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“ Addressing the Impact of Biosafety Systems and Regional Policies - Towards a Regional Approach to Biotechnology Policy in Southern Africa”

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Background

The extent to which modern biotechnology can contribute to agricultural development and sustainability is subject to incensed scrutiny, debate and controversy. This is even more palpable in Africa, where it is hypothesised that modern agricultural biotechnology could provide solutions to many agriculture and food related constraints. African countries therefore face a serious decision on whether to accept such technologies and if they do, how to maximise the associated benefits and minimise the risks. In order to make informed decisions, Governments, stakeholders and role-players need to be aware of the issues surrounding agricultural biotechnology and related products, specifically those related to biosafety policies.

In 2004 the Program for Biosafety Systems (PBS) approached the Food, Agriculture and Natural Resource Policy Analysis Network (FANRPAN) to facilitate a research project in the SADC region. The main aim of this research activity was to collect data and information on a range of aspects pertaining to agriculture, biotechnology, genetically

modified crops, trade, food security and biosafety regulation and legislation with a view to presenting a balanced and comprehensive body of information to the debate regarding agricultural biotechnology in the SADC region.

The research project currently focuses on three countries in the Southern African Development Community (SADC), namely Malawi, Mauritius and South Africa. All three these countries have, or are at an advance stage of developing biosafety regulations and legislation even though they have followed different approaches. For decision makers in other SADC countries, and as it turns out, for decision makers and many stakeholders within the focus countries, balanced information on the current situation, facts and respective views of role-players are relatively scarce yet highly vital in the policy development phase.

This document briefly highlights some of the preliminary findings of the situation and stakeholder analysis in the three countries.

Policy development in study countries

An application to the South African Department of Agriculture to perform field trials with genetically modified cotton in 1989 kick-started the South African biosafety process and initiated the first trials with transgenic crops on the African continent. The application came from the US seed company Delta and Pine Land (D&PL), who used **South Africa** as an over-wintering haven for field trials. The application was reviewed and approved by the South African Committee for Genetic Experimentation (SAGENE) and the Department of Agriculture issued a permit. D&PL's involvement in SA increased and in 1995, after approval, multiplication of Bt seed to be sold in the US was conducted on South African (and African) shores for the first time. SAGENE was formed in 1978 to be responsible for promotion of all aspects of recombinant DNA, providing guidelines and approving and classifying research centres and projects. This period in which SAGENE established procedures and guidelines and where the Department of Agriculture issued permits for GMO work under the Pest Control Act of 1983, in theory, came to an end on 23 May 1997 when Parliament passed the Genetically Modified Organisms Act (Act 15 of 1997). The GMO Act to promote the responsible development, production, use and application of genetically modified organisms in South Africa was implemented in December 1999.

Once the GMO Act of 1997 was implemented the following three biosafety structures were established to regulate all aspects of Genetically modified organisms (GMOs) in South Africa.

1. The Executive Council. This is the national, independent decision making structure responsible for making decisions on all applications for work with GMOs.
2. The Scientific Advisory Committee. This structure replaced SAGENE and advises the Executive Council and Minister of Agriculture on human and environmental safety of applications submitted for permits.
3. The Registrar and Inspectorate. The Registrar administers the GMO Act on behalf of the Minister of Agriculture and the Inspectorate is used to monitor local work with GMOs.

Ratification of the Cartagena Protocol by South Africa in August 2003 impacted on the regulatory system and mainly necessitated some minor changes to application forms, in particular those for import and export permits.

The **Mauritius** Sugar Industry Research Institute (MSIRI) has been a key player in the development of a biosafety framework in Mauritius. Since 1993, it initiated work on the development of transgenic sugarcane. An Institutional Biosafety Committee was constituted at the MSIRI in 1996 to review all projects regarding GM technology.

The United Nations Environment Programme (UNEP) with funding from the Global Environment Fund (GEF) is running a capacity building project to help developing countries assess the potential risks and rewards of genetically engineered crops. This programme aims to help countries to develop their National Biosafety Frameworks so that they can comply with the Cartagena Protocol on Biosafety. Under this programme, national biosafety guidelines for the safe development and introduction of GMOs in Mauritius were prepared by the MSIRI (MSIRI, 1999). These guidelines were developed to provide a common framework recommending practices and procedures for the safe use of biotechnology in Mauritius so as to protect the country from any adverse effect to human and animal health or the environment. The breadth of the guidelines covers trials, release, import, export and transport of GMOs. Mauritius ratified the Cartagena Protocol in April 2002.

Fear of possible unknown harmful effects to human, animal health and the environment of Genetically Modified food aid (maize) during the 2001/2002 food shortage

prompted the Government of **Malawi** to pass a Biosafety Act (2002).

The Malawi Biosafety Act (MBA) provides for:

- i. Establishment of a Biosafety Fund that will be used to support implementation of biosafety activities in the country;
- ii. Issuance of biosafety licenses and permits to applicants in various sectors of national development;
- iii. Handling, transport, packaging and identification of GMOs and products thereof to avoid adverse effects on the environment;
- iv. Promotion of sales of genetically modified organisms;
- v. Inspections on GMOs and products containing GMOs;
- vi. Miscellaneous provisions for secrecy, offences and penalties for offences and establishment of biosafety regulations;

Consistent with the Biosafety Act, draft generic biosafety guidelines have been developed to guide implementation of biosafety activities. However, there is need to develop sector-specific biosafety guidelines and regulations to address sector-specific biosafety requirements.

Debate on GMOs continued after passing of the MBA (2002). At a meeting in July 2003, the majority of stakeholders observed that the MBA had implementation difficulties since it was hurriedly developed because of the food crisis and concluded that the country needed a sound policy and legislative framework for the management of GMOs and modern technology in general. Subsequent consultative fora further consolidated the resolution reached during the July forum, that the country should develop a comprehensive Biotechnology Policy that includes all aspects of biotechnology, GMOs and biosafety, social and ethical issues and all other concerns in environment, human health, ecology, plants and animals, industry, trade, food and nutrition, and cross cutting issues. This recommendation was based on the premise that biotechnology is more encompassing and that the approach would avoid

developing several pieces of legislation addressing the same issue. Currently, the processing of biotechnology policy development is at an advanced stage. Although the process of developing the biotechnology policy has been open and transparent, there is concern that inadequate debate on the effects of GMO technology due to lack of background information may ignore and undermine concerns of some stakeholders. The final draft document is expected to be delivered for review by October 2005. UNEP-GEF also assisted Malawi in development of their biosafety frameworks but progress has been halted, as even though Malawi is a signatory to the Cartagena Protocol, the Protocol is yet to be ratified.

Emerging challenge: Need for unbiased information

South Africa is the only country in SADC where GM crops are commercially produced. The adoption rate of insect resistant cotton and maize and herbicide tolerant cotton, maize and soya-beans has been impressive and GM crops covered more than 500 000 hectares of arable land in South Africa in the 2004/2005 season. Despite numerous misconceptions amongst surveyed stakeholders, no GM crops are being produced in Malawi or Mauritius. Transgenic sugarcane has been developed in Mauritius but up to now no experimental trials has been performed, as the regulatory measures are not in place yet. In December 2004 an application for trials of cassava with resistance to the Mosaic Virus was eventually not submitted to the Malawian GMO regulatory authority. It is said that this application did not proceed past the Minister of Agriculture due to fears that Malawi was not ready for such an exercise at the time.

Despite the fact that transgenic cotton has been commercially produced in South Africa for the last 7 years and the majority of the population have consumed some genetically modified maize (as maize meal) as the staple food, knowledge regarding GM crops and products amongst the general public is still limited. The South African Department of Science and Technology recently

launched a Public Understanding of Biotechnology (PUB) programme to ensure a clear, balanced understanding of the scientific principles, related issues and potential of biotechnology and to stimulate public debate around its applications in society. In a recently released study commissioned by the PUB programme, it was found that South African's knowledge and understanding about biotechnology is indeed limited. In reply to the question "What do you think when you hear the word biotechnology?" 82% of 7000 respondents indicated that they did not know what they thought (HSRC, 2005).

However ignorance regarding biotechnology is not only limited to the general public in SADC. A survey of 34 stakeholders including academia, R&D organisations, civil society and consumer organisations in Mauritius showed that there is a considerable knowledge gap between what stakeholders think and the actual state of affairs regarding GM crops in their country.

Surveyed stakeholders in Malawi also indicated that a lack of unbiased information is a huge problem for decision makers. Despite this, there seem to have been an evolution or progress in the debate surrounding GMOs in Malawi. When potential GM food aid started the issue off three years ago, stakeholders and the public were first concerned about human and animal health issues. Most of these concerns have however now been laid to rest (with more information) and the debate has moved on to the possibly more genuine issues regarding the possibility of losing commercial export markets if GM crops are adopted for commercial production. One of the objectives of the PBS/FANRPAN project is to research this concern and comment on its validity by quantifying trade flows for certain crops and countries.

Conclusion

An issue that was based on all three countries was that of broader consultative process in formulation and preparation of GMO legislation. South Africa's GMO legislation has been criticised for not having involved enough

stakeholder debate. Malawi is currently busy revising their legislation with increased stakeholder involvement while Mauritius has also identified the need for increased stakeholder involvement to insure trust and understanding.

The international debate remains highly polarised and adversarial, with activists on both sides each indignantly rejecting the validity of their opponents' arguments and claiming the moral high ground, consumers and general public is usually caught up in the middle and government usually plays a somewhat passive role.

Consumer confidence in regulatory systems is vital to enable outcomes to be credible and acceptable. Insufficient participation and a lack of transparency, breeds distrust, exposes the system to challenge, and in the long run, could limit the uptake of the technology and prevent it from reaching its potential to contribute to solving African problems for African farmers and consumers. This demands dissemination of a wide range of information pertaining to agricultural biotechnology and creation of opportunities for meaningful public participation.

Acknowledgements



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