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COMMENTS ON THE REPUBLIC OF KENYA'S BIOSAFETY BILL, DATED 'NAIROBI, 22ND JUNE 2007'

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SUMMARY OF COMMENTS ON KENYAN BIOSAFETY BILL

Kenya's Biosafety Bill is drafted as an enabling statute, and will require the promulgation of numerous regulations in order to bring it into effect. Its fundamental nature is one of a lenient permitting system as opposed to a biosafety regime intent on regulating genetically modified organisms within a context of caution.

The Bill creates an omnipotent National Biosafety Authority ('NBA'), which will be in charge of almost every aspect concerning GMOs in Kenya. The NBA has been given exceedingly wide powers including a powerful discretion to dispense with the need for risk assessments for import of GMOs as food aid, food trade, field trials and commercial releases. This it can do where it **determines that sufficient experience or information exists to conclude that the GMO does not pose a significant risk.** These breathtakingly draconian and unscientific provisions make a mockery of the need for a biosafety law in the first place.

The Bill expressly contemplates and allows for decision-making that results in approval even in the face of risks being identified. In other words, the approach taken is that some risks will be tolerated-at the sole discretion of the Authority.

The NBA will be in charge of conducting research, decisions regarding capacity - building, public awareness, advice on legislative matters and decision-making powers regarding GMOs. It is highly unusual and not desirous that a decision-making body should also be involved with GM experiments, for which it is also entitled to receive donations and grants. This raises serious conflict of interest concerns.

Having said this, we do welcome the provisions for 'state' liability on the part of the Authority to pay compensation or damages to 'any person for any injury to him, his property, or any of his interests caused by the exercise of any power conferred on him.'

What is, however, ominously absent are provisions dealing with liability and redress that may arise as a result of any activity conducted with a GMO, where State liability does not arise on the part of the Authority.

Extremely simplistic obligations have been placed on an applicant to obtain permits for GMO activities indicating that the rich biosafety discourse taking place globally, including in Kenya, have been excluded from the Bill.

Reference is made to socio-economic impact studies but these provisions are meaningless without the establishment of clear criteria to guide cases where socio-economic assessments should be called for.

No clear duty has been created on the State to monitor the impacts of GMOs on the environment or human health. The monitoring functions that have been created are limited to ensuring compliance with the law and permit conditions.

No provisions have been made regarding the public's right to access to information.

There are no provisions for public **participation**-only an **opportunity** has been created for the public to make **inputs** with regard only to environmental releases. No public input will be possible for other types of GM permits.

Although provisions for labelling of GMOs are made, these can only take effect once regulations have been made to implement them. No reference has been made to traceability-an essential element for the function of a labelling regime.

Substantial regulations will have to be made in order to close the many gaping holes left by the Bill. However, even these will not be able to cure the many fundamental shortcomings inherent in the Bill, particularly those regarding decision-making.

These comments are provided to a coalition of civil society groups in Kenya at their request. It has been done at the last minute to meet their deadlines and therefore, may contain errors in the course of rushed editing. For this, we offer our deep apologies.

SECTION ONE

OVERVIEW OF STATUS OF GMOS IN KENYA

This section has been taken from our on-going research on GMOs in African Agriculture, which is currently being updated and will be published as part of the African Centre for Biosafety's *Biosafety, Biopiracy and Biopolitics Series*.

KENYA



Party to:ConventionCartagena ProtocolSince:26 July 1994
(by Ratification)11 September 2003
(by Ratification)Signature Date:11 June 199215 May 2000

LAWS AND REGULATIONS

The 1996 Guidelines for Safety in Biotechnology regulate biosafety, setting the measures for risk assessment, management and monitoring of operations involving GMOs, rDNA technologies and derived products. A National Biosafety Committee (NBC) reviews research proposals and advises on risk assessment and risk management.¹ In March 2005 a parliamentary motion to ban GMOs in Kenya, tabled in December 2004, was submitted for its Second reading and was to be voted on.² Differences between legislators resulted in the debate on whether or not to ban GMOS in Kenya being suspended, until later deliberation.³

Kenya drafted a Biosafety Bill in 2005. Critics found that the Bill amounted to little more than a rubberstamping system designed to approve applications for the contained use, import, export, marketing and release of GMOs. Kenya is a Party to the Convention on Biological Diversity and has ratified the Cartagena Protocol on Biosafety. Important cornerstones of the Cartagena Protocol on Biosafety, specifically the Precautionary Principle and public participation was found to have been omitted form the Bill. Further, no provisions were created to deal with adverse impacts on biodiversity and human health, traceability, labelling, liability and redress.

GMO R&D

Institutions involved in agricultural biotechnology research include the Kenya Agricultural Research Institute (KARI); Jomo Kenyatta University of Agriculture and Technology; the Department of Biochemistry at the University of Nairobi; the National Potato Research Centre (NPRC); the Faculty of Agriculture at Moi University; and Kenyatta University (KU).⁴ The Sustainable Agricultural Centre for Research Extension and Development Africa (Sacred) is supported by the Rockefeller Foundation to carry

out GM research.⁵ The International Livestock Research Institute (ILRI), a CGIAR centre based in Nairobi, carries out biotechnological research on livestock diseases.⁶

Kenya is home to the African Agricultural Technology Foundation (AATF), the African Biotech Stakeholders Forum (ABSF) and the African Biotechnology Trust. The latter two are spin-offs of the <u>International Service for the Acquisition of Agri-biotech Applications (ISAAA)</u>. The ISAAA has also established an AfriCentre with its base in Kenya. ISAAA is a US-centered, GM promotion and 'technology transfer' agency funded by AgrEvo, Bayer, Cargill, Dow, Monsanto, Novartis, Pioneer, Syngenta, in addition to foundations and Western governmental funding agencies.⁷ African Harvest Biotechnology Foundation International (AHFBI), supported by <u>CropLife International</u> - an organisation led by companies such as BASF, Bayer, Dow, DuPont, Monsanto, and Syngenta⁸ - is also based in Kenya. These organisations make Kenya a country of concentrated lobbying in favour of GM. Kenya is the home of the East Africa Regional Network on Biotechnology, Biosafety and Biotechnology Policy (BIO-EARN) (see East and central Africa regional information).

African Harvest, in particular, is fronted by Florence Wambugu a proponent for GM food and touted as a leading African Biotechnology Expert. Wambugu has been quoted as saying that the biotechnology revolution could pull the African continent out of decades of economic and social despair'.¹⁴ Wambugu's career has been built around a Monsanto-initiated project to create a genetically engineered virus-resistant sweet potato. Yields from this Kenyan sweet potato trials were described as astonishing. The FAO listed the sweet potato project as an example of successful technology development.⁹ In contrast, Kenya's Daily Nation,¹⁰ the New Scientist¹¹ and The Guardian¹² all exposed the sweet potato trials as a failure with transgenic crop yields much lower than non-transgenic tubers and with the plants susceptible to viral attack, the very thing it had been created to resist.

Kenya is linked to USAID-funded Association to Strengthen Agricultural Research in East and Central Africa (ASARECA) (see East and central Africa regional information). Kenya is also a partner of USAID's Agricultural Biotechnology Support Project (ABSP) whose goal is to support research, product development and policy development for the commercialisation of GM crops. Private partners of ABSP include Monsanto, Syngenta, Pioneer Hi-Bred and DNA Plant Technology.¹³

KARI is involved in a project to develop GM sweet potato, supported by USAID, Monsanto and the World Bank.¹⁴ In June 2004 the Kenyan government launched a 'level II biosafety greenhouse' that allows for containment of genetically modified (GM) crops at the experimental stage. The Kenya Agricultural Research Institute (KARI) and the International Center for Maize and Wheat Research (CIMMYT), which also trained scientists to manage the facility at its centre in Mexico, jointly developed the greenhouse. It was built as part of the Syngenta Foundation's Insect Resistant Maize For Africa (IRMA) project that aims to develop a maize variety resistant to the stem borer. The greenhouse was funded by the Kenyan government and Switzerland-based Syngenta Foundation.¹⁵ Approval to introduce Bt maize seeds and carrying out the specified research in the greenhouse has already been granted by the NBC. In May 2004 the project was waiting for Kenya Plant Health Inspection Services (KEPHIS) to issue a permit before Kenya's first GM maize could be grown.¹⁶ KEPHIS placed more stringent regulatory measures on the project, setting the project back by 2 years, meaning that the GM maize is not expected to be released for commercial sale until 2010.¹⁷

KARI and CIMMYT are also working on developing GM herbicide resistance in maize to combat the *Striga* weed.¹⁸

KARI is collaborating on an international project funded by the International Potato Centre on GM improvements and virus resistance in sweet potato. Other African countries involved are Ethiopia and Uganda.¹⁹ Other GM research in the experimental phase includes gene transfer in the common bean (phaseolus); Cassava Mosaic Virus resistance in cassava; lepidoptera resistance in cotton (Bt and European Corn Borer),²⁰ transformation in tobacco and tomato; and transformation of sweet potato with proteinase inhibitor gene.²¹ The University of Nairobi is conducting research into capripox virus and rinderpest recombinant vaccine production for livestock.²²

Current biotech crop research in Kenya includes genetically engineered (Bt) maize that is resistant to maize stem borers, pest resistant Bt Cotton, Bt cassava that is resistant to the Cassava Mosaic Virus, and Bt sweet potato against the Sweet Potato Virus.²³

GMO FIELD TRIALS

Field trials on Sweet Potato Feathery Mottle Virus (SPFMV) resistance in sweet potatoes discussed above, were reported to have failed in early 2004.²⁴ The failure of the trials resulted in new research on a second-generation product that includes a gene construct from the Muguga virus strain, a virulent Kenyan potato virus strain. Further research aims to produce a second-generation GM sweet potato variety that is equipped with double protection (Cp gene and its replicase gene).²⁵ ILRI has released a recombinant vaccine against East Coast fever (*theileriosis*) for field trials.²⁶

In 2004, Monsanto imported Bt cotton into Kenya for field trials. At the Kenyan Agricultural Research Institute's research station in Mwea, Central Kenya variety of genetically enhanced cotton, resistant to the bollworm pest, is undergoing field tests.²⁷

In May 2005 KARI and IRMA proceeded with field trails becoming the first African country other than South Africa to plant genetically modified (GM) maize in open fields.²⁸ In these field trials of Bt maize designed to resist stem borer attacks, a technician applied a systemic pesticide Furadan to the plants, effectively invalidating the results and resulting in the trials being aborted.²⁹ New field trials of this event have since resumed. Researchers conducting these field trials are optimistic that the transgenic seed will be available by 2008.

GMO'S IN FOOD AID AND IMPORTS

Kenya accepted US maize and soymilk food aid in 2001 without restrictions.³⁰ Kenya continues to receive food aid from the US without restrictions being imposed on GM content. In 2006, Kenya received 45 000 MT of emergency food aid.³¹

SECTION TWO

COMMENTS ON THE KENYAN BIOSAFETY BILL

Definitions

The Bill contains a pitifully small number of definitions, which will leave a great deal of room for legal uncertainty.

We are extremely concerned about the unscientific definition created for 'contained use', which has been so loosely drafted that it can easily refer to activities that also amount to environmental releases (for instance, open ponds). What needs to be clearly conveyed is the experimentation within a laboratory where the likelihood of contact with the external environment, including humans, is avoided. In terms of the Bill, applications for contained use permits will not trigger the public input mechanism provided by the Bill, and hence these permits will be granted without the public having any knowledge of this.

The definition of 'biosafety' is restricted to the avoidance of risk to human health and safety of the environment and conveys a narrow science based approach to the regulation of GMOs. Biosafety is much more holistic an approach, and includes for instance, socio-economic risks.

Scope

The Scope of the legislation is set out in section 3 of the Bill, yet astonishingly, it fails to set out the scope of the activities the Bill is intending to cover. One would expect that the Bill clearly and explicitly set out these. Specific reference to these activities would also ensure that food aid is covered and dealt with appropriately.

Section 3(2) deals with exclusions of GMOs that are pharmaceuticals for humans, but fails to set out the fate of the regulation of these GMOs. It is therefore unclear whether GMOs for this use will be regulated in terms of other legislation or whether they will indeed be regulated by Kenyan domestic legislation at all!!

We are taken aback by the silence on questions of the use of GMOs in gene therapy and germ line therapy. The silence on these issues mean that such therapies are included within the purview of the Bill. These issues carry serious consequences for Kenyan health care systems and demand national debate.

As a general principle, exclusions from the scope of a Biosafety Bill is not a good idea, as these create gaps and legal uncertainties, unless the exclusion is also accompanied by an explicit reference to the law which will govern the regulation of the GMO in question.

Objectives

It is clear from the objectives of the Bill, that Kenya is bent on GM research and development. Reference is made to the <u>minimization</u> of risks of harm (section 4(a) yet this does not resonate with the definition of 'biosafety', which deals with the 'avoidance

of risk to human health and the conservation of the environment'. This contradiction is all the most surprising given that the bill is called a 'Biosafety Bill.'

Another objective is to establish a transparent process for reviewing and making decisions section 4(c), yet very few provisions have in fact been created to enable transparency in the decision-making process.

National Biosafety Authority

The Biosafety Bill establishes an extremely powerful body called the National Biosafety Authority –almost an omnipotent body on GMOs-who will do many things: be in charge of all activities relating to GMOs in Kenya, including all monitoring programmes (section 7(1); be the principal advisor including on legislative matters (section 7(1) and (2)(e); make decisions regarding GMOs (section 7(2)a); co-ordinate and undertake research section 7(2)(c), make decisions regarding capacity building (section 7(2)(d) as well as public awareness (section 7(2)(f) . Everything with regard to GMOs from the regulation, to the research, capacity building, public awareness, through to the final decision-making regarding to GMO activities in Kenya will be done by the National Biosafety Authority.

For such far-reaching and all encompassing powers to vest in just one institution does not auger well for biosafety in Kenya. Certainly, it does beg the question of whether a decision-making body that will be in charge of GMO approvals should also be engaged in GM research and development as well as public awareness programmes? Having said this, we do welcome the provisions created in section 17, that create clear provision for 'state' liability on the part of the Authority to pay compensation or damages to any person for any injury to him, his property, or any of his interests caused by the exercise of any power conferred on him. Notwithstanding the male bias in the drafting, these provisions can be improved to also include restoration/decontamination of the environment where the damage cannot be computed in monetary terms only.

A Board has been established for the Authority comprising of 14 people: 9 from various government bodies, three experts, one representative from consumer groups and the other from farmer organisations. It is assumed that the Board as comprised of these 14 persons will exercise the powers of the Authority (as described above), yet, this is not immediately clear from a reading of the Bill. Indeed, the Board has been given several separate functions from the Authority (section 8), including accepting and managing donations and other grants for the exercise of the functions of the Authority.

Application for placing on the market, environmental release, export and import

Simplistic provisions have been created for the application process for these activities. Schedules to the Bill have been created that set out, the basic minimum information that will be required to be submitted in support of permit applications.

For instance, an application for 'placing on the market' of GMOs that are imported for direct use as food, feed and processing must be accompanied by the information as set out in the Third Schedule. However, this information is extremely basic whereas a comprehensive risk assessment with regard to food safety (human and animal), as well as the associated environmental risks should whole grains of GMOs be planted should be required. Placing on the market may also overlap with GMOs imported for environmental releases, since the definition of placing on the market is so loosely and broadly defined and any GMO that is placed on the market for sale, including GM seeds for instance will also be included. GMOs that are placed on the Kenyan market must be more tightly regulated than GMOs that are imported for contained use purposes. Most certainly, different biosafety considerations must apply.

Public Input and environmental releases

Only an application for environmental release will trigger a public input procedure. The public input procedure is initiated by the publication of a notice of the intended release in the *Gazette* and 2 newspapers circulating nationwide. The publication of this notice is designed to solicit public input/comments (section 19). It is not known why the public will be kept in the dark with regard to applications for GM imports as food and feed, and GM experiments taking place in Kenyan labs! There is no good reason for this type of secrecy. In any event, 'Notice and Comment' procedures are not appropriate public participation mechanisms as the South African experience has shown. Very few members of the public may be able to engage with scientific data or able to access the requisite expertise to interrogate applications for environmental releases. Indeed, as a result of the widespread dissent in South Africa concerning similar provisions in its GMOO Act, South Africa is in the process of reviewing its procedures in order to ensure greater transparency and public participation in decision-making.

The provisions dealing with environmental releases are also extremely superficial. These do not distinguish between GMOS to be released for field trials and those to be released for commercial purposes. Field trial data become extremely important data for decisionmaking regarding the assessment and evaluation of biosafety risks for future releases.

Confidential Information

It is not known why the Kenyan Bill has chosen to introduce the exceedingly wide concept of 'confidential information' whereas what really needs to be given legal protection is the 'confidential business information' (CBI). The provisions in section 25 create the situation whereby the applicant will have *carte blanche* to decide what information the public can have access to. These provisions are particularly worrying since there are no provisions that provide for access to information by the public. Even if generic legislation exists in Kenya already dealing with access to information, discreet provisions are needed in the Biosafety Bill, to balance the protection of CBI and the information the public is entitled to. Unless this issue is properly resolved, it will cause a great deal of mistrust and suspicion of the regulatory system.

Decision-making

The Biosafety Bill makes not reference to the precautionary <u>principle</u> in the context of **decision-making**. In terms of the Bill, decision-making is to be based on the Fifth Schedule, which is consistent with Schedule III of the Biosafety Protocol. The Fifth Schedule contains an extremely ambiguous statement on precaution, which relates to risk assessment to be done on the part of the applicant as opposed to decision-making or risk evaluation on the part of the decision-maker. Similar provisions are also found in the South African Regulations made under the GMO Act and read as follows "lack of

scientific knowledge or scientific consensus shall not necessarily be interpreted to indicate a particular level of risk, an absence of risk or an acceptable risk." This clause does not in fact make such scientific sense, as it appears to actually negate the precautionary principle. Hence, it has in fact been used to promote the notion that the legislation contains an adequate reference to the precautionary principle.

A peculiar provision has been drafted in section 27; reminiscent of the biosafety bills of Ghana and Swaziland, to the effect that risk assessment shall be carried out taking into account available information concerning any known risk posed by potential **exposure** to a GMO. It is not known what exactly is contemplated here-whether the concern here is exposure to GMOs as a result of consumption over a period of time or exposure by communities to Bt toxin for example. Nevertheless, these provisions are meaningless without a comprehensive monitoring programme.

Section 27(3) deals with decision-making that results in approval even in the face of risks being identified. In this regard, the section contemplates that appropriate measures will be put in place to control the risks identified during the risk assessment process. In other words, the approach taken is that some risks will be tolerated-which risks these will be, will ultimately depend on the say so of the Authority.

Section 29 deals with decision-making and for the first time, introduces socio-economic considerations, and makes it mandatory for the Authority to take socio economic impacts into account. Yet, the Bill is silent on who will undertake an investigation into these impacts as if it will miraculously materialise. It is also not known whether socio-economic impact studies will be required and taken into account for all types of GMO applications.

Non-assessment of risks

Worse still, are the provisions contained in section 28, that confer a discretionary power on the Authority to opt not to undertake an assessment of the risks for applications for contained use, environmental release and import where it determines that sufficient experience or information exists to conclude that the GMO does not pose a significant risk. [Although reference is made specifically to contained use, these provisions in fact apply to applications also for environmental release and import] These breathtakingly draconian and unscientific provisions make a mockery of the need for a biosafety law in the first place, if the Authority is allowed such sweeping powers to rubber stamp applications? It is unknown who is meant to have this 'sufficient experience or information' that the GMO does not pose a significant risk. Every application must be considered on a case-by-case basis; a fundamental biosafety principle that underpins all biosafety laws, and is indeed the cornerstone of the Biosafety Protocol. In any event, new scientific information is emerging concerning risks posed by so- called 'old' GMOs that have been on the market for a while. Certainly risks or the absence of risks can never be extrapolated from one country to the other or one region to the other. Every application must be judged and evaluated on its own merits.

Keeping of Register

The Bill in section 32 requires the Authority to maintain a register of every application received, the risk assessment report, the decision document, the approval and any other information. No explicit provisions have been crafted to give the public access to these

documents. In any event, the Authority should keep records of all contained use facilities, all trial release sites; all imports and exports as well as sufficient data to track and monitor any commercial use of GMOs.

Monitoring

It appears as if the monitoring functions of the Biosafety Bill will be performed mainly by the Regulatory agencies (undefined), as contemplated in section 38. However, these monitoring functions are confined only to the extent to which the approved activity complies with the conditions imposed. This is an extremely restricted approach to monitoring the impacts on GMOs on the environment, human health, society, farming systems, animal health and so forth. Section 44 also deals with monitoring on the part of Biosafety inspectors but their monitoring powers are also restricted to monitoring compliance the Act and its Regulations.

Unintentional release

Section 39 deals with unintentional releases into the **environment** only and does not deal with unintended transboundary movement, as set out by the Biosafety Protocol especially, GMOs that may enter Kenya in food aid/ trade shipments. In any event, where an unintended environmental release takes place, the Authority in consultation with the regulatory agency concerned will then decide whether or not any action is needed to minimise any biosafety risks. Yet, the definition of biosafety speaks about avoiding of risks. It is difficult to understand the logic underpinning these provisions.

Restoration and cessation orders

Generally speaking, the provisions contained in sections 40, 41 and 42 are welcome. In regard, however, to the provisions in section 42 dealing with cessation orders, these should be strengthened by provisions that allow the immediate seizure/confiscation of the GMOs in question. What is, however, ominously absent are provisions dealing with liability and redress that may arise as a result of any activity conducted with a GMO, where State liability does not arise on the part of the Authority.

Labelling

Section 50 deals with labelling and packaging and obliges any person manufacturing or importing any GMO to package and label GMOs in the prescribed manner. However, these provisions can only take effect once regulations have been made to implement them. No reference has been made to issues concerning traceability-an essential element for the function of a labelling regime.

Regulations

Section 51 sets out the powers of the Minister to make regulations in consultation with the Authority on a number of issues, including procedures for: contained use, environmental release of GMOs, import and export of GMOs, transit of GMOs etc. which means that the Biosafety Bill (or Act once promulgated) will only really come into effect once Regulations have been make these Regulations. It is worthwhile to note that section 51 does not contemplate the making of any regulations dealing with the implementation of the Biosafety Protocol. These would ordinarily include such regulation pertaining to Kenya's information sharing function vis-à-vis the Biosafety Clearing House; emergency measures in the event of an unintentional transboundary movement and the all important documentation requirements for transboundary movement of GMOs to implement Article 18(2) of the Biosafety Protocol.

¹⁹ WISARD Agricultural R&D Server

(http://www.wisard.org/wisard/shared/asp/projectsummary.asp?Kennummer=4399)

²⁰ FAO (<u>http://www.fao.org/biotech/inventory_admin/dep/stat_result.asp?country=KEN</u>)

²⁹ Checkbiotech. Kenya to repeat field trial for Bt maize. 9 September 2005.

¹ Biosafety Information Network & Advisory Service (<u>http://binas.unido.org/binas/country.php?id=36</u>)

² GM Watch, 12 Jan 2005 (<u>http://www.gmwatch.org</u>)

³ Mboyah, D. (2006) A bill seeking to ban Gmo's in Kenya hits a snag as legislators differs. Africa Science News Service. 11 July.

http://www.africasciencenews.org/A%20bill%20to%20ban%20Gmos%20in%20kenya%20hits%20a%20snag%20as%20legi slators%20differs.htm

⁴ FAO (<u>http://www.fao.org/biotech/inventory_admin/dep/country_rep.asp?country=KEN</u>); John Mugabe, Biotechnology in Sub-Saharan Africa: An Introduction (<u>www.atpsnet.org/docs/Mugabe.pdf</u>)

⁵ The Nation (Kenya), 15 May 2004 (<u>http://allafrica.com/stories/200405170116.html</u>)

⁶ John Mugabe, Biotechnology in Sub-Saharan Africa: An Introduction (<u>www.atpsnet.org/docs/Mugabe.pdf</u>)

⁷ GMWatch (<u>http://www.gmwatch.org/profile1.asp?Prld=131&page=W</u>)

⁸ GMWatch (<u>http://www.gmwatch.org/profile1.asp?Prld=131&page=W</u>)

⁹ FAO. The State of Food and Agriculture: 2003 - 2004. Agricultural Biotechnology Meeting the needs of the poor http://www.fao.org/docrep/006/Y5160E/Y5160E00.HTM

¹⁰ Gathura, G. (2004) GM technology fails local potatoes. The Daily Nation, Kenya. 29 January. http://www.gmwatch.org/archive2.asp?arcid=2481

¹¹ New Scientist. (2004) Monsanto's showcase project in Africa fails. Vol 181. 7 February.

¹² The Guardian. http://www.monbiot.com/dsp_article.cfm?article_id=640

¹³ USAID 2002 ABSP Biotechnology Development in Africa, 1991-2002 (<u>www.afr-</u>

sd.org/Agriculture/Biotechnology/ABSP%20BioTech%20Dev%20in%20Africa.PDF)

¹⁴ GMWatch (<u>http://www.gmwatch.org/profile1.asp?Prld=131&page=W</u>)

¹⁵ Science & Development Network, 25 June 2004

 $^{(\}underline{www.scidev.net/news/index.cfm?fuseaction=readnews \& itemid=1452 \& language=1)$

¹⁶ Carole Kimutai, May 2004 Kenya prepares to grow genetically modified maize (posted on <u>GM_Free_Africa@yahoogroups.com</u>, 31 May 2004)

¹⁷ SciDev Net

⁽http://www.scidev.net/gateways/index.cfm?fuseaction=readitem&rgwid=4&item=News&itemid=1803&language= 1)

¹⁸ USAID Africa Bureau 2001 An Inventory of Agricultural Biotechnology for the Eastern and Central Africa Region (www.iia.msu.edu/absp/invent_draft2.pdf)

²¹ John Mugabe, Biotechnology in Sub-Saharan Africa: An Introduction (<u>www.atpsnet.org/docs/Mugabe.pdf</u>)

²² John Mugabe, Biotechnology in Sub-Saharan Africa: An Introduction (<u>www.atpsnet.org/docs/Mugabe.pdf</u>)

²³ Monsanto. Kenya MPs to Table Biotech Fact Finding Report to Parliament. 26 May 2006. http://www.monsanto.co.uk/news/ukshowlib.phtml?uid=10288

²⁴ The Daily Nation (Kenya), online, 29 Jan 2004 (<u>http://www.gmwatch.org/profile1.asp?Prld=131</u>)

²⁵ Africa Harvest Biotech Foundation International (AHBFI), 8 Mar 2004 A Harvest press release (<u>www.ahbfi.org/sweetpress1.htm</u>)

²⁶ John Mugabe, Biotechnology in Sub-Saharan Africa: An Introduction (<u>www.atpsnet.org/docs/Mugabe.pdf</u>)

²⁷ http://www.grain.org/research/btcotton.cfm?id=306

Field trials and commercial releases of Bt cotton around the world

²⁸ Ogodo, O. (2005) Kenya begins first open field trials of GM maize. SciDevNet. 31 May. http://www.scidev.net/content/news/eng/kenya-begins-first-open-field-trials-of-gm-maize.cfm

http://www.checkbiotech.org/root/index.cfm?fuseaction=news&doc_id=11192&start=31&control=220&page_start =1&page_nr=101&pg=1

³⁰ The East African (Kenya), 1 June 2003 (<u>http://www.nationaudio.com/News/EastAfrica</u>)

³¹ USAID Provides Additional Food Aid to Kenya United States has provided more than \$32 million in food aid to Kenya in 2006 <u>http://usinfo.state.gov/ei/Archive/2006/Mar/20-555759.html</u>