

**GENETIC ENGINEERING, INTELLECTUAL PROPERTY RIGHTS AND
GENETICALLY MODIFIED FOOD AID IN MALAWI**

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ACHRONYMS

ABN	Africa Biodiversity Network
ADMARC	Agricultural Development and Marketing Corporation
ASSMAG	Association for Smallholder Seed Multiplication Action Group
BioEROC	Biotechnology-Ecology, Research and Outreach Consortium
CADECOM	Catholic Development Commission of Malawi
CAMA	Consumer Association of Malawi
CCJP	Catholic Commission for Justice and Peace
CGIAR	Consultative Group on International Agricultural Research
CMV	Cassava Mosaic Virus
CRS	Chitedze Research Station
CSO	Civil Society Organizations
DNA	Dinucleotide Adenophosphate
ELDP	Evangelical Lutheran Development Programme
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GE	Genetic Engineering
GMO	Genetically Modified Organism
GURT	Genetic Use Restriction Technology
HIPC	Highly Indebted Poor Countries
IFDC	International Center for Soil Fertility and Agricultural Development
IMF	International Monetary Fund
IPR	Intellectual Property Rights
MBC	Malawi Broadcasting Corporation
MBERU	Molecular Biotechnology Ecology and Research Unit
MIM	Malawi Institute of Management
NCST	National Commission for Science and Technology
NRCM	National Research Council of Malawi
SADC	Southern Africa Development Community

TRIPS	Trade-Related Aspects of Intellectual Property Rights
UNDP	United Nations Development Programme
UPOV	Union for the Protection Of new Varieties of plants
USA	United States of America
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization
WIPO	World Intellectual Property Organization

EXECUTIVE SUMMARY

Technological advances since the advent of science continue to shape human life. Scientists constantly endeavor to develop technologies aimed at aiding development in different sectors of society. However, not all products of such effort are free of controversy as some fail to convincingly address queries related to their freedom from risk to users, the environment and indeed their general acceptability to the larger sphere. Such a technology simply succeeds in polarizing the very population it intends to serve by creating pockets of resistance to the technology.

Over the past decade or so, the world has witnessed advances in biotechnology with the coming on the scene of genetic engineering, an application that involves artificial modification of an organism's genes or blueprints through insertion of genes from any other organism on earth regardless of taxonomic placement. An organism resulting from such a process is called a Genetically Modified Organism (GMO). Genetic engineering is one such technology that has met considerable resistance in both the developed and the developing world.

Proponents present the technology as a key to the solutions boardroom to many problems that have plagued humanity for centuries including food insecurity and further contend that it offers opportunities for new breakthroughs in medicine and industry. Opposing views, on the other hand label the technology as intolerable tampering with the steady state of nature threatening to set on the loose a whole spectrum of irreversible dangers to the human race. The major bone of contention lies with the sector of agriculture where genetic engineering efforts seem to be concentrated with the resultant production of genetically modified crops and foods. Environmental, economic, food safety, social and moral concerns are advanced by views opposed to genetic engineering to which proponents of the technology still struggle to find convincing explanations.

Technological advances are always a consequence of human intellectual effort and legal protection of such effort is often sought by the technology developers to protect it from

unwarranted copying. Legal instruments exist in many countries recognizing the importance of intellectual property protection in various sectors of the economy. However, the extension of intellectual property protection to products of genetic engineering particularly genetically modified crop seeds has thrown the system into fresh controversy especially in developing countries. Patents, which are the mechanism of intellectual property protection of such crop seeds, not only discourage reuse of patented seed from one growing season to the next but also growing of such seeds without the consent of the patent holder. The implication is that farmers have to buy fresh seed every season, an expensive and largely unaffordable undertaking to a majority of smallholder farmers who are normally resource-constrained. More importantly, the phenomenon threatens to push to extinction an age-old practice of seed saving and free access through sharing among smallholder farmers in developing countries that has formed the basis of food security in these regions. As such food security in these countries is under threat and calls for exclusion of intellectual property rights (IPRs) and the subsequent patenting from crop varieties derive their justification from the foreseen threat.

The dangers linked with genetically modified products especially plants and crops are many. Fears are raised of contamination of the local landraces by the foreign genes in genetically modified relatives. Safety of genetically modified foods for human consumption remains contentious with views largely polarized. As such movement of GM foods across sovereign borders has become a subject calling for strict scrutiny. Genetically Modified (GM) food aid from developed countries, which are also leaders in genetic engineering, to starving nations in the developing world has equally become controversial.

Over the past decade, issues of genetic engineering, intellectual property rights and genetically modified food aid have gained new research importance in many countries including developing nations. A study was conducted in Malawi supported by the Africa Biodiversity Network (ABN) to establish the status of Genetic Engineering (GE), Intellectual Property Rights (IPR) and GE food aid in Malawi. Genetic engineering in general and agricultural biotechnology in particular is only at a rudimentary level in

Malawi being confined to the second-generation order characterized by tissue culture and application of molecular markers within the University of Malawi. Third generation biotechnology (genetic engineering) involving recombinant DNA has not yet been implemented in Malawi and there have been no official trials of GM crops due to lack of technical capacity, clear policies, legislation, regulations and guidelines to drive the process. Even government research stations have not conducted genetic engineering activities despite harbouring interest in the technology.

However, the government recognizes the importance of science and technology in national development evidenced by the establishment of the National Research Council of Malawi (NRCM) in 1974, a body mandated to manage science and technology for national development. To strengthen activities of NRCM, a first science-related policy, the Science and Technology Policy was adopted in 1991, which unfortunately never bore fruit due to lack of proper vision and funding problems. A new Science and Technology policy was adopted in 2002, which was followed by the passing of the Science and Technology Act in 2003 in an attempt to revive the role of science and technology in the country' development. The latter piece of legislation calls for the establishment of the National Commission for Science and Technology (NCST), a body with similar mandate to NRCM, which it is assumed, will be dissolved once NCST becomes functional.

Being a signatory to the Cartagena Protocol of 2000, Malawi passed the Bio-safety Act in October 2002 to provide a legislative framework for the safe development and application of biotechnology and its products in Malawi. However an examination of the Act reveals that several key areas required by the Bio-safety Protocol are not covered by the Act. In fact, a closer study of the Act shows that its main aim is to manage the safe and responsible use of GMOs and gene therapy. It is therefore currently being recommended that the title of the Bio-safety Act be amended to GMO Act and the aim of the Act be amended to center on the management of GMOs and gene therapy.

The study revealed that Malawi has no biotechnology policy save for the pieces of legislation mentioned above but there is full recognition of the need to develop a national

biotechnology policy. Currently, priority is being directed towards developing an agricultural biotechnology policy to provide an urgent framework to tackle the raging issue of genetic engineering and its products. A step has already been taken towards policy development through the proposed policy framework, which is proposed to be managed by NRCM. The proposed policy framework sets out to address aspects including strengthening of infrastructure to facilitate biotechnology research, development and commercialization; strengthening of capacity for development of biotechnology within government, research institutions, academic institutes and the private sector and establishment of a commitment to finance biotechnology and bio-safety by the government, private sector and funding agencies. The proposed policy also has provisions to address issues of public awareness on agricultural biotechnology in addition to opening Malawi to long-term national, regional and international partnerships for biotechnology in Malawi.

Malawi is a member of the World Trade Organization (WTO) and a signatory to the WTO Agreement, which spells out the code of conduct of a country's trade with other WTO members. The WTO Agreement has a component on trade-related aspects of intellectual property rights (TRIPS) to which Malawi is committed to enact minimum standards of intellectual property protection. Domestic statutes protecting intellectual property in Malawi include the Acts on copyrights, trademarks, registered designs and patents. Intellectual property protection of genetic engineering products particularly GM crop varieties should have been covered under the Patent Act but the Act falls short of excluding biotechnology and products thereof from patentability.

Malawi often finds herself entangled in food security problems largely attributed to low crop productivity. The rural population, consisting of over 60% of the total, is often vulnerable since produce from one harvest often does not last until the next harvest. In such cases, food aid is sought from the region and/or beyond to bridge the gap and Malawi was in such a situation in the 2001/2002 growing season when it was faced with a serious hunger crisis in recent memory. The crisis was so bad that the country was

declared in a state of disaster¹. Flow of food aid followed the declaration and in the process 300MT of genetically modified maize was supplied to Malawi through the World Food Programme (WFP). The consignment became an issue of great debate in the country as various stakeholders and commentators advanced views on it largely over its threat to local maize genetic pool if the grain got planted. The government finally decided to mill the grain so that it is given out as flour instead of whole grains to curb any intentions of planting the grain by the recipients².

¹ Declared by Dr Bakili Muluzi, President of Malawi on 27th February 2002 in Johannesburg, South Africa.

² The Government through His Excellency Bakili Muluzi quoted by the Nation newspaper of 11th September 2002, reported the milling cost the government US\$20 million.

1.0 INTRODUCTION

Intervention by mankind in biodiversity is as old as agriculture itself in the form of conventional breeding or first generation biotechnology also known as traditional biotechnology. By definition, biotechnology is any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific uses³. The definition encompasses traditional biotechnology and traditional animal plant and animal breeding. It also includes modern biotechnologies such as genetic modification. Genetic modification (GM) is the artificial insertion of a specific gene, which controls a specific characteristic, from one organism to another organism in ways that do not occur through natural crossing and recombination.

Traditional methods of gene exchange are limited to crosses between the same or very closely related species, a footing which modern biotechnology (genetic engineering or genetic modification) departs from by facilitating gene transfer between species irrespective of taxonomic positioning. An organism that has been modified or transformed using such latest techniques of molecular biology is commonly referred to as a genetically modified organism (GMO).

Unlike conventional breeding, genetic engineering has been and continues to be received with mixed reactions amongst nations, regions, civil society groups and the academic community. Genetic modification is a subject of great controversy in its own right as some see the science itself as intolerable meddling with natural order, which needs to be banned. The other front presents views in support of genetic engineering hailing it as a promising response to many problems facing mankind in many sectors including agriculture, health and industry.

However, the debate seem to be concentrated in the area of crop production where proponents of genetic engineering contend that with modern biotechnology crops with in-built pest and disease resistance can be developed. Such crops, it is argued, require less

³ Convention on Biological Diversity definition

chemical sprays to contain pest and disease pressure thereby reducing the cost of production. Similarly, tolerance to climatic extremes like drought or frost can be imparted into crops to warrant their spatial or temporal production, which was initially unimaginable. Nutritional profile improvement of certain crops is also possible with genetic engineering according to the proponents of the technology who present a lot more claims than those cited above and even in other sectors besides agriculture.

On the other front, environmental activists, religious organizations, public interest groups, professional associations and other scientists have all raised concerns over genetic engineering and GM foods and criticized agribusiness for being obscured by the profit motive from the potential hazards that trace the technology in its line. The concerns associated with genetic engineering in agriculture and GM food revolve around environmental hazards, food and feed safety, economic, ethical and social aspects. It is contended that genetic engineering and its products threaten biodiversity because of the potentially detrimental complex interactions in the ecosystems arising from myopic understanding of the technology. Questions have also been raised about the nutritional implications of genetic engineering products with fears associated with toxicity, allergenicity, digestibility and other nutritional changes that could be triggered in conventional foods with introduction of foreign genes. Furthermore, suspicions are raised about the maintenance of morality and ethics in a process that involves movement of genes between very unrelated species since it is now recognized by the critics that the proponents are determined to put undercover the nudity of the technology in pursuit of profits.

Controversy surrounding products of genetic engineering especially in the crops sector not only relate to the production process but also their management since, from the developers point of view, they are regarded as intellectual property requiring protection. Pursuit of intellectual property rights comes on the scene, which has been equally controversial amongst stakeholders. Intellectual Property Rights (IPR) are statutory rights

exclusively granted for certain products of the intellectual effort and ingenuity.⁴ For holders of a particular Intellectual Property (tangible proof of the human intellect), IPRs serve to protect their inventions, innovations, creativity and inventiveness from unwarranted exploitation. IPRs are associated with many forms of legal protection that give inventors varying degrees of exclusive use rights. These include patents, plant breeders' rights, trademarks, and copyright. This intellectual property assumes some value and hence tradable and this is the principle force that drives pursuit of patents and other legal protection provisions in various sectors of the economy.

Intellectual property rights are intended to promote research by allowing researchers to recoup development costs and also act as an incentive for further research effort. However, the infiltration of IPRs into almost all sectors of the economy comes with its inherent fears. IPRs are known to have been prevalent in most sectors of the economy especially in developed countries but the application of IPRs to agriculture is a recent phenomenon. Living things used to be excluded from IPRs because biological material was considered to be part of nature and could not be invented. It was not until 1962 when the International Union for the Protection of New Varieties of Plants (UPOV) allowed plant breeders to collect royalties on seeds they have bred through conventional plant breeding techniques.

Strong rules on IPRs are being globalized through the World Trade Organization (WTO). The Trade-Related Intellectual Property Rights (TRIPs) agreement (1995) requires that all WTO member countries adopt minimum standards of intellectual property protection for plant varieties, either in the form of patents or through what is known as *sui generis* system (where a country draws up its own version of intellectual property system). Lesser-developed countries were given up to 2005 to bring their IPRs into compliance with the standards. The World Intellectual Property Organization (WIPO) is providing technical assistance and training to developing countries to help them meet their TRIPs commitment. However, stakeholders note potential conflicts between the TRIPs

⁴ Wendy Hollingsworth (Science, Technology and Innovation Specialist) in her paper titled *Intellectual Property Rights and Genetically Modified Organism*.

agreement and the 1992 Convention on Biological Diversity, which established national sovereign rights over indigenous germplasm.

The extension of IPRs to plant genetic resources raises real concerns in crop production especially in developing countries. GM seeds, which proponents defend as a solution to many problems including food insecurity for most of the developing world, are heavily protected by IPRs especially patents. These property rights are enforced by restrictive contracts that farmers must sign before they can obtain and use the seeds. The contracts oblige the farmers to pay a loyalty or technology fee to agree not to save, or replant seeds from the harvest, or to use only proprietary chemicals on them and to give the corporation access to their property to verify compliance⁵. The difficulties associated with enforcement of compliance to the contract terms over broad areas involving large numbers of fragmented smallholder farmers in developing countries, has tempted seed corporations to develop the so called Genetic Use Restriction Technologies (GURTs) to retain their control over seeds. One form of GURTs dubbed “terminator technology”, result in production of seeds, which retain fertility for only one season such that the farmer has to purchase fresh seed every season. The other form dubbed “traitor technology” produces seeds that require chemical triggers to switch on or off traits in the plant. The crop’s basic functions like germination, flowering, fruit ripening etc depend on external chemicals produced by the seed corporations.

GM seeds, because of the attendant technology fees tend to be more expensive than ordinary seeds making them unaffordable to a majority of subsistence farmers in developing countries. Moreover, GM seeds by virtue of patents must be bought each season or farmers must pay prohibitive royalties if they save them from one harvest to the next. However this presents a departure from an age-old practice of saving and exchanging seeds amongst local farmers and it is known that 1.4 billion people in developing countries depend on saved seed as their primary seed source and over 90% of

⁵ Action Aid. 2003. GM crops-going against the grain.

farmers rely on this system in Africa⁶. Such version of intellectual property protection threatens to dismantle the indigenous seed tradition instead of building on it. In the final analysis, the decision-making power on crop production, hence food security no longer lies with the farmer but seed corporations to which he/she is perpetually chained.

Equity concerns are also raised as private companies can currently obtain plant germplasm at no cost from public sources such as the Consultative Group on International Agricultural Research (CGIAR). The modified varieties could then be released under patent, without any compensation to the developers (or country of origin) of the previous variety. In this regard, it is viewed that patents on GM crops violate farmers' traditional rights and practices to save and exchange seeds and increase farmers' dependence on privatized and monopolized agricultural resources.

It sounds in order to label products of genetic engineering especially crop products sensitive when it comes to their movement across borders either through trade or food aid or under whatever arrangement. Flow of food aid from surplus nations or regions is ignited with the existence of a deficit in other nations or regions. Food deficits can arise due to, among other factors, low agricultural production, itself a function of many factors. However, with the advent of genetically modified foods with their attendant risks, flow of food aid between nations or regions has become controversial to the extent of recipient governments drawing up precautionary measures to manage such aid. Other nations refuse outright food aid that cannot be certified free from genetically modified material even in the face of looming starvation.

It is now widely recognized that the interrelated controversial issues of genetic engineering (modern biotechnology), intellectual property rights protection of its (genetic engineering) products and genetically modified food aid are of national concern. The momentums of these developments are too strong and determined to be ignored especially by developing nations, which stand to be overtaken by events if no proper

⁶ Kuyek D. Intellectual property rights in African Agriculture: implications for small farmers. GRAIN. 2002.

response structures are put in place. A thorough understanding of the national state regarding the above issues undoubtedly forms the appropriate take-off point to the development of proper response strategies at national level to the raging issues. It is against this understanding that the Africa Biodiversity Network supported a study in Malawi related to issues of genetic engineering, intellectual property rights and genetically modified food aid. The study had the following objectives:

1.1 MAJOR OBJECTIVE

The major objective of the study was to establish the status of Genetic Engineering (GE), Intellectual Property Rights (IPR), and Genetically Modified (GM) food aid in Malawi.

1.2 SPECIFIC OBJECTIVES

- a) To establish the policy and legislative framework on genetic engineering and intellectual property rights in Malawi.
- b) To identify the institutional set up that is responsible for the management of genetic engineering and intellectual property rights protection issues in Malawi.
- c) To unveil the food security situation in the country and to establish whether Malawi receives genetically modified food aid and suggest the way forward for the management of food security and food aid in Malawi.
- d) To identify the challenges and constraints to be faced in the management of genetically modified crops and intellectual property rights in Malawi and advance possible ways of dealing with the identified constraints and challenges.

2.0 RESEARCH METHODOLOGY

The information contained in this paper was gathered through discussions that were held with different individuals, groups and organizations perceived to be stakeholders in genetic engineering, intellectual property rights and food aid in Malawi. The scope and content of the discussions were actually defined by the nature and core activities of the respective organizations. In the process, a number of organizations were visited and key personnel interviewed a full list of whom, appears in Appendix I.

On the other hand, existing relevant literature encountered in the course of the study was also a major source of information that has made this report possible. Papers written by local and international professionals on genetic engineering and IPR themes proved useful including proceedings of workshops called to discuss these issues. To some extent, the internet was also used. The sources of all such literature have been duly acknowledged in the report.

3.0 STUDY FINDINGS

3.1 GENETIC ENGINEERING IN MALAWI

Agricultural biotechnology, to which genetic engineering is a component, is only at a rudimentary level in Malawi being primarily concentrated on 2nd generation biotechnology involving tissue culture and application of molecular markers. Currently, there is only one tissue culture and DNA laboratories housed at Bunda College of Agriculture in Lilongwe and Chancellor College in Zomba respectively, which are constituent colleges of the University of Malawi. However, the Bunda laboratory is not operating on a commercial basis and managed by Prof. M. Kwapata as the lead Scientist conducts research activities in clonal variation and bunchy top virus in banana/plantain including some work on cassava diseases and germplasm base of yam. The DNA laboratory at Chancellor College is managed by Prof. A. Ambali and is largely involved in work on molecular markers in yams and bananas.

The Biotechnology-Ecology Research and Outreach Consortium (BioEROC), which is an independent association of biotechnology stakeholders in Malawi, has invested in equipment for tissue culture. BioEROC plans to operate its laboratory on commercial basis to produce virus-free propagating materials of banana/plantains. Some work is also done in government laboratories in major government research stations but their operations are often strangled by persistent under funding. Tissue culture laboratories in these institutions are non functional because of poor funding.

Third generation biotechnology (genetic engineering) involving recombinant DNA has not yet been implemented in Malawi and there have been no official trials of GM crops due to lack of technical capacity, clear policies, legislation, regulations and guidelines to drive the process. However, considerable interest has been shown in conducting field trials with GM crops such as cotton, maize and cassava. To underline the interest, Chitedze research station, a leading government research station is having plans of carrying out genetic engineering by transferring a gene from sorghum into maize for

maize streak resistance and the incorporation of a gene from *Euca* species into cassava for resistance against Cassava Mosaic Virus (CMV). These plans have been delayed because of insufficient funding and logistical problems related to equipment acquisition. It is hoped that field trials of the above activities will be laid down in the 2004/2005 growing season⁷.

3.1.1 BIOTECHNOLOGY LEGISLATION AND POLICY FRAMEWORK IN MALAWI

Malawi has long recognized the importance of science and technology in national development as evidenced by the establishment of the National Research Council of Malawi (NRCM) way back in 1974. This body was mandated to promote and coordinate the development and application of science and technology for maximum economic and social benefit to the country. However, its establishment was not accompanied by a policy framework to govern its operations until close to two decades down the line in 1991 when the first Science and Technology policy was adopted. Unfortunately, the policy was not fully functional due to among other set backs, persistent under funding, lack of proper vision and absence of supporting legislation. As such NRCM performed well below its mandate.

Determined to revamp science and technology in the country, in 2002 a new Science and Technology Policy was adopted, which, through its principles represented a fresh commitment to giving science and technology a place in national development. This policy was followed by another piece of legislation: the Science and Technology Act of 2003 (Act No. 17 of 2003). The Act seeks to provide an enabling legislative framework to address constraints to the development of science and technology in Malawi. In part III of its 10 parts, the Act calls for the establishment of a National Commission for Science and Technology (NCST) as a body charged with enhancing the development and application of science and technology in Malawi. The powers and functions of the Commission include creating awareness of science and technology matters, promoting

⁷ Interview with Dr Theu, Chief Scientist, Chitedze Research Station, Lilongwe.

the formulation and revision of policies, laws and strategies for Science and Technology, fund raising and promoting the development of science and technology and creating incentives to attract and retain science and technology human resources. The Act, however, is silent on the fate of the NRCM with the establishment of NCST. It is assumed that the NRCM will be dissolved immediately after the establishment of the commission.

The commission consists of nine members appointed by the Minister (not specified in the Act) from industry, academic, research and development institutions and from civil society. It also takes on board five ex-official members who are secretaries for Agriculture, Irrigation and food Security; Education science and Technology; Health and Population; Natural Resources and Environmental Affairs; and the National Economic Council. The commission will be headed by a Chairperson appointed by the President according to the Science and Technology Policy of 2002. The Act, however, states that the Minister shall appoint the Commission Chairperson. This disagreement needs to be cleared. Furthermore, according to the Act, the responsibility for issuing licenses and permits relating to science and technology in general (Section 39) and biotechnology in particular (Sections 27 and 36) lies with the Commission. However, the Bio-safety Act, 2002 (discussed below) confers such responsibility to the Minister responsible for Environmental Affairs. This is another conflict area requiring attention, which also raises legislative interpretation questions. From the analysis of the Science and Technology Act, it is explicit that there are areas of potential conflict between the Commission and the Department of Environmental Affairs over the regulation of biotechnology in Malawi.

3.1.1.1 THE BIOSAFETY ACT, 2002 (Act No. 13 of 2002)

After signing the Cartagena Protocol in 2000, the Department of Environmental Affairs within the Ministry of Natural Resources and Environmental affairs drafted a Bio-safety Bill, which was passed into an Act by Malawi Parliament in October 2002 (Act No. 13 of 2002). The Bio-safety Act aims to provide a legislative framework for the safe development and application of biotechnology and its products in Malawi. The Act is

divided into nine parts covering issues ranging from preliminary, administration, funding through to miscellaneous provisions. Parts IV, V and VI seem to directly address genetic engineering issues and are briefly discussed below.

In its Part IV, the Act addresses issues of Licenses and Permits and empowers the Minister for environmental affairs to be the licensing authority responsible for granting, renewal, amendment, suspension or withdrawal of licenses for:

- Genetic modification of organisms.
- Importation, development, production, testing, release, use and application of GMO's.
- Use of gene therapy in animals including human beings.

A rather detailed account of the matters to be considered by the Minister before a decision is taken on an application for a license or permit is also given in section 22 of the Act.

Part V of the Act deals with packages, containers and identification of GMO's or products thereof. It states that containers and packages of GMO's and products have to be clearly labeled in accordance with regulations prepared by sectors involved in biotechnology and bio-safety activities. Section VI addresses the issue of promotion of sales of GMO's or products thereof. The Act empowers the minister to make regulations governing advertisements on GMO's and their products. The provision is aimed at preventing advertisements that are likely to mislead the public as to the nature or effects of the GMO's or products thereof.

3.1.1.1.1 BRIEF ANALYSIS OF THE ACT

A brief analysis of the Bio-safety Act shows that the administrative responsibility of the Act is assigned to the Minister responsible for environmental affairs. Stakeholders recognize that this is unfortunate because this department could itself be an applicant for

a license or permit thereby diluting the checks and balances capacity of the Act. However, at a Workshop on Modern Biotechnology Policy held at the Malawi Institute of Management (MIM) on July 17, 2003, and attended by representatives of all the major stakeholders, it was noted that the responsibility of administering the Act had been transferred to the NCST within the Ministry of Science and Technology⁸. This change is supported by Section 37 of the recently approved Science and Technology Act that reads, “Notwithstanding the provisions of the Bio-safety Act (Act No. 13 of 2002) and any other Act, no person shall engage in any matter related to biotechnology without the prior consent of the Commission.”

It has further been observed that the title of the Act and its purpose are inconsistent since the title gives the impression that the Act takes care of all aspects of bio-safety as specified by the Bio-safety Protocol to which Malawi is a signatory. However an examination of the Act indicates that several key areas required by the Bio-safety Protocol are not covered by the Act. In fact, a closer study of the Act reveals that its main aim is to manage the safe and responsible use of GMO's and gene therapy. It is currently recommended that the title of the Bio-safety Act be amended to GMO Act and the aim of the Act be amended to read, “to provide for the safe management of GMOs and gene therapy.” On issuing of licenses and permits by the Minister, the Act does not make provisions for the participation of other government or parastatal institutions in the decision making process. The public is also excluded. However, the general feeling is that there is need to ensure that other stakeholders who may be affected by the granting of a license make their concerns known to the decision-makers. It is therefore recommended that provision be made in the regulations for the public notification of proposed trial and general release of a GMO.

After examination of the Science and Technology Act and the Bio-safety Act as well as discussions with senior government officials for agriculture, environmental affairs, health and science and technology the following structure has been recommended in the country to deal with GMOs and gene therapy.

⁸ Workshop proceedings, MIM, Lilongwe, Malawi.

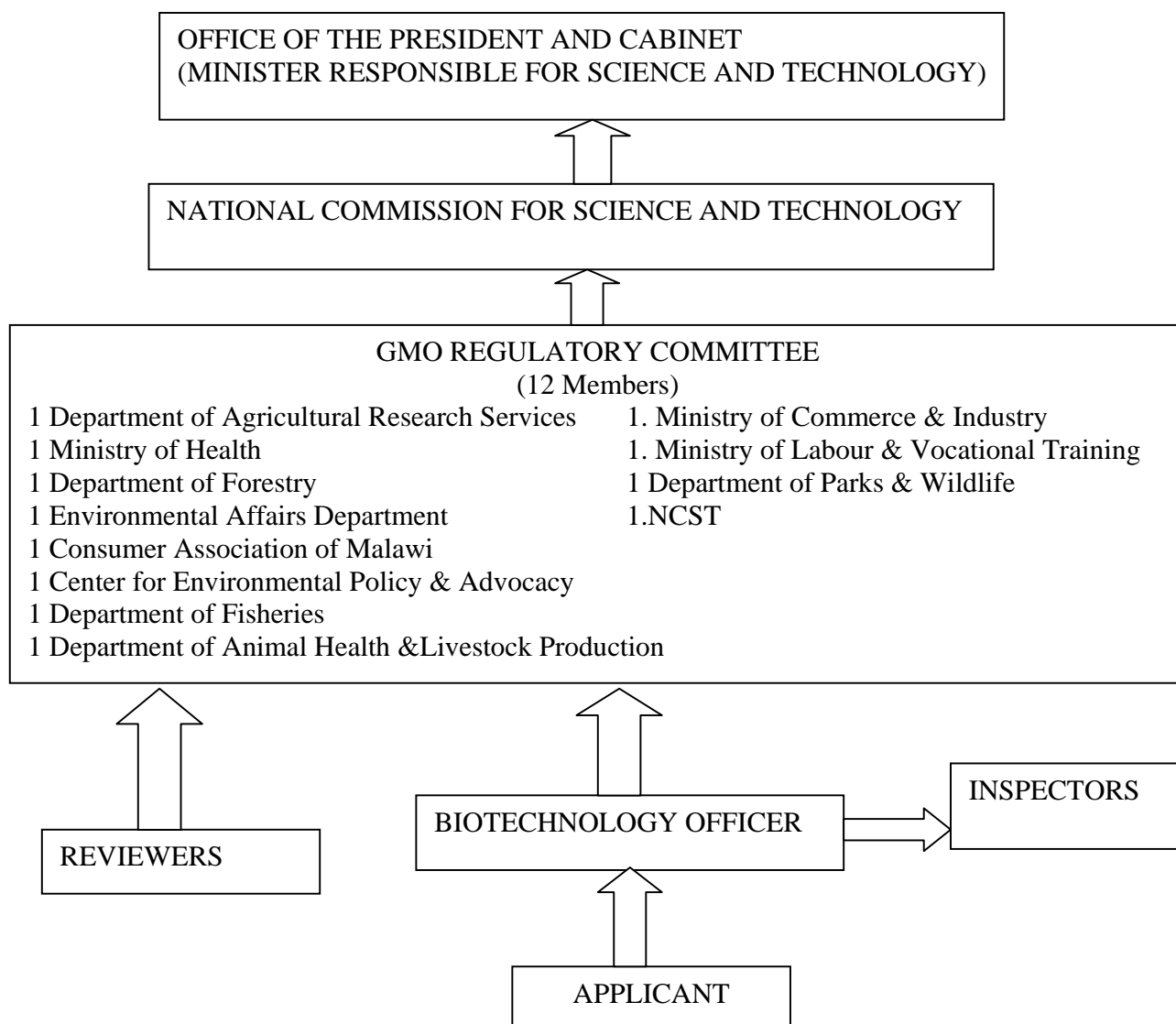


Figure 1. Organogram of the structure recommended for the control and regulation of GMOs and gene therapy in Malawi.

Under the proposed guidelines, the GMO regulatory committee will be chaired by the representative from NCST and it is responsible, among other tasks, for evaluation of all applications and making decisions on them. It shall also provide advice to the Minister on GMO matters. The Biotechnology Officer is charged with the administration of the proposed guidelines and may perform such duties as may be conferred upon or delegated or assigned to him or her under the Act or by the GMO Regulatory Committee.

The proposed guidelines further state that the Ministries represented on the GMO Regulatory Committee shall, for purposes of ensuring compliance with the provisions of the Act, appoint such number of inspectors as considered appropriate in keeping with the provisions referred to in Sections 30 through 34 of the Act. All applications will be directed to the office of the Biotechnology Officer where they will undergo review by reviewers appointed by the Biotechnology Officer. The reviewer will submit a summary risk assessment report that gives his opinion to the Biotechnology Officer.

3.1.1.2 AGRICULTURAL BIOTECHNOLOGY POLICY IN MALAWI

Malawi has no biotechnology policy save for the Science and Technology Policy of 2002 and two pieces of legislation in Bio-safety Act of 2002 and the science and Technology Act of 2003. The Science and Technology Policy only makes a general reference to biotechnology and bio-safety within a broader context of the role of science and technology in national development. It is, however encouraging to note that biotechnology stakeholders in the country recognize that a national biotechnology policy within a defined national policy framework is needed. It is conceived that the policy should include a clear vision, guiding principles and strategic objectives with specific actions. Biotechnology stakeholders in the country recognize that biotechnology development in Malawi is characterized by the following issues that the National Biotechnology Policy should take aboard for sustainable development and application of biotechnology in Malawi:

National Biotechnology Policy should take aboard the following issues for sustainable development and application of biotechnology in Malawi:

- Lack of harmonized policy and legislative framework on biotechnology and bio-safety that can be implemented and driven by government.
- Limited infrastructure to facilitate biotechnology research, development and commercialization.

- Absence of national priorities in research and development of biotechnology that are driven by all stakeholders.
- Limited capacity for the development of biotechnology within government, research organizations, academic institutes, and the private sector.
- Insufficient and unreliable commitment to financing of biotechnology and bio-safety by the government, private sector, and funding agencies.
- Limited public awareness and acceptance of biotechnology and absence of a national program of action to address this issue.
- Lack of long-term national, regional and international partnerships to develop biotechnology in Malawi.

It is recommended that at present attention should be directed towards developing an agricultural biotechnology policy as a priority. A more comprehensive policy that includes other applications of biotechnology will be developed over time. It is the expectation of the stakeholders that the policy that is to emerge will carry with it the following elements:

3.1.1.2.1 Policy vision

To develop biotechnology in Malawi to improve the quality of life of its citizens by harnessing the benefits that come with the technology.

3.1.1.2.2 Policy goal

The policy goal should be to encourage, promote and facilitate safe and ethical biotechnology development by providing an enabling environment to establish the institutional framework and regulatory mechanisms for sustainable biotechnology development and application.

3.1.1.2.3 Guiding principles

The following guiding principles should drive the policy operations:

- The need to ensure household food security in Malawi.
- The protection of human health and safety.
- The need to address agricultural and economic development in a sustainable manner to ensure that the present generation benefits without jeopardizing future generations.
- The need to protect the environment and the biological diversity in Malawi
- The right for individuals to make informed decisions about biotechnology.

3.1.1.2.4 Policy framework

The policy framework in general should be to address social, ethical, health, economic, environmental and regulatory considerations; provide the basis for effective government interdepartmental relationships; foster partnerships with stakeholders; establish open, transparent processes; and increase public understanding and confidence in biotechnology.

3.1.1.3 PROPOSED AGRICULTURAL BIOTECHNOLOGY POLICY⁹

The policy is further expected to address the following aspects for effective biotechnology development in Malawi:

3.1.1.3.1 Harmonization and implementation of a policy and legislative framework on biotechnology and bio-safety.

It is recognized that biotechnology is a crosscutting issue spanning across areas covered by various Acts. As such an overarching policy is required to allow a more effective

⁹ IFDC consultancy report on Assessment of the *Requirements for Establishment of a Bio-safety/Biotechnology regulatory System in Malawi* May 2004.

implementation process. The proposed lead government structure for policy implementation is thus the NRCM within which a multi-stakeholder committee on genetic resources and biotechnology could be an effective implementing agency. Successful policy management calls for proper legislation implementation and it is further recommended that a secretariat be established within NRCM for effective implementation of the GMO Act.

3.1.1.3.2 Strengthening of infrastructure to facilitate biotechnology research, development and commercialization

It is appreciated that the limited infrastructure in Malawi for agricultural biotechnology will hinder the country's ability to effectively manage it. The emerging policy should therefore have deliberate provisions for infrastructure development. It is proposed that existing facilities within the University of Malawi at Bunda College and Chancellor College be strengthened for agricultural biotechnology development. Infrastructure within government departments of agriculture, environment and within the NRCM is also essential to support development and commercialization of the technology in Malawi.

3.1.1.3.3 Strengthening of capacity for the development of biotechnology within government, research institutions, academic institutes and the private sector.

This component of the policy will endeavor to develop the human resource capacity to ensure key stakeholders understand biotechnology and ably apply the accompanying pieces of legislation. It states that to develop a pipeline of capacity within government departments and the private sector, various short-term courses and long-term education and training programs need to be available within Malawi. Consideration will also be given to the development of undergraduate and graduate training in biotechnology within the University of Malawi. The policy proposal recognizes that expertise has to be built for effective and successful implementation of research and development projects.

3.1.1.3.4 Establishment of commitment to finance biotechnology and bio-safety by the government, private sector and funding agencies.

Lack of adequate funding has been cited as one of the main crippling factors of development in general and biotechnology research and development in particular. As such the proposed policy advocates for deliberate provisions to attract investment into agricultural biotechnology in Malawi. This means that the government should play its role by creating a positive political legislative, research and development, and public climate for agricultural biotechnology.

3.1.1.3.5 Mounting of vigorous public awareness campaign on agricultural biotechnology

The debate on modern biotechnology (genetic engineering) still continues with one school of thought calling for its immediate halting labeling it as a rape of nature while another front holding it as a panacea promising solutions to major problems facing the human race today. As such, provision of correct information is a responsibility incumbent on all stakeholders including governments and civil societies. The proposed policy is no less sensitive by advocating for a non-partisan public awareness campaign on agricultural biotechnology in Malawi to ensure decision-makers, farmers and the general public make informed decisions on aspects surrounding modern biotechnology. It recognizes that an effective campaign requires the transfer of accurate information to each identified audience in a manner appropriate to their needs. It is proposed that the strategy should also address issues of transparency, access to correct information, rights of choice, safety, benefits, risk management and how legislation works.

3.1.1.3.6 Development of long-term national, regional and international partnerships for biotechnology in Malawi.

A nation, especially a developing one, stands to manage modern biotechnology better by curving out partnerships with other stakeholders across its frontiers. Such partnerships can be achieved through identified projects and structures e.g., international research and

development projects on specific crops or regional bio-safety projects. As such, it is important for Malawi to play an active role in biotechnology activities in Southern Africa Development Community (SADC) and within Africa and link to international organizations that play a role in biotechnology and bio-safety in Africa.

In the interest of sealing long-term national, regional, and international partnerships, Malawi is called upon to play an active role in the SADC Biotechnology and Bio-safety Committee. Furthermore she should establish biotechnology-based linkages to organizations such as FAO, WHO, UNDP, Rockefeller Foundation and others. Above all, she should be capable of developing projects that will attract international partnerships.

3.2 INTELLECTUAL PROPERTY RIGHTS AND THE PATENT REGIME IN MALAWI

In her quest to keep pace with global developments, Malawi is a member of the World Trade Organization (WTO) and a signatory to the WTO Agreement, a framework that regulates trade among WTO members. Within the WTO Agreement falls another Agreement on trade-related aspects of intellectual property rights (TRIPS), which among other provisions calls upon member states to implement a certain minimum level of intellectual property protection.

Domestic statutes protecting intellectual property rights include the Acts on copyrights, trademarks, registered designs, and patents. Intellectual property rights related to genetically engineered crops should have been covered under the Patents Act, which is reviewed below.

3.2.1 THE PATENT ACT

The Patent Act 1958 (Cap 49:02) sets out to make provision relating to Patents for Inventions and for other purposes incidental there to. The Act is administered by the Registrar of Patents nominated by the Minister to head the patents office as provided for in Part I of the Act. The Act defines an invention as “any new and useful art (whether producing a physical effect or not), process, machine, manufacture or composition of matter, which is not obvious, or any new and useful improvement thereof which is not obvious, capable of being used or applied in trade or industry¹⁰.” However, apart from defining an intervention the Act does not offer guidelines of what is patentable subject matter in Malawi neither does it parade exceptions to patentability. It is therefore tempting to assume that the definition relates to patentable subject matter.

¹⁰ The Patent Act, 1958 (Cap 49:02)

The major responsibility of the Registrar is the processing of applications for Patents in keeping with provisions of the Act as highlighted in Section 16 of the Act. Section 18 of the Act empowers the Registrar to refuse an application if it appears to him/her that:

- The application is frivolous on the ground that it claims as an invention anything obviously contrary to well established natural laws; or
- The use of the invention in respect of which the application is made would be contrary to law or morality; or
- It claims as an invention a substance capable of being used as food or medicine, which is a mixture of known ingredients, or it claims as an invention a process producing such a substance by mere admixture.

It should be noted, however, that what constitutes an invention in the Act does not exclude any form of technologies including biotechnology or aspects thereof from patentability. By interpretation, it follows that what is not excluded by some piece of legislation is permitted. As the Malawi Patents Act seems not exclude any forms of biotechnology from patentability, it is submitted that inventions in biotechnology, including plant varieties fall within the domain of patentable matter provided the invention satisfies the classical elements of patentability.

3.2.2 RECOMMENDATIONS

The current patent regime in the country through the Patent Act (1958) is silent on the exclusion of biotechnology from patentability but it would be rather incorrect to assume that the silence serves the current interests of the nation given the age of the Act. Genetic engineering is a recent phenomenon, which obviously was not foreseen in the Act at the time of its assembly and it is therefore recommended that a review process involving a broad spectrum of stakeholders be initiated to broaden the scope of the Acts to incorporate clear provisions on the country's stand on Patents related to genetically modified products and the associated processes.

Intellectual property rights protection through patents on crop seed has been noted to threaten to dismantle the indigenous seed-saving and exchange mechanisms that have for centuries formed the basis of rural livelihood and food security in developing countries. Since Malawi is a member of WTO and hence bound to the WTO Agreement, it is expected to implement some minimum standards of intellectual property rights protection under the TRIPS agreement. However, in its pursuit of the above commitment, it is recommended that greater scrutiny be taken of the developmental effects of IPRs particularly the linkages with poverty and food security. It is further suggested that Malawi should exempt plants and food from patents and should implement effective *sui generis* IPR systems that protect farmers' rights as breeders, cultivators and conservers of genetic seed diversity.

It is further proposed that multilateral and bilateral donors, international and philanthropic organizations should provide effective support to Malawi and other developing countries to design and implement IPRs laws that support their developmental priorities especially in the context of food security. This is a vital area where Civil Society Organizations (CSO) should play a lobbying role.

3.3 FOOD SECURITY AND GENETICALLY MODIFIED (GM) FOOD AID IN MALAWI

Food security in Malawi revolves around availability of maize, which is the staple food in the country commanding about 80% of the cultivated landscape. Malawi's economy depends to a large extent on agriculture, which accounts for 40% of the GDP, 90% of export earnings, employs about 80% of the population and supplies about 90% of the food consumed. Among other factors, food security in Malawi is largely tied to the quality of the season (Malawi's crop production being largely rain-fed), hence very vulnerable and unstable just as seasons are.

Over the past decade or so, the food security picture for the country has been less encouraging with intermittent negative food balances characterizing the period especially at household level. Charles Matabwa, head of the civil service admits that the country has experienced serious food shortages in the past 10 years. "The vicious cycle of household food insecurity has widened significantly over the last decade," he says.

The situation has been blamed on a number of factors including declining soil fertility coupled with unaffordable inorganic fertilizers to a majority of the farming community following removal of subsidies in keeping with structural adjustment programs. On this note, the IMF and World Bank are also held responsible for having imposed these agricultural reforms without having undertaken a proper analysis of their potential impact and consequences, particularly on the poor. The liberalization of the market has led to the escalation of price of maize, the staple food crop so that ordinary people can no longer afford to buy the maize from their ever-dwindling low household incomes due to escalating poverty levels.¹¹ Over dependence on rain-fed crop production does not help matters either since for the past decade the seasons have not been very favourable for crop production. HIV/AIDS with a prevalence rate of 1 in every 5 adults has also affected normal agricultural production routines by taking labour out of production through

¹¹ UNDP Human index puts GDP for Malawi at less than US\$180 and 60% of the Malawians living below US\$1 per day

sickness and its effects on the productive labour force. While it is generally recognized that the past decade has been characterized by food shortages, the hunger crisis of the 2001/2002 has been labeled as the worst in recent memory, more serious than the much-talked 1949 hunger¹². In the past, government through the Agricultural Development and Marketing Corporation (ADMARC) has always come to the rescue of those faced with the hunger problem. Donors have also assisted government with supplementary food aid.

3.3.1 RECEIPT AND RESPONSE TO GM FOOD AID

Prior to the 2001/2002-food crisis, Malawi has been receiving food aid from donors but there has hardly been any documentation indicating that any such aid was genetically modified grain but absence of documentation is no guarantee that GM grain was finding its way into Malawi. However, plunged yet into another food crisis in 2002 when at its peak, 3.3 million people mostly in the Central and Southern regions of the country needed food aid. In the process of opening its doors to aid, it is reported that the World Food Programme supplied to Malawi 3000 MT of GM Maize for Human consumption only. This Maize was inspected and allowed into the country on November 6th, 2002 was stored at the WFP Lilongwe Depot. Later on it was distributed by WFP assisted by a consortium of local and international Non Governmental Organizations (NGOs) such as World Vision International, GOAL, Oxfam Malawi, SAKASI, SCUS, ELDP, Africare and CRS¹³ to mostly the central and southern parts of Malawi where the hunger was very acute.

It is reported that prior to accepting GMO-food aid into Malawi, some scientists were consulted on how the food was to be handled to warrant informed decision-making on the food aid. The final decision was to have it milled and given to people as flour. Unfortunately, there was not enough capacity let alone the funds to grind it within Malawi. It was for this reason that the government of Malawi had to run civic education campaign on local radio, the Malawi Broadcasting Corporation (MBC) to tell those who

¹² F.E. Ng'ambi and K. Owusu, Structural Damage, "The Causes and Consequencies of Malawi's Hunger Crisis," World Development Movement, October 2002.

¹³ Information provided by Chitedze Agricultural Research Station, Produce Inspection Unit

would receive the Maize not to plant it but use it for food only. Despite the campaign messages, some people planted the maize grains since in Malawi there is a very thin line demarcating seed from grain and with the poverty levels the free maize was also a source of seed for planting.

Some people have argued that it was in order for Malawi to accept GMO Maize donation because the government was in dilemma. Refusing GMO food aid in the face of people facing death from starvation would put the Government's wisdom in question. On the other hand the government lacked financial capacity to source GM-free food elsewhere and the unavailability of the grain in the region and even East Africa compounded the problem. Unconfirmed reports indicated that the GMO food Aid was imposed on Malawi by the donor as a condition for continued receipt of food aid in which case Malawi had very little room for proper response given the urgency of the matter.

Whatever the case could have been, both the government of Malawi and donors were responsible for the scenario that made Malawi finally accept the GMO food aid to feed its hungry people. In the first place, the government took too long to accept the fact that there was a hunger crisis in the country. It was only on February 27th, 2002 in Johannesburg, South Africa on his way to Australia when the Malawi President declared Malawi a State of Disaster¹⁴. Prior to that there had been so many reports especially from the civil society and churches¹⁵ on the problem of hunger in the country but the government did not want to openly accept the situation. By the time the government came head on with the problem, it was too late to start making provisions and logistics to address the situation. The problem was also compounded by the scandal in the sale of maize from the grain reserve at the National Food Reserve Agency, a development that made donors develop cold feet at helping the government out of the problem such that by the time the donors came to the rescue of the country so many lives had already been lost.

¹⁴ Nation Paper 14th February 2002

¹⁵ Roman Catholic Priests Pastoral letter on the hunger crisis in the diocese

In such a scenario therefore, any form of food aid in as long as it would avert the immediate hunger problem was acceptable not as an alternative but as the solution. Probably, this is why the government of Malawi accepted the GMO Food aid to save its people from the hunger crisis.

3.3.2 STAKEHOLDER REACTION TO GM FOOD AID

Despite the fact that the GM Food Aid from USAID, USA was a donation, a few groups of people opposed the giving of the food aid to hunger stricken people for various reasons. Some of the groups were:

3.3.2.1 THE MALAWI ECONOMIC JUSTICE NETWORK: (MEJN)

This is an umbrella organization representing about 69 Civil Society groups working on economic justice issues such as monitoring the use of HIPC funds, budget process and funding of pro-poor line items of the budget, trade agreements etc, held an international meeting in December 2002 to discuss the issue of GE/GMO and food aid to Malawi. At the meeting participants opposed the giving of GMO food aid to Malawi.¹⁶ The reasons for opposing the GMO food Aid were as follows:

- ❖ The safety of the food products is yet to be proved to the world as the present scientific uncertainty means that more tests should be conducted before it is deemed fit for human consumption.
- ❖ The technology does not in the final analysis benefit the poor man but the producers themselves because they own the products and control them through patenting. In fact it is against the empowerment of local people in that once it is introduced, it will make all beneficiaries to perpetually depend on the companies that produce the GMO products.
- ❖ GMO will just create another market for the farmers from the countries that produce the GMO and will kill the market for the local farmers in Malawi because of the dumping of the food products onto the Malawi

¹⁶ GMO Food Aid conference Communiqué

Market. For instance, USAID offered GM grain to Zambia, Malawi and other countries disregarding the fact that there were plentiful sources of non-GM maize, both in Africa and the US.¹⁷

3.3.2.2 THE CATHOLIC COMMISSION FOR JUSTICE AND PEACE (CCJP)

This Lilongwe Diocese group also asked the government to provide clear evidence that the GMO food aid to hungry people was indeed safe as there were so many concerns about the dangers of the maize. In the pastoral letter to Members of Parliament at the time Parliament was discussing possibilities of amending the Constitution of the Republic of Malawi to allow the incumbent president to stand for a third term of office, members of CCJP diocese demanded that they should come in the open and explain some of the consequences that might befall those who would eat the food. In the same letter, the Commission asked the government of Malawi to give priority to address issues that affect the poor masses such as the hunger crisis rather than spend government money on parliamentary debates on matters that the constitution was already clear.¹⁸

3.3.2.3 THE CONSUMER ASSOCIATION OF MALAWI (CAMA)

This is the leading NGO on consumers' rights also opposes the GMO Food Aid to Malawians mostly because there is still no evidence that such food is fit for human consumption. Quoting the director of the organization:

...the fact that in the countries where the food is produced, the people are not as comfortable and are opposing the food is an indication that there is something wrong with the food. And so why should the people of Malawi be fed with such food just because they are starving?¹⁹

¹⁷ Action, WDM magazine, winter 2002, p7

¹⁸ The Lamp Magazine, No 40 April 2003

¹⁹ Interviews with John Kapito, Executive Director, CAMA, Blantyre, June 2003

3.3.2.4 THE CATHOLIC DEVELOPMENT COMMISSION OF MALAWI (CADECOM)

This group also opposes GMO Food Aid to Malawi. And when its Director discovered that the maize food aid given to Malawi was not certified whether it was GMO or not even after seeking for clarity in meetings organized by WFP at which logistics of food distribution were being discussed, CADECOM Malawi decided to buy its own maize, despite being costly, from sources that were very clear to have had no GMO grains. The maize was bought from suppliers that got it from Mozambique, Kenya or Tanzania. The main reason for refusing the GMO food aid was that one of the motto for CADECOM is to protect the environment in whatever programs it embarks on. To quote the Director's words

...to give out GMO maize grains to people that are hunger stricken and have no seed to plant at the same time is like promoting the planting of GMO seeds in Malawi but also risking their health to food that has not been completely certified to be good for human consumption.²⁰

3.3.2.5 ACTION AID MALAWI

This group *does not* categorically oppose GE technology but believes that it is wrong to think that GE technology *is* the answer to food insecurity in Malawi because the technology has many unanswered questions where it has been implemented already. The only way to address food insecurity in Malawi is when poverty is addressed through matching technology to local needs, protecting biodiversity, and supporting informed choice and participation for the poor people²¹ in food security programmes. Experiences with GMOs from many other countries have shown that GMOs are more volatile and unstable as compared to hybrids and so can contaminate the environment and lead to genetic erosion in other crops. As a result managing them in Malawi would be difficult

²⁰ Interviews with Mr. Nicholas Mkwapata, National Director CADECOM National Office, Lilongwe, June 2003

²¹ GM Crops-going against the grain, Action Aid, May 2003

and so would exacerbate the problems that have led to low production of food in Malawi such as degradation of the environment and dependence on agro-chemicals that poor farmers cannot afford to purchase. This also leads to soil fertility exhaustion. In the case of Malawi where the HIV/Aids prevalence is so high, and where food insecurity and Aids are somehow linked, feeding people on GM food the safety of which has not been verified up until now, can make the people more vulnerable to other HIV related problems.²²

Other reasons why Action Aid Malawi is cautious about GE/GMO influence in Malawi are that GE/GMOs will lead to dominance of rich multinational companies such as Monsanto in Malawi's agricultural sector so much that farmers will compromise their last endowment, seed, to such companies. This would lead to dependence on the rich companies for seed and agro-chemicals such as pesticides through patenting. This will in turn lead to loss of the long existing knowledge of seed multiplication and distribution within the communities and amongst local farmers.

3.3.2.6 AGRICULTURAL RESEARCH STATIONS

Other groups that do not really oppose the GE technology but rather are asking government to take a cautious move in the adoption of GMOs are researchers from agricultural research stations such as Chitedze in Lilongwe and Bvumbwe in Thyolo districts. These groups have raised concerns that Malawi does not have any apparatus to detect GMOs in the country let alone a laboratory where GE tests can be carried out. The only institution that can be linked to the industry is MBERU at Chancellor College, but it is still far from doing any research on the technology. In other words Malawi has not yet began doing any GE research even though there are unconfirmed reports that there is a site where GM crops are being tested²³.

²² Edson Musopole, Action Aid Malawi, Lilongwe June 27,2003

²³ Kuyek D. Genetically modified crops in Africa: Implications for small farmers. GRAIN, 2002

It is still at the planning stage and making sure that all legal instruments for the industry are in place. Recently, the Bio-safety Bill for Malawi was passed by parliament in 2002 as a legal framework to regulate GE technology and handling of GMO materials entering the country. Researchers, especially maize breeders, have pointed out that Malawi has not fully exploited the potentials of the maize varieties that have been produced already in the country through the conventional ways and so to jump to the GE technology would be like wasting the resources that were put into the development of new varieties. However, most of the breeders and produce inspectors indicated that Malawi cannot and should not lag behind when it comes to introduction of new technologies such as the GE technology. The only point to be careful with is to assess what is already there in the country and gauge whether the new technology would surpass the benefits of the already existing technologies.²⁴

The current fight against GM food aid influence in Malawi by various stakeholders especially from the civil society, is erratic and not coordinated mainly because it is a new phenomenon in Malawi and so needs a lot of awareness and civic education. Very few people from the civil society understand what GE and GMO are all about let alone what is involved in the technology. One attempt to educate the civil society was done by the Human Rights Youth Network, when they held a seminar in April 2003 at Bunda College of Agriculture.²⁵ For the civil society to debate on the GE technology, there is need for proper training and empowerment so that whatever advocacy they may carry out should be from an informed point of view. There is, however, very fertile ground for the debate in Malawi and a lot of civil society organizations are ready to link up efforts to influence government to have a clear stand on the GE technology and make future decision as to whether accept GMO food aid again into the country or not.

It is very imperative to have effective response machinery to GM food aid for both the present and the future because Malawi may face food deficits in the near future. Anything short of such an arrangement would promote chaotic approach to food aid in general and

²⁴ Mr. M.N.N. Nsanjama, Officer In-charge Bvumbwe Agricultural Research Station, Thyolo, June 2003

²⁵ The purpose of the conference was to educate but also to debate whether or not the GE industry would have good impact on agriculture if Malawi adopted the technology.

risk hurried response to GM food aid in particular. For instance more than 10% of Malawi's population is facing starvation this year (2004)²⁶ setting the stage for more inflow of aid into the country hence another opportunity for GM food aid, which will definitely catch the nation off guard again in the absence of timely, effective and coordinated response forum to such aid. A leaf can be borrowed from the Zambian experience where a united stand of the people moved the European Union to provide funds to buy non-GM maize to feed the starving population.

3.3.3 THE WAY FORWARD IN THE FIGHT AGAINST GM CROPS AND FOOD AID

As the country moves ahead facing the reality of genetic engineering, which gives rise to GM foods, a number of constraints and challenges are identified worth attention and these are discussed below:

3.3.3.1 Lack of Government Policy on GM crops.

Malawi did not have a legal basis to regulate Biotechnology products until 2002 when it produced its own Bio-safety Act to regulate the production, importation and exportation of biotechnology products. Up until now Malawi does not have any regulations to guide GM products and yet it is very clear from the Cartagena Protocol and the Rio Declaration that "*Countries receiving materials known to contain GMOs must be informed about the nature of the materials being exported.*"²⁷ This guideline calls for transparency both from the importer and the exporter so that the receiver has prior and informed consent to allow the receiver to come up with mechanisms of how the GMO products shall be handled once imported. This may also help the importer to decide whether to get the GMOs or not. Unfortunately, this was not the case with Malawi. Nobody knows what type of organism was in the GM maize and what processes were involved in the production of the maize. Having no certificates to document GM products by Produce Inspectors at the

²⁶ Reported by United Nations World Food Programme (WFP) on July 8 2004.

²⁷ Rio Declaration

points of entry into Malawi, phytosanitary certificates were used instead. But these certificates only certify if the food products are pest free, have no moulds and if they are fit for importation. Malawi was therefore overtaken by events. Void of any regulatory framework, it will be very difficult even for the civil society to fight GM crops entering the country.

3.3.3.2 Lack of knowledge of the GE industry.

This is mostly for the civil society groups fighting against the GM crops. It is very important for civil society groups fighting against GM crops to know exactly what they are dealing with so as to come up with a proper advocacy campaign on GM crops. So far the knowledge base within the civil society about the GE technology and its products is minimal requiring upgrading. Thus adequate training of civil society groups fighting the genetic engineering influence is indispensable if the efforts are to bear fruit.

3.3.3.3 Lack of policy on Breeders' and Farmers' Rights.

Documents on Breeders' and Farmers' rights are just being framed now in Malawi. In the absence of such policies, it will be difficult to respect rights of farmers as well as those of breeders when it comes to the protection of rights of local communities and breeders in the face of the GE industry. At the same time it would also be difficult to claim rights by these groups if they are not written anywhere as policy documents.

3.3.3.4 Perpetual food insecurity in many communities.

Malawi has a perpetual food shortage problem and as such GM proponents and companies think that GM would be a major solution to the problem. Human population is on the increase triggering shrinking landholding sizes. On the other hand, most soils are too degraded to support meaningful crop production making food security less and less assured. The challenge facing the country's agricultural professionals is to enable Malawi feed itself from its natural resource base by developing and promoting efficient and

sustainable production systems. In the face of helplessness especially starvation with death as the ultimate result, immediate survival relegates wisdom to the background and short-term solutions are often grabbed without regard to long-term risks. As long as an increasing number of Malawians continue facing constant starvation, fighting against GM food aid will be a tall order with slim chances of winning.

3.3.3.5 Increasing vulnerable groups such as HIV+ and AIDS patients.

Malawi is hard hit by Aids and the problem has created a huge food requirement. The WFP has been helping with food aid from USAID and most of it is GM food Aid. Unless the government of Malawi finds a better alternative as safety net for the vulnerable groups, food aid in the form of GM will always make its way into Malawi to “assist” such people. The Government can and should move WFP to source the food aid within the country or at least within the region.

4.0 APPENDIX I

Appointment schedule

The report was assembled from information largely gathered from discussions held with the following personalities in their respective organizations:

Date	Time	Person	Organization
Friday, 2 nd July 2004	14:00	Prof. A. Ambali	University of Malawi, Chancellor College, Dept of Biology-DNA laboratory.
Monday, 5 th July 2004	14:00	Mr. Mwenyeheri	Malawi National Assembly
Tuesday, 6 th July 2004	13:30	Abdelgadir Hamid	WFP (WFP Spokesperson)
Wednesday, 7 th July 2004	08:00	Dr H. Luhanga	Ministry of Agriculture and Irrigation
Thursday, 8 th July 2004	15:00	Mr. F. Nyondo Mr. S. Mandala Mr. A. Manda	National Research council of Malawi
Thursday, 8 th July 2004	12:30	Mr. E. Msopole	Food Security Advisor, Action Aid-Malawi
Friday, 9 th July 2004	16:00	Mr. S. Banda	Clarke Cotton-Malawi, Regional Marketing Manager-Salima
Monday, 12 th July 2004	09:00	Dr Theu	Chief Scientist, (plant protection) Chitedze Research Station
Wednesday, 14 th July 2004	16:30	Dr Kampelewera	Dept. of Environmental Affairs
Thursday, 15 th July 2004	07:30	Prof M. Kwapata	Bunda College of Agriculture, Tissue Culture Laboratory
Friday, 16 th July 2004	10:00	Mr. Kachule	Agricultural Policy Research Unit, Bunda College of Agriculture