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Biotechnology - GE Plants and Animals

Francophone West Africa Biotechnology Report

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Report Highlights:

This report summarizes the status of national biosafety standards in Francophone West Africa and highlights the continuous efforts to harmonize biosafety regulations within the region through initiatives implemented by the *West African Economic and Monetary Union* (WAEMU), the *Economic Community of West African States* (ECOWAS) country members and the *Permanent Interstate Committee for Drought Control in the Sahel* (CILSS). Burkina Faso will produce Bt cotton at large scale this year with 247 percent increase compared to 2009 (400,000 ha vs. 115,000 ha). Senegal will probably join Burkina Faso in the production of Bt cotton by conducting tests on Bt cotton this season according to the General Director of the *Société de Développement des Fibres Textiles* (SODEFITEX).

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Section I. Executive Summary

Guinea Bissau joined in May 2010, one of the few countries that has adopted the Cartagena Protocol on Biosafety in West Africa. Important progress is being made in Burkina Faso which is planning to produce Bt cotton large scale. Harvested area is expecting to increase from 115,000 ha to 400,000 ha from 2009 to 2010. In response to significant progress made in biotech development in Burkina Faso and recent initiative to harmonize WAEMU [1] and ECOWAS [2] regional Biosafety regulations , more governments in the region have become interested in developing biosafety regulations and are actively participating in biotech capacity building programs.

[1] *West African Economic and Monetary Union (WAEMU)*: includes Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo.

[2] *The Economic Community of West African States (ECOWAS)* includes Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Section II. Plant Biotechnology Trade and Production

Burkina Faso remains the only francophone West African country in the region with an operational framework for the production and marketing of *genetically modified organisms* (GMOs). Burkina Faso is becoming a large scale genetically modified cotton producer as growing area has expanding from 165,000 ha to 400,000 ha in 2010 which represent an increase of 247 percent compared to the previous year.

- Bt cowpea, resistant to the *Maruca Vitrata* pod borer, is likely the next biotech crop to be tested in Burkina Faso. The Maruca pod borer may reduce cowpea yields from 50-70 percent or even up to 80 percent in severe infestations. Cowpeas are considered to be the most important food crop in dry areas of tropical Africa. As a result, cowpeas are cultivated on 12.5 million hectares of land throughout Africa and consumed in some form or another by 200 million Africans. Field trials are currently being conducted in northern Nigeria under a USAID and Rockefeller foundation funded program managed by the African Agricultural Technology Foundation (AATF) and including several African *National Agricultural Research Systems (NARS)*, *Commonwealth Scientific and Industrial Research Organization CSIRO* (Australia) and Monsanto.

Mali, Senegal and Togo have approved biosafety legislation in the past year. The lack of implementation regulations places considerable limitation on the level of research in agricultural biotech applications that these countries can implement.

In Senegal, the *National Federation of Cotton Producers (PNPC)* during their triennial plan to boost cotton production in the country expressed willingness to introduce Bt cotton based on the Burkinabe experience. The General Director of the *Société de Développement des Fibres Textiles (SODEFITEX)* announced the introduction of the first Bt cotton tests during the next campaign in collaboration with the *Senegalese Institute for Agricultural Research (ISRA)*.

Section III. Plant Biotechnology Policy - Regional Biosafety Regulatory Initiatives

In 2009, we note the implementation of regional Biosafety programs. (*For more information see Gain Report SG9014*)

1- WAEMU launched the West Africa Regional Biosafety initiative in June 2009 with funding from UNEP-GEF and the World Bank.

2- INSAH, the technical wing of CILSS, is implementing a regional biosafety framework for ECOWAS countries.

All these regional efforts appeared to have similar or complementary goals or objectives, which could lead to duplication of efforts. In some areas, regulations may actually conflict. For example, the current WAEMU approach to regional harmonization would give priority or precedence to regional approvals, whereas the ECOWAS approach gives priority to national approvals. CILSS, ECOWAS, WAEMU and the *West and Central African Council for Agricultural Research and Development* (CORAF/WECARD) have been meeting to see how they can partner to implement one unified strategy. Even so, there are still concerns about the regional approach and how it will interplay with national biosafety frameworks, particularly in countries with established or pending biosafety policies such as Burkina Faso or Nigeria, respectively.

As a result of all these efforts, WAEMU and ECOWAS have started working jointly to harmonize the synergy of actions for the implementation of a common regional biosafety policy that will set up a legal framework for all the countries of the sub-region. It will probably be a joint document with WAEMU & ECOWAS. This new draft will emphasize responsibilities and repairs (meaning compensation for damages) as well as information and awareness for the population. The prepared draft will be distributed to national level authorities before a final draft will be approved at a Regional Ministerial meeting.

Biosafety Regulations and Policies in C-4 countries, Cote d'Ivoire, Guinea Bissau, Togo and Senegal

Burkina Faso

Burkina Faso is the only francophone West African country with a functioning biosafety regulatory system and thus the only country that has approved the commercial release and use of biotech products by farmers and other agricultural users. In crop year 2009/2010, it is estimated that over 115,000 ha of Bt cotton were commercially planted in Burkina Faso. This year, more than 400,000 ha are expected to be planted with Bt cotton which represents an increase of 247 percent.

The *National Biosafety Agency* (NBA) was transferred in 2009 from the Ministry of Environment to the Ministry of Scientific Research. Due to low literacy levels of Burkinabe producers, the *National Biosafety Agency* launched a program in May 2010 to create awareness on the National Biosafety Law. This program aims to translate the biosafety law into three most commonly spoken languages (Mooré, Jula and Gulmacema) in cotton growing areas. Today 6,000 translated copies (2,000 per language)

consisting of summaries of essential extracts of the Act have been printed and will be distributed to farmers through extension services. Farmers will also be trained on the use and management of GMOs in the country. This program is sponsored by the *West Africa Cotton Improvement Program (WACIP)* and the *Agricultural Diversification and Market Development Project*.

Benin

Although the government of Benin has ratified the Cartagena Protocol in March 2005 and established a National Biosafety Committee, if Benin still enforces a moratorium prohibiting the production, sale and import of biotech crops and foods.

Mali

Since ratifying the Cartagena protocol in 2002, Mali's parliament passed legislation in 2008 to establish a regulatory system for agricultural and food biotechnology, thereby starting the process for approval of agricultural biotechnology. This law was signed by the President in December 1, 2008 and aims to ensure an adequate level of protection against any potential adverse effects of modern agricultural biotechnology against biological diversity, the environment or human health. The law has provisions covering the import, export, transit, contained use, and release or introduction into the market of any *genetically modified organisms*, be it for pharmaceutical, food feed or other agricultural purposes. There is also provision in the law for mandatory labeling for all products made from GMOs.

The institutional framework is composed of:

- The *National Competent Authority (NCA)* which is under the Ministry in charge of the Environment. The NCA is in charge of monitoring and controlling of the implementation of this law. It will take into account the recommendations and instructions of the National Biosafety Committee.
- The *National Focal Point* that will liaise with the Cartagena Protocol on biosafety, BCH and will facilitate the information exchanges between the NCA and the different organs.
- The *National Biosafety and Biotechnology Committee* has a mandate of 3 years, renewable by two thirds of the members. It consists of representatives from some ministries and departments, civil society, media, the private sector, socio professional organizations and associations.
- Public Biosafety Committee has to establish security control and authorization procedures. It is composed of different national institutions.
- The legal authority for biosafety regulation is given to the Ministry of Environment which is required to approve authorization for any activity involving GMOs and their products.

In January 2010, WACIP funded consultants to prepare drafts of the regulations necessary for implementing the biosafety law in the Republic of Mali (no. 08-042). These texts include:

- A draft decree for regulating research on *genetically modified organisms (GMOs)*, with

appropriate annexes;

- A draft law creating the National Biosafety Committee;
- A draft decree establishing the powers, composition and working procedures of the National Biosafety Committee;
- A draft decree establishing the powers, composition and functioning of the specialized committees of the National Biosafety Committee;
- A draft decree appointing inspectors controlling GMOs; and
- Appendices I, II, III, IV of the draft law for Biotechnology in Mali.

An initial review of these texts by a group of 30 stakeholders (including five women) was organized by the Ministry of Environment in Bamako on March 11, 2010. As a result of the workshop, the consultants were asked to make revisions to be reviewed in a much larger forum in May 2010.

Senegal

The Senegalese ratified the *Cartagena Protocol on Biosafety* in October 2003 and its biosafety law has been signed by the President on July 8th 2009. *The National Biosafety Framework* has also been completed but is still not in operation. Senegal is in the process of establishing two biosafety committees – letters of designation had already been sent. However, there are needs for capacity building on biotechnology regulator and on the communication strategy, and especially for building risk assessment capacity for GM crops on the scientific committee.

The Ministry of Environment is in charge of authorizing any importation or use of GMOs. It is supported by the National Biosafety Authority (NBA) for administrative issues and the National Biosafety Committee for technical issues. The NBA is composed of 17 members from different ministries and the presidency. The Executive Director and members of the NBA are appointed by ministerial order.

The National Biosafety Committee is responsible for risk assessments related to the import, export, handling, transit, confined use, release or launching of GMOs or derived products. Its 30 members consist of scientists, the public and private sectors, and members of the general public. The current National Biosafety Committee will be replaced by a new one that includes more scientists with specialized skills in risks assessment.

Article 37 of the biosafety law states that all GMO products used for direct animal or human food or for transformation or introduction into the environment should be labeled “contains GMOs.”

Senegal has many research laboratories such as the *Senegalese Institute for Agricultural Research* (ISRA), *Cheikh Anta Diop University of Dakar* (UCAD), and the *Regional Center for Studies on Plant Drought Resistance* (CERAAS), but is not conducting any field trials.

Cote d’Ivoire

Cote d’Ivoire has not yet ratified the *Cartagena Protocol*. The National Biosafety Framework was established in 2005 and has provisions for a *National Biosafety Commission* (CNBIOS) which will be

operational once the biosafety law is approved. The CNBIOS will be the authority on biosafety. A biosafety bill was drafted in May 2008 and sent to the Ministry of Environment for comments before being sent to government for adoption and ultimately the National Assembly for approval. The Ministry of Environment is the focal point for the Cartagena Protocol.

Cote d'Ivoire has laboratories (LCB, CNRA, RETRO-CI, IPCI, LANADA, and INSP) of good international standing, although there is often a lack of adequate equipment and human resources.

Chad

Chad signed the Cartagena Protocol in November 2006. There has been little movement towards setting up a biosafety framework. Therefore, Chad does not have agricultural biotechnology regulations.

Guinea Bissau

Guinea Bissau ratified the Cartagena Protocol in May 2010. A biosafety bill was drafted in 2006 and a National Biosafety Committee was established. The bill has not yet been submitted to the Government for approval and could benefit from technical assistance and capacity building support to the National Biosafety Committee.

Togo

Togo ratified the Cartagena Protocol and completed the National Biosafety Framework in 2004. The biosafety law was adopted by the parliament in December 2008. Biosafety in Togo is characterized by two regulations: the National Biosafety Framework and the law on the Prevention of Biotechnology Risks. Even though Togo is not yet ready for modern biotechnology it has a few laboratories working in this area; namely the *Institut Togolais de Recherche Agronomique* (ITRA) and the *University of Lome*. All these laboratories, however, are ill-equipped and in real need of capacity building support.

Section IV. Plant Biotechnology Marketing Issues

Although most countries in West Africa have ratified the Cartagena Protocol on biosafety, only Burkina Faso, Ghana, and Nigeria have functioning legislation allowing field trials of GM products; and in francophone West Africa only Burkina Faso has regulations that allow for the commercialization of GM crops.

There are no approved regulations on the import of biotech products into most WAEMU countries. However, most of these countries receive commercial and food aid commodities containing biotech products from the United States and elsewhere.

Section V. Plant Biotechnology Capacity Building and Outreach

The *African Union / New Partnership for Africa's Development* (AU-NEPAD) established the Africa Biosafety Network of Expertise (ABNE) in 2008 to actively support capacity building in biosafety in the region. The *Africa Biosciences Initiative* (ABI) under the AU-NEPAD, formed in 2005 and initially

funded by the *Canadian International Development Agency (CIDA)*, has also created four bioscience network centers to drive the development of biotechnology and other biosciences. One such network is the *West Africa Biosciences Network* in Dakar, Senegal.

Despite significant progress made across the region to move legislations forward and efforts for harmonizing and coordinating policies, technical capacity in biosafety regulations and biotechnology research is very limited. Thus, even when regulations are approved and in force, most countries will no doubt face difficulties in assessing requests for field trials and commercial uses. Countries such as Benin, Burkina Faso, Mali, and Senegal are likely to move ahead faster because of their advantage in human resources and research capacity. The WAEMU and ECOWAS biosafety projects intend to assist countries develop in-house biosafety regulatory capacity and conduct risk assessments on a regional level.

The Technical Advisory Committee of the *NEPAD African Biosafety Network of Expertise (ABNE)* approved ABNE's work plan for 2010 aimed at providing a range of services to regulators including science-based biosafety information through a web portal, training programs (workshops, short courses, internships and study tours), and expert consultations. The Committee acknowledged the contribution of the Government of Burkina Faso in adopting ABNE's host country agreement and commended the ABNE team's efforts in establishing the nodal office in Burkina Faso for project takeoff.

After the Workshop held in Dakar on biosafety and biotechnology capacity building for West African scientists and regulators in 2009, NEPAD-ABNE organized an African Regulators and Scientists Forum April 7 - 8 2010, in Ouagadougou, Burkina Faso in collaboration with Michigan State University. More than 78 participants including *Burkina farmer association (UNPCB)*, donors, regulators from many countries and scientists attended the meeting.

Presentations provided an overview on:

- Genetic Engineering (GE) Crops that are in the pipeline in Africa
- Confined Field Trials (CFT) – Application and review process, Guidelines, SOPs and best practices. Case studies were presented by Uganda, Kenya and Nigeria including countries that have received for the first time the confined field trials application (Malawi, Ghana and Mozambique)
- Regulatory issues related to GE crops in countries that have had general release of GE Crops

It was also an occasion to launch ABNE headquarters by the CEO of NEPAD, Dr Assane Mayaki and the Deputy Minister of technical Education, Mr. Maxime Some representing the Prime Minister and held an Annual Coordination Meeting for Biosafety Service Providers in Africa on April 10, 2010 in Ouagadougou. At this meeting, were represented many Organizations: *US Agency for international Development (USAID)*, *U.S. Department of Agriculture- FAS /Senegal (USDA/FAS)*, *Program for Biosafety Systems (PBS)*, *African Biosafety Network of Expertise (ABNE)*, *Forum for Agricultural Research in Africa (FARA)*, *Syngenta Foundation*, *Biosafety Resource Network (BRN – Danforth Center)*, *ISAAA*, *FOTUN-Europe*, *WAEMU*, *ICGEB*, *CORAF*, *UNIDO*, *Michigan State University (MSU)*, *African Agricultural Technology Foundation (AATF)*, *AGBIOS*, *Gates Foundation*. The purpose of the meeting was to develop mechanisms of coordination to ensure maximum cooperation and impact in countries and regions where multiple service providers are working.

The outcome of the meeting was:

- identify organizations as Point Contact for each country/region.
- continue to follow up with each project to ensure that point persons are taking an active role in leading coordination for each country and region
- continue to share information via the Africa biosafety listserv managed by USAID (biotechnology@usaid.gov)

Major biosafety services providers gave an overview of their activities at the national level in Africa (ABNE, IFPRI/PBS, ICGEB, FARA, BRN, FOTUN EUROPE, USDA/FAS, ISAAA, COMESA, CORAF and their indicators of success and key milestones. Leaders for every country were identified to avoid overlap and better implement programs in Nigeria, Ghana, Burkina Faso, and Kenya. This was followed by focused discussions on Nigeria, Ghana, Uganda, Mozambique, Kenya and Malawi and West Africa (ECOWAS/WAEMU regional frameworks). Point contact were designated as follows:

- Nigeria: (PBS)
- Ghana: (PBS, BRN) and (ABNE)
- Mozambique: (PBS) and (ABNE)
- Uganda: (PBS)
- Malawi: (ABNE)
- Kenya: PBS and (ABNE)
- Regional West Africa Frameworks: (AGBIOS) and (USAID)

ABNE will also organize on July 12, 2010 a workshop on Liability and Redress for members of the Burkinabe parliament in Ouagadougou, Burkina Faso.

Workshops were held in the WAEMU members countries dedicated to the information of the actors and the identification of the priority needs within the framework of the national implementation of the *WAEMU regional Program of biosafety* (Prb-Uemoa). Meetings were joint circular missions at the level of the member states of three institutions (ECOWAS, WAEMU and CILSS).

In Burkina Faso, executives and advisory bodies, namely the National Scientific Committee on biosafety and National Biosafety Agency (NBA) were trained on evaluation and management of biosafety during a NBA organized workshop on January 2010.

The purpose of the training was to get NBA staffs and members of its key implementing organs to be better prepared to carry out their mandate of evaluating incoming proposals for importing or developing GMOs in Burkina Faso. They are also prepared to disseminate information and ensure public awareness on the legal, technical and institutional dimensions of the country's biosafety.

An awareness campaign was launched in March by the NBA in Fada N'Gourma (SOCOMA zone) and Tenkodogo (Faso Coton zone). A total of 600 local leaders from different sectors learned about:

- The national framework on biosafety;
- The national system for managing biosafety risks; and
- Procedures related to authorization requests for testing, marketing, import and export of GMOs

or derived products.

WAEMU organized a workshop in March 2010 in Senegal to review and share the draft of their communication strategy of the Regional Program of Biosafety of the (PRB-UEMOA). This global strategy of information and of communication about the Biosafety program will make visible the activities of the PRB-UEMOA.

In January 2010, the West African Cotton Improvement program (WACIP) organized a “national information exchange workshop on biotechnology, biosafety, and *genetically modified organisms* (GMOs),” in N’Djamena (Chad). The purpose of the workshop was to open debate on the opportunities and challenges of modern biotechnology based on sound scientific information and to develop relevant recommendations to the government. The workshop outlined the history of Chad’s involvement in GMOs, and the slow progress made there since ratifying the Cartagena Protocol in November 2006 in setting up its biosafety frameworks. A few recommendations were made

1. On biotechnology:

- Increasing financing for biotechnology research;
- Hiring biotechnology experts into the civil service on an exceptional basis;
- Launching doctoral level studies in Chad in biotechnology; and
- Involving politicians and scientists in decision-making related to adopting and
- Implementing modern biotechnology.

2. On biosafety:

- Speeding up adoption of the biosafety legislation;
- Ensuring adequate funding to reinforce the nation’s biosafety structures; and
- Promoting sub-regional, regional, and international cooperation in biosafety.

The final recommendations to researchers included:

1. Promoting and integrating modern biotechnology as part of national strategies and policy documents in varying domains;
2. Developing and implementing an effective communications and outreach strategy to ensure Chadians have access to accurate information on modern biotechnology; and
3. Ensure the rapid certification of local (biotechnology) varieties.

The final recommendations to the National Biosafety Committee included elaborating an action plan and schedule for ensuring the nation’s biosafety. Overall, the recommendations reflected readiness of Chad’s scientific community to engage on this topic.

Norman E. Borlaug Fellowship Program

The Norman Borlaug fellowship program is coordinated by the *U.S. Department of Agriculture* (USDA). The objective of the program is to help developing countries strengthen sustainable agricultural practices by providing scientific training and collaborative research opportunities to researchers, policymakers and university faculty. Scientists have an opportunity to spend about 8 to 10

weeks in the United States and work one-on-one with a U.S. scientist in their fields. Participants will learn new research techniques, gain exposure to the latest scientific developments in various fields of agriculture, access fully equipped laboratories and libraries,

This year, one of the areas of training selected is Biotech Risk Assessment in which one or two participants will be sent to the US for training and research. The Borlaug program will also provide the opportunity to establish long term collaboration with US and Senegalese scientists.

Section VI. Animal Biotechnology

The *Senegalese Agricultural Research Institute* (ISRA) and a few other public research centers have ongoing research activities relevant to the production of molecular vaccines for local use. However, output is quite small owing to a lack of equipment, among other things.

Section VII. Author Defined

- African Centre for Biosafety – <http://www.biosafetyafrica.net>
- African Union- New partnership for Africa's development(AU-NEPAD)
<http://www.africa-union.org/root/au/AUC/SpecialPrograms/nepad/nepad.htm>
<http://www.nepad.org>
- Convention on Biological Diversity – <http://www.cbd.int/biosafety>
- Interstate Committee for Reducing Desertification in the Sahel (Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel) - <http://www.cilss.bf>
- Norman Borlaug program www.fas.usda.gov/icd/borlaug/borlaug.asp
- West and Central African Council for Agricultural Research and Development CORAF/WECARD - <http://www.coraf.org>
- West African Economic and Monetary Union (WAEMU) - <http://www.uemoa.int>

Section VIII. Acronyms Defined

– AGBIOS	Agriculture and Biotechnology Strategies
– BRN	Biosafety Resource Network
– CNRA	Centre National de Recherche Agronomique
– COMESA	The Common Market for Eastern and Southern Africa
– FARA	<i>Forum for Agricultural Research in Africa</i>
– ICGEB	Centre for Genetic Engineering and Biotechnology
– IFPRI	International Food Policy Research Institute

- INSP Laboratoire de microbiologie de l'Institut National de Santé Publique
- IPCI The Pasteur Institute of Cote d'Ivoire (IPCI)
- ISAAA International Service for the Acquisition of Agri-biotech Applications
- LANADA Laboratoire Central de Pathologie Animale
- LCB Laboratoire Central de biotechnologies
- PBS Program for Biosafety Systems
- RETRO-CI Rétrovirus- Côte d'Ivoire
- UNIDO The United Nations Industrial Development Organization
- USAID U.S. Agency for International Development
- USDA/FAS U.S. Department of Agriculture/ Foreign Agricultural Service