GENETICALLY MODIFIED CROPS: THE AFRICAN CHALLENGE

ERA
Environmental Rights Action
(Friends of the Earth, Nigeria)

March, 2005

Genetically Modified Crops: A challenge for Africa

March 2005, Lagos, Nigeria

A report by Environmental Rights Action/Friends of the Earth Nigeria

Environmental Rights Action (ERA) is a Nigerian advocacy non-governmental organisation founded on January 11, 1993 to deal with environmental human rights issues in Nigeria. ERA is the Nigerian chapter of Friends of the Earth International (FoEI), the world environmental justice federation campaigning to protect the environment and to create sustainable societies. ERA is the co-ordinating NGO in Africa for Oilwatch International, the global South network of groups concerned about the effects of oil on the environment of people who leave in oil-bearing regions. ERA is also co-ordinating Friends of the Earth Africa campaign on Genetically Modified organisms since 2004. ERA is the premier winner of the Sophie Prize.

Contact Information:

Environmental Rights Action/Friends of the Earth Nigeria
PO Box 10577, Ugbowo
Benin City, Nigeria
Phone: +234 52 600165
Fax: +234 52 602680
E-mail: eraction@eraction.org
Web: www.eraction.org

TABLE OF CONTENTS

I. The Challenges that Genetically Modified Organisms (GMOs) poses to Africa

The challenge of GM crops has no boundaries, and Africa is no exception to it. Africa is facing today the challenge of the introduction of GM (genetically modified) crops and GM food aid, and the pressure has stepped up in recent years on African countries, and African leaders are being strongly lobbied to accept the tools of modern biotechnology to purportedly solve poverty, hunger, and malnutrition.

Many activities on biosafety and GMOs are taking place in the region, and by reason of the paucity of information, knowledge and capacity on this issue, there is a growing concern that informed policy options and choices may not properly addressed or made. In Nigeria, for example in March 2004, the Nigerian Government signed a Memorandum of Understanding (MoU) with the US Government agreeing to support GM crops without consultation to Nigerian civil society. A similar approach was used in 2004 at a Ministerial Conference held in Ouagadougou, Burkina Faso in July 2004. This was supported by the US Department of Agriculture (USDA) and USAID, where West African ministers recommended the creation of a West African centre for biotechnology.

The experience in Africa with GM crops so far is relatively small, and only one country South Africa allows commercialisation of GM crops. In Nigeria, GM crops are not authorized for commercial purposes. Other countries like Egypt, Kenya, Uganda and Mali are researching and/or experimenting in the field with various GMO applications. Africa is without any doubt a new frontier for the biotech industry backed by friendly pro-biotech Government administrations as the US one.[i] USAID who is supporting several initiatives on biotech in Africa has clearly stated that one of its roles is to "*integrate biotechnology into local food systems and spread the technology through regions in Africa*".[ii]

The issue of biosafety and GMOs has been discussed at the international level since the negotiations of the UN Convention on Biological Diversity. In 1992, when the Convention was adopted, the issue of the adverse impacts of GMOs on the conservation and sustainable use of biological diversity was firmly on the agenda. In 2000, when the Cartagena Protocol on Biosafety was finally adopted as a Protocol to the Convention on Biological Diversity, international consensus had grown to include the risks to human health, and socio-economic impacts "arising from the impact of GMOs on the conservation and sustainable use of biological diversity, especially with regard to the value of biological diversity to indigenous and local communities." This agreement is now being implemented at the national level in various African countries.

Experience with GM contamination in other parts of the world shows that what is planted in one country may be found in another. The global picture is that

although GMOs have been aggressively introduced in the world, it is still limited to a few countries and is pushed just by a handful of companies. We still have time to seal the Pandora box, if we take prompt action, and if Africa learns from the numerous lessons with GM crops that can be taken from a decade of commercialisation of these crops in other parts of the world. The fact that the key pushers of GM crops are at the same time the major exporters of agriculture commodities makes every importer of such commodities a potential recipient of GM crops.

II. GM crops and world Trade today: One company, A few countries.

A few crops today constitute the large portion of global agriculture. According to FAO four crops alone account for around 50% of the world's arable land: maize, wheat, rice, and soya. Other four: barley, sorghum, canola and cotton constitute an additional 15% of the total cultivated crop acreage of the planet. Just a few key countries (United States, Argentina, Australia, Brazil, Canada, China and the European Union) export most of the key crops that are commercially traded around the world.[iii]

In a few years four of those main crops, particularly soya, maize, cotton and canola have been genetically modified and aggressively introduced into the world market. Just a few countries, namely the US, Argentina and a handful of multinationals have been pushing GM crops and food into the marketplace. The US and Argentina today account for 84% of all GM crops commercially grown in the planet, followed by Canada, Brazil and China (14%). Soya, maize, cotton and canola constitute 99% of the whole acreage of GM crops, with soya alone covering 60 % of the total area.[iv] Three companies: Monsanto, Syngenta, and Aventis CropScience (recently acquired by Bayer) account for virtually all GM crops commercially released in the world.[v] The products of only one company, Monsanto, account for over 90% of the total area cultivated with GM crops.[vi]

In 2004 it has been estimated that out of the 86% million hectares of soybean planted globally 56% was biotech; 28% of the 32 million hectares of soybean planted was GM; and finally 14% GM out of the 140 million hectares of maize grown globally.[vii]

III. GM crops: A decade of failure

The genetic engineering of seeds is without doubt the most radical transformation in food production since the early days of agriculture, more than 10,000 years ago. The first GM crop was commercialized in the United States in 1994. This "*Flavr Savr*" tomato was a flop, and was eventually removed from the market. But other GM crops were better received, and between 1996 and 1999 a significant number of GM crops were sown, primarily in the United States, Argentina and Canada.

The first decade of the commercialization of genetically modified crops was a clear failure for biotech companies. The first GM crop was commercialized in

1994, and now, ten years later, the promises made by the biotech industry and its powerful lobby groups have not materialized. Meanwhile, the global opposition to GM crops continues to swell.

1. Propaganda, threats and opposition

The enthusiasm of the biotech industry about multiplying GM crops around the world has not been universally shared. Concerns quickly arose about the potential health, environmental and socio-economic impacts of these new crops.

By the end of the 1990s, opposition to GM crops had arisen on every continent. The European Union adopted a moratorium on the commercial growing of GMOs, bans were established in Asian and Latin American countries, and many countries refused GM food aid. In general, consumers worldwide were reluctant to embrace GM food.

The biotech industry had expected people and governments everywhere to embrace GM crops without question, but public scepticism has forced them to limit their current activities to a few countries. Biotech corporations failed to market products with clear benefit for consumers or farmers. Instead, GM crops created novel and alarming problems, including genetic contamination.

Biotech giants and their powerful lobby groups relied heavily on public relations (PR) strategies to sell their dream. For example, they heralded the genetically modified "*Golden Rice*" as a solution for Vitamin A deficiency in the Third World, but to date this appears to be a 'golden hoax'. Behind the scenes, the biotech companies play dirty to secure their interests; for instance the biotech industry has been behind various threats of trade sanctions, including the attempts by the US to impose GM food on reluctant countries like Bolivia, Croatia, Sri Lanka and on the European Union.

However, citizen opposition to GMOs is snowballing. Many GM products have been removed from the market or despite being developed could not be commercialized because of market rejection. This is the case of GM wheat, flax seed, rice and sugar beets. Monsanto had to withdraw GE potatoes from the market in 2001 when several companies refused to buy them.[viii] In Europe, distrust is so high that GMOs have in effect been removed from supermarket shelves. In the South, many countries in Latin America, Africa, and Asia have rejected GM food aid outright. Consumer and retailer suspicion has forced Monsanto to delay the commercialization of its GM wheat, initially planned for 2004.

2. The safety of GM crops questioned and unforeseen troubles

In recent years the debate about GM crops has become increasingly heated, and the debate over the ineffective regulatory system in some of the major GM crops producers like the US has been subject to increasing criticism. For example, the policy of the US Food and Drug Administration (FDA) for evaluating the safety of GM crops has been deemed inadequate. A 2003

report by the Center for Science in the Public Interest concluded that the regulatory process does not enable the FDA to ensure that GM crops are safe to eat: toxins and anti-nutrients that may affect food safety and nutrition are not always evaluated; the methods to determine allergenicity are inadequate; data summaries often lack sufficient detail or information to determine safety.

The US government continues to refuse mandatory safety testing and labelling of GM crops and food and this fact has infuriated a growing number of United States citizens. Several legal actions have been filed, and hundred of thousands of people have called for labelling and testing. Moreover, several incidents, including the StarLink scandal and the contamination of biopharmaceutical crops, have underlined the weaknesses and flaws in the US system.

The StarLink scandal

StarLink is a variety of GM maize authorized in the United States only for animal feed purposes. It was not authorized for human consumption as food because of the potential allergenicity of the protein Cry9C that was genetically engineered into the maize. Nevertheless, in 2000, Friends of the Earth campaigners discovered StarLink in 'Taco Bell' taco shells, a maize-derived food product. By extension, StarLink was present in the human food chain.

The magnitude and gravity of the StarLink contamination was breathtaking. More than 300 corn products were recalled across the United States. Despite the fact that StarLink was only planted on 0.4 percent of total US corn acres, the numbers of acres contaminated was much greater. More surprising, the contamination was only supposed to be found in StarLink brand seeds. It was later reported however that the Cry9C protein was found in other 80 varieties of yellow corn seed, and even more unexpectedly in a white corn product, when it was previously believed that contamination could only happy between varieties of yellow corn

StarLink contamination was not contained within the US, but was also detected in 2000 and 2001 in food shipments to Japan and South Korea. This led to a series of recalls in these countries as well. At the June 2002 United Nations World Food Summit in Rome, Latin American NGOs announced that StarLink had been found in US food aid in Bolivia. And at the end of December 2002, StarLink was again discovered in Japan. In February 2005 the presence of StarLink in Central America food aid was denounced [ix]

The StarLink case provides clear evidence that GMO contamination is one of the most urgent problems posed by GMO releases into the environment. Once an organism is released into the environment, the consequences are unpredictable and the impacts unknown. The fact that a released organism is very difficult to recall has been ignored and downplayed by US authorities, and the problems of real life contamination illustrate the fact that US regulatory systems for GMOs are clearly inadequate.

"You'd think that the North American agricultural export industry would have no choice but to bow to the demand: keep GM seeds far away from their unaltered counterparts and in general move away from the controversial crops. You'd be wrong. The real strategy is to introduce so much genetic pollution that meeting the consumer demand for GM-free food is seen as not possible. The idea, quiet simply, is to pollute faster than countries can legislate –then change the laws to fit the contamination."

The Guardian, London, January 21, 2001.

Biopharmaceuticals contamination

The US experience provides another example of major concern for the environment: "*biopharmaceuticals*". "*Biopharming*" is an experimental application of biotechnology in which plants are genetically engineered to produce pharmaceutical proteins and chemicals that they do not produce naturally. A few known examples include a contraceptive, potent growth hormones, a blood clotter, blood thinners, industrial enzymes, and vaccines.

In November 2002, the first significant case of contamination by biopharmaceuticals was reported. The company involved, ProdiGene, conducts a range of open-air testing of crops containing pharmaceuticals and industrial products. In this incident, ProdiGene failed to properly remove all of the maize remnants from a field cultivated in 2002. Consequently, some seed remained in the ground, and these "*volunteer*" seeds germinated in 2003, thereby contaminating a crop of soy. Subsequently, when the soy had been harvested and was at a grain elevator in Nebraska, it was discovered that it had been contaminated by the ProdiGene maize. 500.000 tons of soy worth some $2.7 million were quarantined by the US Department of Agriculture and later ordered to be destroyed.

This example should prove that open-air cultivation of biopharm crops threatens global food supplies, jeopardizes non-biopharm crops with contamination and may pose potential problems for wildlife and ecosystems. In the US, some 300 open air cultivations have taken place between 1991 to 2002, but only seven environmental assessments were carried out.

"Plans to add drug genes to food crops prove we've learned nothing […]
Why on earth are companies adding these genes to plants which through pollination or mix-ups with seeds could allow the genes and their products to find their way into food?"

The New Scientist, July 2002.

In October 2003, Monsanto announced that it was abandoning biopharming technology and closing its 70-person division. This followed extensive lobbying of the US government by consumer and environmental groups for

tougher regulations, and outspoken opposition by the food processing industry, which is concerned about the health risks that their customers face through product contamination.

3. Ten years later: broken promises and unsustainable agriculture

Biotech companies promised that GM crops were safe, that they would provide better quality and cheaper food, that they were environmentally sustainable, that they would improve agricultural production, and that they would feed the developing world.

The truth is that with the passage of time none of these promises have materialized. There is still no guarantee that GM food is safe, and the StarLink and biopharmaceuticals incidents are early warnings of the potential health implications of introducing food products not authorized for human consumption into the food chain.[x] Furthermore, not a single GM food on the market is cheaper or of better quality than its 'natural' counterpart. Existing GM crops are also environmentally damaging: for example, most GM crops are herbicide tolerant, meaning that they require more pesticides than conventional varieties. This flies in the face of biotech industry claims that GM crops would require less use of chemicals.

To date, the developing world has also not benefited from GM agriculture. In India and Indonesia for example, Monsanto's GM cotton has not lived up to the company's claims of higher yields and improvements in the livelihoods of farmers. Furthermore, the case of Argentina proves that the agricultural model preferred by biotech companies for GM crops, e.g. large farms and export-oriented agriculture, is unsustainable and ill suited to "feeding the world". Argentina is the second largest world producer of GM crops, but millions of people in this country go to bed hungry each night.

Large biotech companies like Monsanto are driven to control agriculture markets. Today, Monsanto biotech traits accounts for 90 percent of all GM crops planted in the world today. At the same time, the company is suing hundreds of farmers in the US and Canada in an attempt to prevent them from saving their seeds, a tradition and right that has existed since the beginning of agriculture.

The biotech industry's dream of large-scale introduction of GM crops would further exacerbate the ecological vulnerability already associated with monoculture agriculture. After a decade, it can be concluded that GM crops are leading us down a dangerous path to unsustainable agriculture.

Fortunately, however, there are viable and practical alternatives to GM crops that are almost invariably cheaper, more accessible, more productive in marginal environments and are more culturally and socially acceptable. Despite this the push of companies like Monsanto continues to be extremely aggressive. If the next decade of GM experiments fails as dismally as the first,

and global outrage continues to gain momentum, genetically modified agriculture may soon be history.

IV. Monsanto: one company threatens world's agriculture sustainability

Monsanto is the lead marketer of GM seeds in the world, and its seed technology has been provided at least 90% of all GM crops of the planet.[xi] Monsanto is radically changing the way agriculture practices are done and is suing and harassing farmers for doing what they have been doing for centuries. Monsanto is using every means to introduce its GM products everywhere in the world, even where they are illegal. Every tactic is valid for Monsanto from constant harassment to bribing (See Case Study 4), and is by far the main culprit responsible for GMO contamination in the world today

1. The experience in the US

Monsanto today dominates the US seed market. After a decade of introducing GM crops in the US several conclusions can be drawn about Monsanto's impact on US farming practices.

One of the first consequences of Monsanto's seed policy is that it has reduced the choice of US farmers over seeds. According to the US based organization, The Center for Food Safety, this "*has put farmers between the rock and a hard place*". Conventional varieties of high quality crops such as corn, soy and cotton is becoming more difficult to find, even impossible, showing that Monsanto's GM varieties have pushed other seed varieties off the market.[xii]

A characteristic of Monsanto seed policy is not just the aggressive patenting over the techniques to create a GM crop, but also the patenting of the seed and the plant itself. Actually Monsanto has over 600 patents, more than any other biotech company.[xiii] Farmers which possess patented seed are prevented from freely saving the seed for its use next season. In fact Monsanto requires farmers using seed containing Monsanto's patented technology to sign a technology agreement that forces the farmer to buy new seed every season.

This level of domination and control over the farmer has no precedent and has brought serious negative impacts on the livelihoods of the American farmer. Some farmers who decided to replant Monsanto seed have faced financial penalties, forcing some to go into bankruptcy. More worrisome are cases of farmers whose fields have been contaminated with Monsanto varieties, but who never bought its seed voluntarily. Such farmers have been penalized also after patented material from Monsanto was found in their fields (See Case Study 3). And Monsanto has been taking care to brutally enforce the technology agreements upon American Farmers, by building "*a department of 75 employees and setting aside an annual budget of $10 million for the sole purpose of investigating and prosecuting farmers for patent infringement*".[xiv] Thousands of farmers have been investigated and Monsanto

investigators in many occasions make "*farmers feel like criminals even before accusations are made, as investigators frequently solicit local police officers to escort them onto farmers' properties*". At present Monsanto has filed 90 lawsuits on the basis of violations of the technology agreement and seed patent, involving over 140 farmers and 39 small business and farm companies.[xv]

2. Monsanto plans unveiled

The experience in the US leaves no doubt that Monsanto plans to dominate agriculture and the world food supply through its GMO strategy. An internal report done by UBS Investment research in 2004 for Monsanto shareholders provides more details about Monsanto plans that we reproduce below.

Monsanto is planning an early annual growth of 25% through 2008, which is largely based in the rapid adoption of GM seeds throughout the world. Monsanto is aiming to take over the remaining conventional crop in the four key crops mentioned below: corn, soybeans, cotton and canola. At present they have big expectations with corn, aiming to convert into GM at least 100 million acres to use Monsanto technologies, out of 300 millions actually available of conventional corn. The report clearly states the intentions of the company:

"*If just 100 million acres were to adopt Monsanto's technologies, this woud add over $2.00 share of incremental run-rate earnings to Monsanto, more than doubling its current profitability. And this is just in corn. In cotton, just hypothetically, another 20 million acres of biotechnology could translate to $0.80 per share of incremental earnings, and in soybeans, to further the hypothesis, another 40 million acres could represent $0.40 of earnings*".[xvi]

The report also unveils more details about the aggressive enforcement of Monsanto patenting rights, showing that no country in the world, where crops containing GM traits patented by Monsanto are found, be it voluntarily or involuntarily done is at risk of being challenged by Monsanto. This is described at the UBS report for the case in Brazil:

"*Monsanto prospects in the agricultural markets of Brazil and Argentina have increased significantly over the past year. This stems from the company's success in collecting royalty fees from growers in southern Brazil who illegally use Roundup Ready soybeans for pirating the seed from northern Argentina. Monsanto established a system in which more than 95% of the grain elevators in two southern Brazilian states (Rio Grande de Sul and Santa Catarina) test the genetics of the soybean that pass through for the presence of Monsanto's traits. If a trait is detected, the elevator must share a technology fee with Monsanto. By all accounts this system has been working well, and Monsanto has begun to receive checks*".
Ultimately, we think Monsanto's success here is not just positive for Roundup Ready Soybeans, but for the company's other biotech traits because it establishes a model that could be replicated in other crops throughout the rest of Brazil and in other countries.."[xvii]

V. The challenge of GMOs for Nigeria and Africa today

1. The situation in Nigeria

In Nigeria today there is no commercial release of GM crops. Nevertheless it is worrisome that the Nigerian Government has been sympathetic with GMOs throughout the past years. One of the clearest examples occurred in March 2004, when the Nigerian Government signed a Memorandum of Understanding (MoU) with the US Government agreeing to support GM crops. Friends of the Earth Nigeria asked to be present during the discussions between the US Government and Nigerian Government, but their participation was refused. The lack of transparency and the inability of the Government to allow the participation of sections of civil society in such meetings is a motive of serious concern for the whole civil society in Nigeria.

Another reason of important concern for Nigeria is the potential presence of GM crops and food in the country. An investigation carried out by ERA on the potential presence of GM ingredients in our country has found the real threat of food aid as one of the potential channels. Nigeria is in principle not a food aid recipient country, but continues to receive rice from the US as food aid. In 2003 Nigeria received 11000.6 Metric Tonnes of soy meal as food aid from the United States, under the US title Food for Progress. Taking into account that over 80% of soybeans in the US is genetically modified we strongly suspect Nigeria has been receiving GM products without any prior information to the Government, and with our population completely uninformed on this.[xviii]

Another source of potential introduction of GM materials is via commercial imports of food containing ingredients from corn and soy. A research undertaken in Nigerian supermarkets identified different products made out of corn and soy from companies such as Nestle and Foodtown which may contain GMOs.

Meanwhile, official sources claim that there is only 1 application for contained field testing of GM crops in Nigeria but would not name the application or the crop to be field-tested.

Thus far Nigeria's biosafety law is still in draft form and will pass through the Federal Executive Council before being presented to the National Assembly for deliberation and possible passage into law. This means that the present regulatory mechanism depends on the Nigerian biosafety guidelines and aspects of the Cartagena Protocol on Biosafety.

2. A 21st Century African Green Revolution

On 17 January 2005, the report of the Millennium Project (a project to draw up a plan of implementation for achieving the UN Millennium Development Goals (MDGs)), entitled "*Investing in Development: A Practical Plan to Achieve the MDGs*", was released. The recommendations in this report will feature heavily

in the UN Secretary General's report to the General Assembly for the 2005 Summit planned in September to review the implementation of the Millennium Declaration 2000.

In the report, there is a clear promotion of a "*21st Century African Green Revolution*" to help launch an "environmentally sound doubling or more of agricultural productivity", within the context of rural development and poverty reduction plans. This has also been reflected by the UN Secretary General's call for a "*uniquely African Green Revolution*" at a high-level event on Innovative Approaches to Meeting the Hunger Millennium Development Goal in Africa, held in Addis Ababa on 5 July 2004.

The report of the Science, Technology and Innovation task force of the Millennium Project further strongly promotes the use of genetic modification in agriculture and in pharmaceuticals. The promotion of another "Green Revolution" through improved seed varieties as a solution without due consideration for food sovereignty and security or the negative impacts of Green Revolution technologies and practices on health, environment, biodiversity (seeds and wild diversity), long term productivity and adverse socio-economic impacts on small farmers (as in the Asian experience) is a cause for concern. Also, the promotion of new biotechnologies that involve genetic modification without due caution regarding the lack of proper environmental, health and socio-economic impact assessment is also worrisome.

3. The shipment of GMOs as food aid

In recent years, countries in Southern Africa have been faced with food shortages. Controversy erupted in 2002 when several Southern African countries refused to accept GM food aid (See Case Study 1). This climaxed with Zambia refusing outright to accept GM food aid in any form, and Zimbabwe, Malawi and Mozambique refused to accept GM food aid unless it was milled, to avoid any germination of whole grains, and any impact on biodiversity. Lesotho and Swaziland authorized the distribution of non-milled GE aid but not before it warned the public that the grain should be used strictly for consumption and not for cultivation. In 2004, Angola and Sudan introduced restrictions on GM food aid.[xix]

Angola's recent decision to ban GM food imports except for the possibility of receiving milled GM food aid has sparked reports from the World Food Programme (WFP) that donor countries (primarily the US) will reduce food aid donations because of this decision. In 2002, Southern African countries, especially Zambia, came under enormous pressure by the WFP and the US to reverse their decisions on the restrictions they had imposed on GM food aid.

4. Building Biosafety Capacity

Various "*biosafety capacity building*" projects are also operating on the continent, especially now that the Cartagena Protocol on Biosafety has

entered into force[xx], and there is momentum to either ratify the Protocol or implement it nationally. 27 African countries are currently Parties to the Protocol. The focus has been largely on drafting 'national biosafety frameworks' or laws, regulations etc. About 40 African countries are part of the UNEP (United Nations Environment Programme)-GEF (Global Environment Facility) global project to develop national biosafety frameworks (NBFs). A number of African countries (Kenya, Uganda, Cameroon, Namibia) are also part of the UNEP-GEF implementation of NBFs project.

Other projects operating in the region include the Swedish BIO-EARN (East African Regional Programme and Research Network for Biotechnology, Biosafety and Biotechnology Policy Development) project for Eastern Africa, the USAID (US Agency for International Development) funded Association to Strengthen Agricultural Research in East and Central Africa (ASARECA) which facilitates collaborative research between their 10 member countries, US public and private sectors and international agricultural research centres, the USAID's Agricultural Biotechnology Support Project (ABSP) which has established a partnership with seven Southern African Development Community (SADC) countries to provide technical training in biosafety regulatory implementation, and the USAID funded Program for Biosafety Systems (PBS), to assist developing countries (including a number of countries in East and West Africa) to enhance biosafety policy, research, and capacity.

5. The push for GM crops in Western Africa and Bt cotton

Another reason of concern for Nigeria is the developments on this issue within the region, and the recent push of the biotech industry in Western Africa. A similar undemocratic approach taken with the Nigerian MoU was used in 2004 at a Ministerial Conference on "*Harnessing Science and Technology to Increase Agricultural Productivity in Africa: West African Perspectives*" which took place from June 21 – 23, 2004 in Ouagadougou, Burkina Faso. The US Department of Agriculture (USDA) and USAID were directly involved in the preparation of this event. The Conference brought together four presidents and 18 ministers from West Africa among over 300 total participants from 22 countries. Modern biotechnology was one of the key issues discussed. At the conference, West African ministers adopted a resolution calling for greater research and investment in agricultural biotechnology and recommending the creation of a West African centre for biotechnology.

The need for informed public participation in and monitoring of the implementation of these various projects, initiatives and developments cannot be overstated. Non-governmental organizations, civil society groups and the public need to be informed of these developments and need to be empowered to be able to respond to the important challenges that are taking place in the region.

The promotion of Bt cotton in Western Africa have been recently increasing. Africa as a region is one of the third largest cotton exporting region in the world after the US and Uzbekistan. The West African countries of Mali, Cote

d'Ivoire, Benin and Burkina Faso produce and export cotton. GM cotton is now being presented to Africa as a key technology to increase productivity, and reduce poverty, and an answer to the environmental damage which has been caused by pesticides.[xxi]

In reality the experience of Bt cotton in other parts of the world and the agriculture practices associated with its introduction will drive Africa towards unsustainable agriculture and will blow away African' farmers rights (See Case Study 2). As GRAIN states, the introduction of Bt cotton will upset traditional practices and farmers will be obliged to sign Monsanto's Technology Use Agreement, which will imply that farmers will be prevented to save their seeds

"*Monsanto takes the application of its contract seriously. In the countries where the company has introduced Bt cotton, Monsanto keeps lists of all farmers who are growing transgenic varieties and monitors them closely. This is as true for countries of the South like Argentina and Mexico as it is for countries of the North. In West Africa, where the majority of farmers are illiterate, one wonders if they will even understand the clauses of the contracts. The fact that there will not be any visible difference between Bt cotton and conventional cotton will create even more confusion. In this chaotic situation, farmers risk being prosecuted and judged as criminals*."[xxii]

Moreover alternatives to GM exist as the African Center for Biosafety asserts:

"*it is recommended that African producers and governments reject the introduction of GM cotton, and the utilisation of existing agricultural infrastructure and institutions for the insertion of GM cotton into their systems. Far more sustainable alternatives to GM cotton exist. Pest management techniques that rely on increasing producer's knowledge and integrating farmers' own knowledge with environmentally sustainable best practices from elsewhere and preferable to the introduction of technology that draws pest management away from control of the direct producer*".[xxiii]

VI. Conclusions

There is a real threat of a GMO invasion of Africa. This arises as this brief report has shown from a number of factors, including:

- Inadequate and/or none existent biosafety regulations
- Pro-biotech tendency of political leaders without regard to the precautionary principle
- Lack of public awareness about the challenges of GMOs in our continent.
- Aggressive push by biotech industries as they treat countries as nothing but markets and are ready to overturn centuries old sustainable agricultural principles.
- Tendency of the UN to believe that world hunger can only be tackled through modern biotechnology.
- Contamination through food aid and other direct and indirect channels.

“The right to food is implicit in the African Charter in such provisions as the right to life (Art. 4), the right to health (Art. 16) and the right to economic, social and cultural development (Art. 22)….The right to food is inseparably linked to the dignity of human beings and is therefore essential for the enjoyment and fulfilment of such other rights as health, education, work and political participation. The African Charter and international law require and bind Nigeria to protect and improve existing food sources and to ensure access to adequate food for all citizens….the Nigerian Government should not destroy or contaminate food sources, and peoples’ efforts to feed themselves.”[xxiv]

The above quote from the African Commission on Human and Peoples Rights is from her ruling on the gross violation of rights in Ogoniland by the Nigerian government and Shell Petroleum Development Corporation. The reference to the right to food as linked to the dignity of human beings can be extended to every situation where peoples’ food sources are being threatened.

As things stand, Africa is a threatened continent and it is vital that civil society, academia and governments come together to soberly examine the negative impacts of GMOs and the great challenges that the continent will face in future when food sovereignty is lost and farmers are firmly tied to the Monsanto’s commercial noose.

Case Study I: Southern Africa rejects food aid in hunger crisis

In 2002 a food crisis affected many countries in Southern Africa, namely Angola, Malawi, Zambia, Zimbabwe, Lesotho, Mozambique and Swaziland. Zimbabwe was the first country to reject US food aid, and others followed. After a few months, some countries accepted food aid that had been milled, in order to avoid the accidental planting of GM seeds. Only Zambia decided to reject GM food aid in both the grain and milled forms.

"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. […] 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."

Mundia Sikatana, Zambia's Minister of Agriculture.

Restricting the right to choose

African countries that took a precautionary approach to GM food aid and asked for non-GMO food aid were initially left with little choice. The US and even the World Food Program told them that they should accept some GM content. Their right to choose was clearly impaired. An unnamed US official was even quoted as saying that “beggars can’t be choosers”.

The shipment of whole corn kernels as food aid carries the danger of genetic contamination, as it allows GM grains to be planted in countries with neither biosafety regulations nor the capacity to deal with GM crops. Further concerns centre on a negative impact on agro-ecosystems, including the development of resistance in target insect pests, harmful effects on non-target insects, the development of herbicide tolerance in weeds, and genetic erosion or loss of traditional crop diversity as a result of genetic contamination through cross-fertilization. To avoid these potential risks, most of the countries decided that the GM food aid should at least be milled to prevent the planting of the grain.

However, milling the maize still did not take into account any possible potential risk derived from the consumption of GM food. According to Norway’s Minister of International Development, “There might also be a probability of higher risk when one is in a food crisis situation, consuming only one GMO product over time.” Many Third World based organizations have been very critical of this risk, considering that the “assumptions about alleged GM food safety are based on a limited range of experiments that do not take into account the specific situation of people in developing countries”. These organizations believe that populations fed with food aid, especially children, are particularly vulnerable due to malnutrition and lack of food, and that any potential danger presented by GM foods might increase when they are consumed by an immune-depressed population. According to UK Chief Scientific Advisor Professor David King, forcing GM foods into Africa as food aid is “a massive human experiment”.

"I*s it better to die than to eat gm food?*"

Africans were forced to accept some GM content in their food aid. Nevertheless, the case of Zambia proved that there were alternatives to GM.

> "It is very interesting to note that for the first time, Zambia was being forced to accept a gift. Doesn't this worry us as recipients that the giver is insisting that we take the GM foods? Are the Americans just concerned about our stomachs or there is something behind the gift?"
>
> *Zambia Daily Mail. November 5, 2002*.

"*Is it better to die than to eat GM food?*" This question, often raised in the Southern Africa food crisis, presented a scenario in which there was nothing but GM food available. This scenario has since been proven false, since alternatives could have been made available and are now being provided in large quantities. Current research shows that there was ample non-GM maize and non-GM cereals in the world that could have been sent to countries preferring not to accept GM food, Africa nations as well as India and Mexico. In fact, it has been shown that there was enough non-GM corn even in the United States.

Nonetheless, the World Food Program argued at the end of 2002 that the main goal was to meet the countries' short-term food needs. In the case of Zambia, which was the only country accepting no food aid whatsoever, the WFP claimed that it was impossible to mobilize non-GM food fast enough, as organizing food aid operations requires considerable time and resources.

But again, the lack of choice was just an illusion. Zambian NGOs pledged that they were able to quickly mobilize surpluses of traditional foods available in the country, like cassava, to food deficit areas if financial resources were made available.

The drought season in Zambia particularly affected the southern part of the country, and the local maize supplies were clearly insufficient. However the northern part of the country, particularly the North Western province, was food secure due to the fact that there were an estimated 300,000 metric tons of cassava, one of Zambia's staple foods, in the northern parts of the country.

The Zambian government asked the WFP to use traditional foods to deal with the crisis. Cassava has a long history of use as a key crop for food security. Yet it was not even included in calculations of the country's food deficit, and the WFP did not consider it as a possible solution to the crisis. The WFP apparently considers cassava to be an inferior food, although it is eaten by more than 200 million people in Africa and constitutes the main staple food for 30 percent of the Zambia population.

A coalition of groups that comprised of churches and non-governmental organizations (NGOs), worked with the Zambian government to form an alliance to raise funds for buying cassava from areas of surplus and

distributing it to food-deficit areas. Despite their recognition that it was a good project, the WFP refused to support the initiative. Given that the WFP in Zambia channels the financial resources of donors and coordinates all food relief efforts, their refusal prevented the project from being implemented.

Instead, the WFP brought barley from the United States, which is not a staple food in the country and is only used in Zambia for producing beer. This clearly contradicts the principle that food aid should be socially and culturally acceptable to recipient countries.

In the end, the Zambian government stayed firm in its decision not to accept GM food aid. It proved able to cope with the food crisis, supported by many countries and organizations, and the country enjoyed a bumper crop in 2003.

Linking aids funds to gm food aid

"It was a wrong decision by the government and I hope they will rethink it. We are going to make more food available to AIDS patients and the government must decide. (…) GM (genetically modified) food is absolutely safe, our experts have done tests and found it completely safe."

Tommy Thompson, US Health Secretary, December 2003, referring to the Zambian government's rejection of GM food aid.

Another issue of serious concern arose in May 2003 when the US Senate passed a bill tying assistance for AIDS to acceptance of GMOs. The United States Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act of 2003 urges African states to accept GM food aid, implying that this is a condition for release of assistance funds. In December 2003 this became even clearer when US Health Secretary Tommy Thompson, in a visit to Zambia related to future donations on the topic of HIV/AIDS, criticized the decision of the Zambian government to reject GM food aid.

Source: FoEI report Playing with Hunger,
www.foei.org/publications/pdfs/playing_with_hunger2.pdf

Case Study 2: India's rotten experience with gm cotton

India provides an example of how a genetically modified crop, Bt cotton, did not live up to the promises made by biotech giant Monsanto.

Mahyco, a subsidiary of Monsanto, was authorized to release genetically modified cotton over a three-year period between April 2002 and March 2005. The company launched a huge propaganda drive promoting the excellent performance of Bt cotton. They defined Bt cotton as environmentally safe and economically beneficial as it would reduce pesticide use and cultivation costs and result in increased yields.

When the promotion of Bt cotton started in Andhra Pradesh, many farmers were encouraged and bought the seed hoping to save money, despite the fact that the Bt cotton seeds cost more than conventional seeds.

"The cost of cultivation for Bt cotton was 1092 Rupies (US$24) more than that for non-Bt cotton because there was only a meagre reduction in the pesticide consumption on Bt crops. On average, there was a significant reduction (35 percent) in the total yield of Bt cotton, while there was a net loss of 1295 Rupees (US$28.50) in Bt cultivation in comparison with non-Bt cotton, where the net profit was 5368 Rupees (US$118). Around 78 percent of the farmers, who had cultivated Bollgard this year, said they would not go for Bt the next year."

'Did Bt Cotton Save Farmers in Warangal? A season long impact study of Bt cotton', Quayum, A. and Sakkhari K., 2003

Farmers in Andhra Pradesh grew Bt cotton crops on 8,000 acres in 2002. In early 2003, after one year of experience with commercial releases, the Minister of Agriculture of Andhra Pradesh declared that Bt cotton farmers had not enjoyed successful results with Bt cotton. Many farmers were angry at the propaganda that had made them believe that they were buying miracle seeds.

Other regions in India (including Madhya Pradesh, Maharshtra, Vidarbha, and Gujarat) had experiences similar to the one described in Andra Pradesh. For example, initial reports from Madhya Pradesh said that Bt cotton was a 100 percent failure, and farmers were demanding compensation from the company.

Case study 3: Percy Schmeiser vs. Monsanto in Canada

Monsanto's GM canola was found in Percy Schmeiser's field, but he always asserted that he never purchased nor planted the company's seed. Schmeiser spent sever years fighting trying to prove its innocence, but unfortunately The Supreme Court of Canada in appeal in 2004 announced that he was found guilty of patent infringement, but yet not liable to pay Monsanto for any damage. Below his testimony:

Testimony by Percy Schmeiser about his fight against Monsanto

"My name is Percy Schmeiser. I am a Canadian farmer. For the last 50 years, my wife Louisa and I have farmed 1441 acres in Bruno, Saskatchewan. We have built up a farm that works well. Rapeseed is an important crop for us, and we used to sell it all over the world for cooking oil and cattle feed. Like most farmers in Western Canada, I collected and stored my own seed. After years of selection, I had a variety that gave a good yield, was quite resistant to local diseases and was relatively weed free.

In 1997, I sprayed Roundup as usual on the weeds and stray rapeseed plants growing around my fields. I was surprised that so much rapeseed survived the application. Had I got the herbicide concentration wrong? I now realize this was the first sign that my fields had been contaminated by genetically modified (GM) rapeseed.

My neighbours and 40 percent of farmers in Western Canada plant GM rapeseed. Since 1993, Monsanto Canada has been licensed to use technology that will make plants resistant to its glyphosphate herbicide, Roundup. Farmers can then use Roundup as a broad-spectrum herbicide without damaging their GM crop. In 1995, Canada approved the uncontained release of GM rapeseed, and in 1996 local companies started selling GM varieties.

Although Monsanto owns the gene and the technical know-how, they have done little to contain their invention once it entered the environment. In 1998, Monsanto inspectors entered my land without permission and took rapeseed. They accused me of planting GM rapeseed without a license and prosecuted me. If Monsanto suspect farmers are growing GM rapeseed without a license, they take away rapeseed plants for inspection. If test results are positive and the license fee of Canadian $15 per acre and contract have not been met, legal proceeding for infringing Monsanto's patent follow.

In my case, GM plants had seeded themselves on my land and they pollinated my conventional rapeseed. The following planting season I tried to contain GM contamination by buying new seed, but 20 percent of my harvest was still contaminated.

In Canada there is no law against carrying rapeseed in open trucks or leaving cut rapeseed in the field. This makes it easy for the small seeds to spread. It

is also impossible to contain pollen flows. The gene responsible for glyphosphate resistance is a dominant gene and rapeseed an open-pollinated plant. When a GM plant crosses with conventional rapeseed, resistance will be carried into the following generation. In my fields the GM variety was thickest along the roadway. There was little in the field itself. When I received the court summons I wondered why anyone would think I had deliberately mixed GM rapeseed with my own seed. The only advantage of growing GM rapeseed is its resistance to Roundup.

If farmers spray Roundup on a mixed GM and non-GM crop they can expect big losses. In my defense I argue that possessing the seed does not violate Monsanto's patent. It becomes a violation when I spray my crop with Roundup and activate the innovation - the gene that confers glyphosate resistance.

When this gene incorporates itself into a seed or plant, what are Monsanto's rights? The seed and plants are the farmer's property. GM rapeseed has the ability to intrude where it was not planted. It has the unique ability to replicate itself. I believe Monsanto lost its right to exclusivity when it lost control of its invention. How can farmers avoid GM rapeseed getting into their crops and becoming a contaminating weed?”

For more information:
Percy Schmeiser’s website: www.percyschmeiser.com

Case Study 4: Bribes for the Ride: Monsanto efforts to push transgenic cotton in Indonesia

By Farah Sofa

Indonesia is a major importer of cotton, a raw material for its huge textile industry. In 1999, Monsanto Bt cotton was approved by the Indonesian government and declared environmentally safe for planting in the country. Monsanto Bt cotton ended up being a failure, and the company pull out from Indonesia in 2003. In 2005 it has been confirmed that Monsanto used bribery as a primary tool to gain support for its GM crops in Indonesia.

> " ..from 1997 to 2002, Monsanto inaccurately recorded, or failed to record, in its books and records approximately $700,000 of illegal or questionable payments made to at least 140 current and former Indonesian government officials and their family members".
>
> *US Securities and Exchange Commission. Litigation Release 19023. January 6. 2005.*

Monsanto, the giant agrochemical company, has been charged for violating the US Foreign Corrupt Practices Act. According to a criminal complaint by the Department of Justice and the US Securities and Exchange Commission, an employee of the consulting firm which represented Monsanto paid $50,000 to a senior Indonesian environmental official in 2002, in an unsuccessful bid to amend or repeal the requirement for the environmental impact statement for new crop varieties. The complaint also stated that over $700,000 in bribes were paid to at least 140 current and former Indonesian government officials and their family members between 1997 and 2002, financed through its improper accounting of its pesticides sales in Indonesia.

Monsanto has already agreed to pay a US$1 million penalty to the U.S. Department of Justice, which charged the company with violating the U.S. Foreign Corrupt Practices Act when it bribed certain Indonesian government officials to allow it to develop GM crops in this country. It also agreed to pay another $500,000 to the U.S. Securities and Exchange Commission (SEC).

Former state minister for environment Nabiel Makarim admitted in January that U.S.-based Monsanto Co., one of the world's leading developers of genetically modified (GM) crops, had lobbied him to facilitate its business in Indonesia.[xxv] Nabiel also admitted that he had a close relationship with Harvey Goldstein, the president director of the Jakarta-based Harvest International Indonesia business consulting company, which according to KPK was hired by Monsanto to lobby the Indonesian government for legislation and ministerial decrees supporting the development of GM crops.

Erry Riyana Hardjapamekas, a KPK deputy chairman, said that Nabiel came to his office in his capacity as a former environment minister. As minister he supposedly knew of the alleged bribery of a senior ministry official by

Monsanto that occurred in 2002. Erry also said that the commission will summon Goldstein of Harvest International, Villareal and Monagro Kimia, an affiliate company of Monsanto in Indonesia. The KPK has already sent letters to the U.S. Department of Justice and the SEC, respectively, seeking more information about the case.

The cash payment was delivered by a consultant working for the company's Indonesian affiliate, but was approved by a senior Monsanto official based in the US, and disguised as consultants' fees. As part of the agreement with the DoJ and the Securities and Exchange Commission, Monsanto has also pledged to appoint independent consultants to review its business practices over a three-year period, when the criminal charges against it would be dropped permanently by the DoJ.

Christopher Wray, assistant US attorney-general, said in a statement that the agreement required Monsanto's full co-operation and acceptance of responsibility for the wrongdoing. "Companies cannot bribe their way into favourable treatment by foreign officials," he said. Charles Burson, Monsanto's general counsel, said: "Monsanto accepts full responsibility for these improper activities, and we sincerely regret that people working on behalf of Monsanto engaged in such behaviour."

Monsanto said it had first become aware of financial irregularities in its Indonesian affiliates in 2001, and had begun an internal investigation. The company also said it had voluntarily notified US government officials of the results of this investigation, and had fully co-operated with the investigations by the DoJ and the SEC.

Meanwhile, Indonesian NGOs have called upon the Indonesian Corruption Eradication Commission (KPK) to look into the bribery cases citing the information provided by the US Department of Justice and the Securities and Exchange Commission. Representatives from an NGO Coalition for Biosafety, KONPHALINDO, have met with the KPK on this matter and provides all the relevant proof on Monsanto wrongdoings regarding the illegal introduction for Bt Cotton in South Sulawesi.

Monsanto pull out from Indonesia

In general, the planting of Monsanto Bt cotton was a failure. It succumbed to drought and pest infestations. Many farmers complained about the claims of the superiority and performance of the genetically engineered cotton. The government revealed that more than 70 percent of the Bt crop locations did not produce the promised expected yields. Some Bt cotton growers confirmed that they harvested around 500 kilograms per hectare, whereas Monsanto repeatedly boasted that its GM cotton would yield three tons per hectare.

In December 2003, the Minister of Agriculture finally announced that Monsanto pulled out from South Sulawesi after three years doing field experiment in South Sulawesi. While in fact, the company already stopped supply seeds to the farmer since February 2003.

Monsanto's excuse for this was that their cotton's business in South Sulawesi was not economically viable anymore. But Indonesian NGOs suspect they are going to replace it with another commodity, aside from great resistance from NGO and local communities.

Most farmers are happy with the pull-out, because they suffer lost from planting Monsanto's cotton. And in fact, most farmers' groups already stop planting Monsanto products long before February.

> "There are two possibilities for my cotton harvest: I will keep it until decayed or I will burn it, even though I might lose in production cost and effort, rather than sell it to Monsanto."
>
> *Baco, a farmer in Manyampa village, South Sulawesi.*

To respond the current situation, the local agriculture office plan to grow Kanesia cotton type 7, 8 and 9 for planting season 2004 around 5.100 - 6.000 ha. It aim to regain South Sulawesi position's as center for cotton production. When Monsanto operated in South Sulawesi, the provincial supply for cotton only 2600 hectares per annum, while before it was 559.560 hectares on average and it contribute 53.9% to national cotton production.

For more information contact: Farah Sofa, International Corporate Campaign Coordinator, Friends of the Earth International, based in Jakarta, Indonesia (ovi@walhi.or.id)

---

[i] Mayet, M. 2002. Africa: The new frontier for the GE Industry. African Centre for biosafety-Third World Network. http://www.biosafetyafrica.net/_DOCS/africa_new_frontier.pdf

[ii] USAID. 2002. USAID announces International Biotech collaboration. US Department of State, June 2002.

[iii] Kalaitzandonakes, N. 2004. *The potential impacts of the biosafety Protocol on Agricultural Commodity trade*. International Food and Agricultural Trade Policy Council. IPC Technology Issue Brief. December 26.

[iv] ISAAA. 2004. *Global Status of Commercialized Biotech/GM crops:* 2004. Executive Summary. http://www.isaaa.org/kc/CBTNews/press_release/briefs32/ESummary/Executive%20Summary%20(English).pdf

[v] Innovest Strategic Value Advisors. 2005. *Monsanto and Genetic Engineering: Risks for Investors. Analysis of company performance on intangible investment risk factors and value drivers.* Innovest. January 2005. http://www.innovestgroup.com

[vi] Monsanto. 2004. *Setting the Standard in the field.* Annual Report. http://www.monsanto.com/monsanto/content/media/pubs/2004/2004_Annual_Report.pdf

[vii] ISAAA. 2004. *Global Status of Commercialized Biotech/GM crops:* 2004.op.cit.

[viii] Innovest Strategic Value Advisors. 2005. op.cit.

[ix] Alianza Centroamericana de Protección a la Biodiversidad. 2005. World Food Programme and the United States denounced for the distribution of genetically modified organisms in centralamerica and the Caribean. February 16. http://www.humboldt.org.ni/transgenicos/denuncia_englishfeb16.htm

[x] Friends of the Earth International. 2004. GM crops: A decade of failure

[xi] The Center for Food Safety. 2004. *Monsanto vs. US farmers*. http://www.centerforfoodsafety.org
[xii] The Center for Food Safety. 2004. op.cit.
[xiii] Idem.
[xiv] Idem.
[xv] Idem.
[xvi] UBS. 2004. *Monsanto*. UBS Investment Research. 22 November 2004.
[xvii] UBS. 2004. *Monsanto*. Op.cit.
[xviii] See Programmed U.S. Food Aid for FY 2003. http://www.fas.usda.gov/excredits/FoodAid/Reports/fy03tablei.pdf
[xix] African Center for Biosafety, Earthlife Africa, Environmental Rights Action-Friends of the Earth Nigeria, Grain and SafeAge. GM FOOD AID - AFRICA DENIED CHOICE ONCE AGAIN? May 2004. http://www.biosafetyafrica.net/_DOCS/Africa_GM_food_aid.pdf
[xx] The Protocol came into force in 2003
[xxi] African Center for Biosafety. 2004. Global Agriculture and Genetically Modified cotton in Africa. October 2004. http://www.biosafetyafrica.net/_DOCS/GMCottonInAfricaExecutiveSummary.pdf
[xxii] GRAIN. 2004. Bt Cotton at Mali's Doorstep: Time to Act! http://www.grain.org/briefings/?id=162
"*According to this contract:*
• *farmers cannot save seeds for replanting*
• *farmers are prohibited from supplying seeds to anyone else*
• *farmers must pay 120 times the technology fee, plus the legal fees of Monsnato, if they violate the contract*"
[xxiii] African Center for Biosafety. 2004. op.cit.
See also study of alternatives to Bt cotton: Centre for Sustainable Agriculture. 2004. *Bt Cotton Vs. non pesticidal management of cotton*. http://www.grain.org/research_files/bt_vs_npm.pdf
[xxiv] African Commission on Human & Peoples' Rights : Communication 155/96, 27th May 2002
[xxv] The Jakarta Post, January 13, 2005