I don't know how they're doing it technically. But I'm afraid the appearance of such a bizarre crop may end up wiping out many of our local plants."

Khemporn's concern is not totally groundless. Since Thailand embraced the Green Revolution in the 1960s, thousands of rice varieties have noticeably disappeared. Indeed, the actual number of rice varieties currently grown now hovers around a mere 15. And yet, farmers

from remote areas like Khemporn have until recently been mostly spared the swipe of modernization. Unlike those in the Central Plains, Thailand's rice belt, it took Isan villagers much longer to subscribe to the doctrine of intensive chemical use, farm machinery, and high-yielding varieties.

But the second "revolution," heralded by state-of-the-art genetic engineering, promises to deliver a far more universal impact to one and all, as it is directed right at the very fundamental of life—a crop's gene.

Moreover, rice, a staple for more than half of the world's population, has been designated the prime target on which to test the prowess of this high-flying scientific development.

### Rising concerns

For social activist Daycha Siriphat, the future of Thailand's indigenous rice strains lies with small-scale farmers and not with the government.

In fact, the director of the Technology for Rural and Ecological Enrichment (Tree) argues that state-endorsed promotion of market-oriented monoculture contributes to a drastic decline in rice varieties. High-yielding varieties together with intensive use of chemicals and farm machinery have effectively turned farmers away from indigenous varieties.

"The state plays a crucial role in the decline of the local varieties," said Daycha.

"For instance, last month, a senior officer at the government-run Bank for Agriculture and Agricultural Cooperatives, urged farmers in the South not to grow indigenous rice. He argued these crops have low market demand.

"Ironically, a lot of farmers have gone bankrupt after they followed the government's advice to switch to high-yield varieties, which turned out to be susceptible to insects and diseases," Daycha noted.

Prayong Khomkaew, an officer at the Ministry of Agriculture, agrees with Daycha's assessment. He said



FAO/Peyton Johnson

the problems of insects and pests that plague farmers nowadays could be solved rather easily if they stop intensive monocropping. Unfortunately, in many instances, attempts by villagers to adopt more ecologically friendly forms of agriculture have been curbed by a governmental lack of understanding. Jorri Odoshao said Karen folks in Chiang Mai have been cultivating up to 60 different varieties for generations, thanks to the practice of rotational cropping—a traditional form of agriculture which allows the land to resume its fertility by nature's own course. Their counterparts in Phetchaburi, however, have been barred from continuing the method. Forced to toil on the same plot of land for many consecutive years, the Karens suffer from degradation of the soil's nutrient value.

"By the end of the fourth year, a large number of indigenous varieties had disappeared," noted Jorri. "What kind of development is this if it takes away biodiversity and disallows pride in traditional cultures?"

*Vasana Chinvarakorn is a writer at the Bangkok Post.*

*BIOTHAI or Biodiversity Action Thailand is a coalition of NGOs, local community organizations, academics, and government officials who realize the importance of biodiversity and its close connections to the livelihood systems of local communities. BIOTHAI began its activities to provide information and raise the awareness of policy-makers and the public in Thai society in 1995.*

*<http://www.bangkokpost.net/issues/gmo/230900b.html>. Bangkok Post, September 23, 2000.*

# Myth #6

## People in the Third World Want Genetically Engineered Crops

In its promotional campaigns, the biotechnology industry regularly features its handful of “Third World” spokespeople—people like C.S. Prakash and Florence Wambugu (see Introduction, p. 1). In the mainstream media, their voices calling for biotechnology to save developing countries drown out the genuine voices of farmers, researchers, and activists in the global South. Here is a collection of articles, statements and news reports that illustrates the widespread opposition to genetic engineering in developing countries around the world.

Voices

### Genetically Engineered Crops in Indonesia: Lies and Frustration Unite Farmers

by Nila Ardhanie & Nina Andiana, Indonesia Forum on Globalization, Indonesia

Until recently, Indonesia did not have any rules to regulate transgenic plants and food, which made it relatively easy for companies to import genetically engineered products without any oversight. The only regulation is a Joint Decree signed by the Minister of Agriculture, Minister of Health, Minister of Forestry and Plantation, and the State Minister of Food and Horticulture,<sup>1</sup> which states that genetically engineered products are safe unless proven otherwise.

The government’s official response to genetically engineered crops is still unresolved. On one side, the Ministry of Environment is against introduction of transgenic crops without further tests. But on the other, the Ministry of Agriculture strongly supports the technology, saying that transgenic plants are far more productive compared to conventional crops, and therefore can solve food shortages in Indonesia.

The following is example of how GE crops are being introduced into Indonesia. There is inadequate testing prior to release, and farmers are left in the dark.

#### **Bt cotton in South Sulawesi**

On February 6, 2001, the Minister of Agriculture issued a decree<sup>2</sup> allowing limited release of transgenic cotton (Monsanto’s Bollgard cotton) in seven districts in South Sulawesi, Indonesia.<sup>3</sup>

On March 15, 2001, 40 tons of genetically engineered cotton seed (Monsanto’s Bt cotton, Bollgard) were flown into South Sulawesi. The seeds were imported from South Africa by Monsanto’s Indonesian subsidiary, PT. Monagro Kimia, to be sold to farmers in South Sulawesi. From the airport, the seed was taken to the area in trucks guarded by armed military police. Upon learning what had happened, NGO activists protested the government actions because the seeds had not gone through the required quarantine process before being released to the public.

The seed was brought into Indonesia only five weeks after the decree was issued by the Minister of Agriculture. But even before the decree was issued, Monsanto’s subsidiary conducted field tests for Bt cotton in two of the districts, involving 600 farmers and 500 hectares of land. The field tests had been kept secret, until they were discovered by a local NGO.<sup>4</sup>



Although initially unsure about this new technology, farmers in Sulawesi agreed to plant the genetically engineered cotton after extension workers said that these seeds would produce higher yields and lead to more profit. As a contributing factor, the local variety of seeds the farmers usually planted had become very hard to find. In fact, some farmers felt that this was an artificial shortage created to force farmers to try GE cotton seeds.

After a number of months of growing Monsanto's Bollgard cotton, the farmers realized that it wasn't as successful as they were led to believe—but rather a big disappointment. The promise of a bigger harvest was not realized. The company that promised to buy their yields also refused to fulfil its promise. Disappointed and desperate, the farmers burned their cotton harvest. The company maintains that this action was provoked by a third party, but as one of the farmers told us, that's not what happened.

### **Santi's experience**

Mrs. Santi Sudarti was one of these farmers. To express her mounting frustration, she burned her cotton on September 13, 2001. However, this was not the only burning that took place. Farmers burned cotton for two more days. In several instances, they took their harvests to one place and burned all the cotton together.

Mrs. Santi told us how she came to grow Bt cotton. The first thing she heard about genetically engineered seed was that it would give her the most benefits a crop can offer. The extension worker said that it would yield as much as four tons of cotton per hectare in any kind of soil, and it wouldn't matter if the soil is wet or dry. She was also told that all of her crop would be bought by PT. Branita Sandhini, a subsidiary of the company who sold the seeds. With high profits in mind, Mrs. Santi and other farmers agreed to plant Bt cotton. For Mrs. Santi, it was a major shift, since before she planted only corn, vegetables and legumes. Because the extension worker was able to convince farmers to plant transgenic cotton no matter what she or he had grown in the past, the company was able to sell large quantities of seed.

Then the extension workers from the Agricultural Service came with contracts.<sup>5</sup> However, not all farmers were asked to sign, only the head of each Farmers' Group, which were newly formed by the Indonesian Cotton Farmers Association. As the head of Women Farmers' Group, Santi signed the contract. In her area

alone,<sup>6</sup> there are 25 Farmers' Groups who agreed to plant Bt cotton. Each farmer planted approximately two hectares of land which resulted in 640 hectares of land shifted to Bt cotton.

Bt cotton seeds were also promoted by the village head, who would receive 2% of each farmers' Bt cotton yields. However, these bonuses were not paid in cash, but in the form of insecticides and herbicides. This is but one more way that the company also promotes pesticide use among farmers. In addition, Mrs. Santi received a package from PT. Branita Sandhini—it contained insecticides, herbicides, 10 kg Bt seed, and fertilizer, and was distributed to the farmers at night.

When the farmers harvested their crops, instead of big yields, they got nothing but disappointment. From the 640 hectares of land planted with Bt cotton, only 2% reached the four ton per hectare target. Mrs. Santi's land produced less than 500 kg per hectare, and many farmers had yields of only 70–120 kg.

But the disappointments did not stop there. The company refused to buy their cotton since they produced much less than they had agreed to. The contract said that farmers must produce the stated production target or there would be no sale. When farmers tried to sell their cotton to other buyers, none were willing to buy it because they were afraid of retaliation by PT. Branita Sandhini, one of the largest companies in the region. Mrs. Santi also said that the farmers were allowed to defer payment for the seeds until after the harvest, but the company continued to increase the price of the seeds. When they signed the contract, the seeds were Rp40.000/kg, but at harvest, the price was up to Rp80.000/kg and by the time they were supposed to pay, the new price was Rp120.000/kg.

The farmers then tried to channel their complaints to the district's legislature, but nothing was done to address their problems. When they protested, the farmers were intimidated by the police and the Agricultural Agency. An extension worker even challenged them by saying that they wouldn't have the nerve to burn their cotton. Desperate and angry, the farmers, including Mrs. Santi, burned the cotton in their fields.

*Indonesian Forum on Globalization (INFOG), is based in Solo, Central Java, Indonesia. INFOG's goal is to raise public awareness on globalization and its consequences in Indonesia, particularly on natural resources, local economies, human welfare and its effects on democracy. Established in February 2002, INFOG supports global*

*solidarity in order to achieve sustainable development while facilitating local initiatives to challenge globalization.*

*Nila Ardhanie is INFOG's executive director. Nina Andiana is a writer and activist in Indonesia.*

#### Notes

- 1 The 1999 decree addresses issues related to *Biosafety and Food Safety of Genetically Engineered Food and Agricultural Products*. But in general, it supports the use of genetically engineered plants in Indonesian agriculture. Article 1 of the decree, for example, states that genetically engineered products are safe unless proven otherwise.
- 2 Decree No 107/2001.

- 3 The seven districts are Takalar, Gowa, Bantaeng, Bulukumba, Bone, Soppeng, and Wajo.
- 4 A letter from Pesticide Action Network Indonesia to The Coordinating Minister of Economics, Rizal Ramli (September 5, 2000). The letter states that PAN Indonesia and YLK-SS (Consumer's Institute-South Sulawesi) Makassar found Bt cotton test fields in South Sulawesi by accident. The government (Ministry of Forestry and Plantations) announced the existence of these fields only after PAN Indonesia announced their findings in Ministry of Environment's office.
- 5 The contract said that PT. Branita Sandhini would provide the seeds and fertilizer, and farmers should repay these expenses after harvest. The planting costs Rp. 1.245.000/ ha for each farmers.
- 6 Santi's area includes the districts of Bontobiraeng, Kajang and Bulukumba.



## Voices

### Asia: Declaration on Biodiversity Protection and Local People's Rights

Representatives of peoples' organizations in Cambodia, India, Indonesia, Lao PDR, Malaysia, the Philippines and Thailand have joined in a 12-day mobile campaign for biodiversity. Farmers and citizens from all regions of Thailand participated in the "Long March," which included events in Bangkok, Songkhla, Phetchaburi, Roi Et, Loei and Chiang Mai in September 2000. More than 2,000 Thai citizens were actively involved in the activities. The participants declared that:

1. Biodiversity can only be protected and properly managed by local people. Importantly, Asian communities do not perceive biological resources as commodities for agribusiness and industry. Instead, they have a sacred and spiritual value to sustain our lives and our survival.
2. Our biological resources have been destroyed on massive scale with colonialism. It was exacerbated by the Green Revolution, which was imposed by our governments in cooperation with international agriculture research institutes. The great pressure towards genetic engineering and the use of genetically modified

organisms (GMOs) by agricultural transnational corporations (TNCs) led by Monsanto and Novartis will inevitably exacerbate destruction of the world's biodiversity and rapid genetic pollution.

3. The development of GMOs, the promotion of GM food and products as well as the intellectual property rights system imposed by the industrialized countries all stand against religious and ethical principles and faith of Asian people. All this violates the rights of farmers, consumers and entire nations. The self-reliance and sovereignty in the Asian region will be threatened to the point that we all become slaves of giant international corporations.
4. As human beings, we are both part of and highly dependent on biodiversity. Rice, corn, and other staple crops, food crops, medicinal plants and all other life forms are significant genetic resources that shape our culture and lifestyle. We oppose any plan to transform these into genetically modified organisms.

*The Long March, BIOTHAI (Biodiversity and Community Right Action Thailand), September 2000; <http://biothai.topcities.com/longmarch.html>.*

Myth #6

## International Peasants and Scientists Conference Condemns Pesticides & GMOs

The Peasants and Scientists Conference was convened in Kuala Lumpur, Malaysia, in September 2002 to foster and advance genuine people-centered science, and understanding and networking among the Peasants Movements in Asia, and the scientific and academic community.

Assessing the impacts of agrochemical use, conference participants condemned the threats that pesticides continue to pose to human health, the environment, and impacts on peoples' (especially peasant farmers) livelihoods. Participants also assessed the current use, impacts and threats posed by genetic engineering technologies, and strongly rejected the push of these technologies by corporations and governments in the region.

"There has been a lack of adequate studies to test these products, or the crops that are being commercialized. We call for a moratorium against genetically engineered organisms because of these concerns," stated Sarojeni V. Rengam, Executive Director of PAN Asia and the Pacific. "The other major concern is who will benefit from this? Is it the transnational corporations who see genetically engineered crops as another way of increasing their profits?" she challenged.

Concerns among the scientific community of the increasing corporate influence and control of science, and technology development, was also tackled at the conference. As noted by Irene Fernandez, Coordinator of local workers' rights organization Tenaganita, "more and more scientists, in their search for the truth, now believe we need to move towards the strengthening and expansion of science of, and for, the people. It was indeed motivating that scientists present at the Conference formed a network that will challenge corporate science and agriculture."

Commenting on the successful conclusion of Peasants Scientists Conference Dr. Romeo Quijano, Professor at the Department of Pharmacology and Toxicology at the College of Medicine, University of the Philippines in Manila said, "The peasant struggle for land and social justice is truly strengthened by this partnership with people oriented scientists."

Concurring with Dr. Quijano, Peasant Movement of the Philippines chairman Rafael Mariano said, "The Conference is a significant advancement of the people's struggle for land and food without poisons. This partnership of people-oriented scientists will confront and expose corporate science and their anti-people scientists, and expose unwanted technologies such as genetically engineered foods and pesticides. With the help of this kind of partnership, the people's movement will eventually prevail."

Peasant groups from Thailand, Indonesia and the Philippines have vehemently protested the field testing of genetically altered crops in their countries because they view these technologies as a new wave of damaging technologies that they have had to bitterly struggle through during the Green Revolution.

"We oppose the WTO, trade liberalisation and globalization! All that we have seen is the dumping of foods and the introduction of hazardous technologies. In Tamilnadu the use of pesticides has increased, which has poisoned people—especially the women who spray pesticides—and destroyed soil fertility," explained Fatima Burnad of the Society for Rural Education (SRED). She added "We have to preserve our own seeds, and to hold on to our lands to feed our communities. We don't want pesticides! We don't want GMO seeds and food!"

The conference ended with a Unity Statement and Plan of Action, which stressed that "corporate agriculture and food processing underpinned

### Philippines: 800 Protesters Uproot Bt Corn in Mindanao

About 800 farmers, church people, students and other members of the civil society group bravely stormed Monsanto's experimental field in southern Philippines uprooting all Bt corn plants in August 2001.

The "operation bunot (uproot)" took only five to ten minutes. "Faster! Faster!" were the shouts as the protesters hurriedly uprooted the genetically engineered corn in the 1,700-square-meter experimental field of Monsanto's Agroseed in Maltana village in Mindanao.

Around 100 indigenous Lumads also took part in the protest action, the first of its kind in the country's history of GMO protest.

Agroseed is currently conducting a multi-location open-field testing of Bt corn in around 30 sites in Luzon and Mindanao amid cries of protests from various sectors in the country.

In 1999, Monsanto ignored multi-sectoral opposition, including a series of City Council resolutions, in General Santos City in Mindanao and pushed through with the first open-field experiments of genetically engineered crop in the country.

Masipag News & Views, a release from the Farmer Scientist Partnership for Development (MASIPAG), August 30, 2001.

by distorted or flawed science has promoted monocultures and pesticides, and has now introduced genetically engineered organisms. This agriculture destroys the environment and people's lives."

The four day Peasant Scientist Conference brought together 95 participants from Thailand, the Philippines, Indonesia, India and Bangladesh, Japan, Korea, Nepal, Sri Lanka, United Kingdom, United States, Australia and Malaysia.

Participants included representatives from the most significant Peasants Movements in the Philippines, Thailand, Indonesia and Nepal, scientists from as far afield as the U.S. and the UK, as well as local and regional NGOs and representatives of consumer organizations.

*Pesticide Action Network Asia and the Pacific press release, October 4, 2002.*



## Voices

### Philippines: Farmers Close Down Monsanto Office

In a protest rally today in Makati, members of the militant Kilusang Magbubukid ng Pilipinas together with members of the International Alliance Against Agrochemical Transnational Corporations (IAAATNCs) issued a closure order on Monsanto as a symbolic protest against the on-going Bt corn field testing being undergone by the agrochem giant. The closure order was issued after Monsanto together with other agrochemical TNCs were found guilty of the following crimes: genocide, plunder of environmental resources, devastation of the environment and destruction of productive forces.

"The farmers are outraged by how greed-driven these agrochemical transnational corporations are. The monopoly of these agrochemical giants over seeds, pesticides and other agricultural products are driving us further into poverty, hunger and exploitation." Rafael Mariano, KMP chairperson said.

The symbolic closure of Monsanto coincides with simultaneous protest actions in Bicol, Isabela and

Bukidnon where Bt corn field testing are currently being conducted in these provinces. Monsanto has won the ire of millions of farmers in the country after it started conducting field testing of genetically engineered Bt corn without holding any public consultations in affected areas and despite the approval of board resolutions and issuance of moratoria banning field testing in some of these provinces.

"Despite its negative effects on people's health, the environment and livelihood, Monsanto continues to reap profits from the people's sweat and blood aside from the fact that these moves are threatening the country's food security and food self-sufficiency. We don't need their lab-grown food and products. We demand our right to land and food without poisons!" Mariano added.

*KMP News Release, December 4, 2001.*

<http://www.mindfully.org/GE/GE3/KMP-Farmers-Close-Monsanto.htm>

Myth #6

## People's Caravan Launches Campaign Demanding Land and Food without Poisons!

To celebrate World Food Day, the People's Caravan—"Citizens on the Move for Land and Food Without Poisons!"—launched a campaign seeking an end to the devastating effects of globalization, calling for genuine agrarian reform, food security, social justice, and land and food without poisons.

"It is ironic that as various countries celebrate World Food Day, millions of malnourished people in Asia live in countries with abundant food supplies," stated Sarojeni Rengam, Pesticide Action Network Asia and the Pacific (PAN AP) executive director.

PAN AP, Tamil Nadu Women's Forum (TNWF) and the Society for Rural Education and Development (SRED) of India; UBINIG (Policy Research for Development Alternatives) and the Nayakrishi Andolon (New Agriculture Movement) of Bangladesh; and the Kilusang Magbubukid sa Pilipinas (KMP Peasant Movement of the Philippines) launched the campaign on behalf of millions of small farmers, landless peasants and farm workers, fisherfolk and indigenous communities, consumers and environmentalists.

Ms. Rengam said "Marginalized communities throughout Asia and the world are taking a stand against globalization, against the transnationals' dominance and control of their lives and its detrimental effects." This includes increased pesticide use, the onslaught of genetic engineering and its health and environmental risks, increased landlessness and land diversion from food production, and the erosion of food safety and diversity, culture and livelihoods. "The people are fighting back," stated Ms. Rengam.

The People's Caravan, organized by the above groups in collaboration with groups in Bangladesh, India, Indonesia, Japan, Korea and the U.S., will move through India, Bangladesh and the Philippines, with simultaneous activities in Indonesia, Korea and Japan between November 13–30, 2001.

The campaign demands genuine agrarian reform that provides land to landless small farmers and peasants—women and men who work the land and for those who have been previously dispossessed—with sufficient support for sustainable rural livelihoods, economies and

futures independent of the control of transnational corporations (TNCs).

The campaign also demands the restriction, reduction and elimination of pesticide dependence, and the phase out and ban of synthetic chemical pesticides that cause acute, chronic and endocrine disrupting effects. In addition, the cessation of corporate and government harassment of anti-pesticide activists and the indemnification of victims of pesticide poisoning.

For consumers and producers, the campaign calls for a total ban on the release, use, and trade of genetically modified seeds and organisms in food and agriculture and especially protests and rejects the development of genetically engineered rice! In addition, the campaign demands corporate and government accountability and an end to the injustices perpetuated by agrochemical and food TNCs.

*KMP press release, The People's Caravan 2000: Land and Food Without Poisons! October 16, 2000.*



PAN AP

## India: Bt Cotton Burned on Holi Eve by Farmers

On the eve of Holi Festival on March 28, 2002, hazardous seeds of genetically engineered Bt cotton were burned by farmers of the village of Sadalpur, District Hisar Haryana, India. For this ritual, children, village elders and young farmers were present.

Burning of Holi is an ancient ritual which reminds us of burning of Holika the sister of Prahalad, who was son of Hiranayakashyap, the ancient king who did not fear God and felt that he was himself God and whatever he did was right. He even killed the devotees of God. Prahalad, being a devotee of God Vishnu, was burned, on the orders of his father. He survived the fire, but his sister Holika died, though he was sitting on the lap of his sister.

One farmer in the village tied traditional cotton thread on the wrists of the farmers present at the occasion and they promised him that they will protect farmers, the country and nature from anti-nature seeds like that of Bt cotton.

The national coordinator of ECO-India gave farmers an oath in which they agreed to boycott Bt cotton and any person buying, selling or growing Bt cotton. Farmers also signed a written oath demanding that Bt cotton be banned. A signature campaign has been launched in the village by young farmers.

*Sudhir Kumar Kaura, co-ordinator, ECO-India, BT Cotton burnt on Holi, ECO-India Press Release, March 28, 2002, Ref. 103/PN/03.*



## New Zealand: Maori Declare War on Genetic Engineering

“We are going to war against genetic engineering protagonists” declared the first National Maori Hui on Genetic Engineering.

“These genetic engineering protagonists are Life Sciences Network, Multi and Trans National Chemical and Fertilizer companies, and scientists at universities and research institutes experimenting with genetic engineering on agricultural, horticulture, aquaculture, flora and fauna,” proclaimed the Hui.

“These genetic engineering protagonist’s threaten our whakapapa (genetic heritage), threaten our plant whakapapa and threaten our animal whakapapa,” stated the Hui. “We have a responsibility to protect the existing environment for the future of our mokopuna (children and grandchildren).”

*Maori Press Statement, December 8, 2001, New Zealand*

## Latin American Declaration on Transgenic Organisms

Latin American peasant, indigenous, environmental and other civil society sector organizations gathered in Quito, Ecuador, in January 1999, to reject the invasion of transgenic organisms in Latin America, the greatest area of agricultural biodiversity on the planet and now the second region in the world in terms of transgenic crop acreage. We declare the following:

This technology is in part a consequence but also exacerbates a global development process that is based on inequity between regions, exploitation of people and nature, and the subordination of peasant and traditional economies of Third World countries to the profit drive of transnational companies (TNCs) in the food industry.

Genetic engineering is a technology driven by commercial interest. It is not necessary. It forces us to become dependent on the TNCs that control it, putting our freedom to make decisions about production systems and food security into real danger. Especially in the field of agriculture, there are traditional and alternative technologies that do not pose such risks and are compatible with conservation of biodiversity.

Deliberate release of transgenic seeds is an extremely grave threat to the countries in our region—countries of origin or diversity for many cultivated plants and their wild relatives—as it could result in dangerous and irreversible forms of genetic pollution.

Commercial introduction of transgenic organisms into the market has been made possible by intellectual property laws which privatize life and undermine basic ethical values and principles such as respect for the integrity of life. We therefore reject every type of intellectual property over life forms.

Introduction of transgenic organisms subverts the survival of cultural and technological practices by farmers, peasants, and indigenous, black and local communities, so that they may conserve, use, improve, innovate and exchange their seeds.

Furthermore, the large-scale spread of production systems based on the use of transgenic organisms represents a terrible threat to national economies of the countries in our region.

In light of the above, we demand:

- A moratorium on the release and commercial use of transgenic organisms and products derived from them be established until complete evidence of their safety and absence of risk is secured and until our societies have had the full opportunity to understand and have informed debate about these technologies, including their risks and impacts, and exercise their own right to decide whether or not they should be used.
- All decisions concerning development, use and release of transgenic organisms be subject to consultation and informed participation of all sectors of society which could be negatively affected, given that genetic engineering bears risks which can unleash unpredictable and irreversible impacts.

Quito, Ecuador, January 22, 1999.

*Over 50 organizations signed the above Declaration.*

*Acción Ecológica, January 22, 1999, Quito, Ecuador.*

### Brazilian Farmers Storm Monsanto, Uproot Plants

More than a thousand poor Brazilian farmers, joined by activists attending an anti-World Economic Forum summit, stormed a biotech plant owned by U.S. life sciences giant Monsanto, threatening on Friday to camp out indefinitely to protest genetically modified (GM) food.

Some 1,200 workers from settlements of the radical Landless Workers Movement (MST) in Brazil's southernmost state of Rio Grande do Sul invaded the plant just before midnight on Thursday, yanking out GM corn and soybeans crops at Monsanto's experimental farm.

"We're staying here indefinitely," said Solet Campolite, a local MST leader. "We want to make a statement... these seeds trick farmers and create dependency on seeds produced by a big multinational."

The MST families took over the research center and warehouses, hanging hammocks and setting up mattresses and boxes of food. The protesters scrawled on the walls, "The seed of death!" and "Monsanto is the end of farmers!"

*Nai Me Toque, Brazil, January 26, 2002, Reuters News Service.*

## Declaration from the World Social Forum in Porto Alegre, Brazil

The participants in the workshop on transgenics in Porto Alegre at the World Social Forum declare that:

- Transgenic crops cause irreversible genetic contamination and create resistance to weeds and insects. Additionally, the impacts on human and animal health are unknown.
- Transgenics are not a solution to the environmental crisis, nor do they solve the problems of hunger.
- Hunger is a political and social problem. In Brazil for example, 1% of land owners control 45% of the land, while 90% of the land owners have less than 20% of the land. And in Argentina, a large agricultural exporter, one third of the population does not have access to basic necessities.
- Even worse, the multinational companies patent all transgenic seeds. In doing so, they negate farmers' right to save and replant seeds. Control of seeds by multinationals implies control over our food, over our lives.
- Over five years, transgenic crops have increased from zero to 43 million hectares worldwide. THIS IS ENOUGH!

The participants of the workshop on transgenics in Porto Alegre call for:

- Prohibition of patents on living organisms and seeds as they are part of our human patrimony;
- Public and independent research on sustainable agriculture without transgenics;
- Ratification of the Cartagena Biosafety Protocol by all governments;
- An immediate moratorium as a first step towards food production free of transgenics;
- The right to complete information for farmers and consumers on all aspects of transgenics.

We will participate in all types of activities that contribute to the elimination of transgenics from agriculture and from food. Without transgenics, without pesticides, without hunger and with sustainable agriculture, another world is possible.

*Written in Porto Alegre, Brazil, January 29, 2001, Final Declaration from the Workshop on Transgenics of the World Social Forum in Porto Alegre, Brazil.*

### Voices

## Stop the Crop!

by Biowatch South Africa

Biowatch South Africa strives for a world in which genetically modified organisms do not compromise our natural and social environments. Current South African law and practice is wholly inadequate to address these concerns, and badly out of step with our Constitution. We therefore support the proposal by the South African Freeze Alliance on Genetic Engineering for the government to impose a moratorium on the growing, import, export and patenting of genetically modified foods and crops for five years.

We abhor the fact that Africa is rapidly becoming the dumping ground for genetically modified products rejected by Northern consumers and are concerned at South Africa's role in providing an entry point for the

biotechnology industry into the resource-rich African continent. To date, South Africa is the only African country growing genetically modified crops commercially. Our African colleagues recognize these threats and are outraged that South African policies are endangering their efforts to develop locally appropriate agricultural programs. We need to ensure that South African policy moves into line with the rest of the continent. We need to support the continental position on biosafety. We reject the industry's attempts to take advantage of South Africa's lax regulations in order to make inroads into Africa. We urge South Africa to sign and ratify the international Biosafety Protocol as a matter of urgency.

Field trials of genetically modified crops are not under proper control in South Africa and we have reason to believe that several illegal field trials are presently under way. No comprehensive environmental impact assessment has yet been done on any genetically modified crop planted in South Africa. Moreover, small farmers planting genetically modified crops are not receiving proper information about the technology and are being bound by companies into contractual agreements they cannot read or understand.

As it currently stands, the law on genetic modification (Genetically Modified Organisms Act) does not respect the precautionary principle enshrined in national and international environmental law. Both the legislation and its regulations are weak and favor industry over the farmer, consumer and public. Corporate accountability is negligible and liability for environmental or other damage caused by genetic modification is being passed on to consumers and growers rather than those pushing the technology.

This indicates the power of the industry. A small elitist group of biotechnology corporate executives and their academic apologists have had too much undemocratic and unaccountable influence over poorly capacitated government officials. We need, as concerned South African citizens, to wrest this power and place it in more

trustworthy hands. We demand that public monies be spent in the public interest. We demand a public policy process to determine the use of genetic modification in South Africa. We call on the government to initiate such a process immediately.

While Biowatch supports technological innovation where appropriate, we do not believe that the current use of genetically modified crops is appropriate or relevant to South Africa. Commercial pressures are pushing this technology, not needs on the ground. Giving over corporate control of growing our food could mean a serious threat to our food security.

For these reasons we call on concerned members of the public, scientists and democrats, commercial and small-scale farmers, workers, consumers, environmentalists, traditional healers, and all citizens to join us in giving vigorous support to the South African Freeze Alliance on Genetic Engineering and its proposed moratorium.

*Biowatch South Africa is a nongovernmental trust dedicated to monitoring South Africa's adherence to its international and national commitments on biodiversity and to informing South Africans about their options and rights. Biowatch works closely with a wide range of local, national and international organizations to achieve these aims.*

*Statement from Biowatch South Africa in support of a Five Year Freeze on Genetic Engineering for Food and Crops, July 31, 2000.*



E. Hickey

## African Consumer Leaders Reject GE Crops as a Solution for Food Security

Over 20 African consumer leaders from more than 20 organizations gathered in Lusaka, Zambia, found enough “reasonable suspicion” to reject genetically modified organisms, known as GMOs, as an answer to food security in the region.

After several days of plenary sessions, workshops and debates on issues dealing with trade, international governance, environment, health and economic issues, bioethics and legitimate factors, and intellectual property rights, delegates at the conference came out with the decision that “GM technology is not a solution for food security in Africa, including the small Island states.”

### **GMOs might have adverse effects**

Consumer associations, representing the majority, i.e. the poorer, are bent to go against the GMO industry because that industry follows a profit-oriented approach advocating the appropriation of life, is prone to the non-respect of the eight fundamental consumer rights and may engage in practices that have an adverse effect on the environment.

Genetically engineered plants or micro-organisms in biotechnology and the introduction of licenses or patents, likely to benefit only the agribusiness industry, are seen as a threat to the poor, namely farmers and producers.

Indeed, patents can lead to dependency of farmers on patent holders with respect to replanting, reselling, saving and exchanging of seeds. They create a private monopoly over plants and seeds with farmers’ rights being undermined.

The conference also concluded that documented cases of environmental risks indicate that adoption of GM technology places biodiversity in the region at risk.

### **Biotechnology is not the panacea**

As such, several African consumer leaders to the Lusaka meeting were of the opinion that—on an individual and social slant—the use of genetically engineered foods poses more problems than it brings solutions.

Thus, in lieu of genetically engineered foods, consumer leaders proposed “low-tech alternatives to the use of GMOs through maximizing existing resources, tackling

distribution problems and promoting highly resistant local foods.”

“We have plenty of land in Africa. We must learn to make a better use of those vast territories, learn to store our foods for harder times and find new ways of processing them,” Samuel Ochieng from the Consumer Information Network (CIN) of Kenya insists.

On a more topical matter, delegates attending the conference dwelt on the issue of food aid. According to the final statement, “GMOs are being forced upon the region under the guise of food aid,” reads a paragraph, in reference to the fact that the food provided to relieve hungry populations in Southern Africa is not labeled.

In the eyes of Dr. Tony Mutukumira, chairman of the Institute of Food, Nutrition and Family Science (IFNFS) in Harare, Zimbabwe, food surplus “distribution (or redistribution, in this case) is the real problem.”

The Zimbabwean delegate thinks that “there is more in the present food crisis than food: mismanagement, lack of preparation for harder times, etc.,” to name a few.

### **Consumer leaders to promote a regulatory framework**

In the final part of the statement delegates indicated that biotechnology research and development in agriculture is undergoing a rapid expansion. For reasons due to legitimate factors (in line with ethical considerations) such as cultural and religious implications, the participants recommend to act in accordance with precautionary principles and propose the adoption of national and regional regulatory framework(s) regarding the introduction of GM seeds and foods.

To safeguard consumers, Consumers International’s members called on national governments to ratify and implement relevant treaties such as human rights conventions, the Universal Declaration on the Human Genome and Human Rights, etc.

*Consumer leaders came from Benin, Burkina Faso, Burundi, Chad, Cameroon, Ghana, Ivory Coast, Kenya, Malawi, Mauritius, Mozambique, Morocco, Nigeria, Senegal, Seychelles, South Africa, Togo, Uganda, Zambia and Zimbabwe.*

*African Consumer Leaders’ Conference on Biotechnology and Food Security, November 18–20, 2002, Lusaka, Zambia.*

## Lusaka Declaration

We, the African Consumer Leaders from 20 organizations in some 20 countries in Africa, gathered in Lusaka, Zambia November 18–20, 2002, at the African Consumer Leaders' Conference on Biotechnology and Food Security; organized by Consumers International Regional Office for Africa (CI-ROAF) and hosted by the Zambia Consumers Association (ZACA), have issued the following positions, called The Lusaka Declaration:

### **Considering the current situation which shows that:**

- GMOs have not been debated in Africa;
- GMOs are being forced upon the region under the guise of food aid;
- Field trials on GMO technology are being conducted in some African countries on indigenous foods on the assumption that GE would improve yield and pest resistance;
- GMOs are being cultivated commercially in South Africa and consumed within the region;
- GMOs may be present in imported foods;
- The debate on GMO infiltration has particularly increased in Southern African countries due to GM maize food aid.

### **Our position**

Based on the information presented at the related workshop for and against GMOs, the Consumers International members at this workshop agree that there is reasonable suspicion that GMOs negatively affect the issues of food security, trade, environment and health.

In view of these scientific uncertainties observed, the group wants to present this stance in the form of a declaration: Genetic engineering is not a solution for food security in Africa (including small island states).

The problems of food security in Africa encompass a broad range of issues such as distribution, maximization of existing resources, and low-tech alternatives.

African countries can address food security through maximizing existing resources, tackling distribution problems, and promoting local foods, which are low-tech and highly resistant.

The documented cases of environmental risks indicate that adoption of GM technology places the biodiversity in the region at risk.

In this context, Consumer International members call upon governments to respect consumer rights to choice and information through:

- Adherence to agreements regarding prior informed consent (re: food donations);
- Enactment and implementation of full, comprehensive labeling laws;
- Ensuring adequate safety testing of GM foods (domestically produced and imported);
- Adopting national and regional regulatory frameworks regarding the introduction of GM seeds and foods; (a model to consider is the Model Law adopted by the African Union);
- Inclusion of consumer organizations in the drafting/ revisions of consumer protection legislation on GMOs.

### **Taking into account,**

- The rapid expansion of biotechnology research and development in agriculture and the ethical and other legitimate factors, both in process and content, raised by the African consumer leaders,
- The discussions on the potential benefits and risks of genetic modification, which included activists, scientists, farmers organizations, agricultural research institutes and food regulatory bodies among others and,
- The need for continued dialogue amongst relevant stakeholders on the issue of ethics, other legitimate factors and/in biotechnology.

### **We, the African consumer leaders, reaffirm that:**

- All stakeholders have the obligation to guarantee food sovereignty and food security;
- Consumers have the right to choose the food they want to eat and to pursue such choices based on their own tastes and convictions, be they religious, cultural, environmental, animal welfare or ethical considerations, and that such decisions must be respected and that consumers must be facilitated to make such decisions through transparent and full disclosure of all relevant and factual information.

## Call

- For the immediate positive labelling of all foods derived from or containing derivatives of biotechnology, be they for relief or for sale;
- Upon the industry to immediately stop their unethical influence on critical policy and decision making instruments and processes on biotechnology either directly or indirectly;
- For the restoration of the integrity, impartiality and transparency in the national food regulatory and knowledge generating bodies;
- Governments to act in accordance with precautionary principles.

*List of countries and consumer organizations represented at the conference: Benin (LDCB); Burkina Faso (LCB); Burundi (ABUCO); Chad (ADC); Cameroon (MNC); Ghana (CAG); Ivory Coast (FAC); Kenya (CIN); Malawi (CAMA); Mauritius (ACIM); Mozambique (PROCONSUMERS); Morocco (ATLAS-SAIS); Nigeria (ANCOMU); Senegal (ASDEC); Seychelles (NATCOF); South Africa (NCF); Togo (ATC); Uganda (UCPA); Zambia (ZACA); and Zimbabwe (CCZ).*



## Voices

### The Valley of 1000 Hills Declaration, South Africa

We the participants of the Conference on Community Rights discussed the rights of local communities, and make the following declaration:

- Human beings are an integral part of the community of life on Earth. Human well-being is derived from, and depends on, the health of this community. Accordingly, we must ensure that human actions do not destroy the web of mutually enhancing relationships that create the earth community.
- The industrial system has alienated us from the rest of the earth community and is increasingly privatizing biological, land and water resources. This privatization is destroying rural local communities and their natural resource base.
- The most potent instrument in this destruction is the patenting of living organisms. The Convention on Biological Diversity recognizes the rights of local communities and their role in generating agricultural biodiversity out of wildland biodiversity. Yet corporations are patenting living things and increasingly controlling agricultural production systems. We condemn this act as violence both to humans and to other living things.
- The rights of Local Communities are being threatened by genetic engineering of crops—a dangerous technology that comes with corporate control, dependence on external inputs, and the undermining of regenerative systems of agriculture and sustainable use of biodiversity. We oppose the introduction of genetically modified organisms in agriculture and the increasing corporate control over Africa's agriculture and biodiversity.
- Community rights over biodiversity and indigenous knowledge are collective in nature, and therefore cannot be privatized or individualized. Current systems of intellectual property rights applied to biodiversity and traditional knowledge are private and monopolistic in nature and therefore incompatible with community rights.
- Communities over millennia evolved equitable and sustainable ways of gathering, producing and sharing food based on cooperation and partnership, to meet their food needs. The present thrust towards corporatization of food production and distribution systems threatens the cooperative nature of communities, jeopardizes their ability to meet their food needs through culturally appropriate and equitable ways and thus destroys their sovereign right to food security.

March 7, 2002.

*The conference was held at The Valley Trust, 1000 Hills, Kwa Zulu Natal, South Africa, March 1–8, 2002. African participants were from Angola, Benin, Botswana, Eithiopia, Ghana, Kenya, Namibia, Nigeria, South Africa, Uganda, Zambia and Zimbabwe.*

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