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Report Highlights:

The executive summary and section III of this report have been updated.

In November of 2006, the Nigerian Biosafety Committee submitted the draft biosafety bill to the then Minister of Environment. Two years after the bill was presented, no progress has been made towards the passage of the bill into law because of a change in government and key personnel. However, there are indications that the new government of President Yar'adua is committed to moving the process forward.

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SECTION I. EXECUTIVE SUMMARY

Nigeria, Africa's most populous nation (145 million), is a food deficit country. Formally a net food exporter, Nigeria's subsistence agriculture can no longer supply the needs of its growing population. According to trade sources, Nigeria imported about \$3 billion worth of agricultural commodities in 2007. Nigeria is largely a bulk commodity market and imports wheat, soybean products, tallow, rice and high value products. In CY 2007, U.S. agricultural exports to Nigeria reached \$725 million, primarily wheat. Nigeria was the third largest buyer of U.S. wheat in the world last year.

On November 22, 2006, the Nigeria Biosafety Committee (NBC) presented to the then Minister for Environment, Mrs. Helen Esuene, the National Biosafety Policy and the draft biosafety bill. The bill, when passed, will provide legal backing for the practice of biotechnology and the regulatory framework, institutional and administrative mechanisms necessary for the application of modern biotechnology in a way that tries to prevent any adverse effect on human health and the environment/biodiversity. The bill will guide activities in the sector by stipulating rules and specifying sanctions and penalties for infringement. Presenting the documents on behalf of the Chairman of NBC, Prof. J. Ekpere, Dr. C.A. Fatokun of the IITA noted that no well-meaning entrepreneur or research organization would invest in biotechnology research or enterprise in the absence of a legally binding instrument. Fatokun further said that an appropriate biosafety regime would enhance the rapid development of biotechnology and secure the utilization of its products.

Two years after the bill was presented, it remains with the Minister of Environment. Progress on the passage of the bill into law is stalled because of a change in government and key personnel such as the Ministers of Environment, Science and Technology and Agriculture. Before the bill can be passed into law, it will next be presented to the National Council on Environment (the highest decision making body on environmental issues) and after approval it would be forwarded to the National Executive Council of Ministers for ratification and then finally to Congress for debate and passage into law. The draft bill generally portrays products of biotechnology as safe for animal and human consumption, however it advocates strict adherence to the 'precautionary principle' and mandatory labeling of all products of agricultural biotechnology to protect "consumers right to know."

There are indications that the new government of President Yar'adua has a favorable disposition towards biotechnology. For example, the Federal Ministry of Agriculture in its newly developed National Food Security Program document, states that "Nigeria is yet to ratify the international treaty on plant genetic resources for food and agriculture, but it is critical that it is done because there are high-yielding varieties developed by international research centers, and for Nigeria to access these, there is need to ratify the treaty". The document also advocates the "Federal Government's support for research and development of appropriate technology in agriculture including biotechnology".

On April 7-8, 2008, the National Biotechnology Development Agency (NABDA) called a meeting to discuss strategies for the introduction of bioengineered crops in Nigeria. The NABDA is the GON's agency to promote and implement the national biotechnology policy. The meeting had in attendance participants from Malaysia, Kenya, and Zimbabwe and included academia, policy makers and other stakeholders. The Agricultural Attaché of FAS/Lagos also attended the meeting. A communiqué released after the meeting allayed fears being expressed in certain quarters over the safety of GM crops, and noted that these materials are usually subjected to rigorous safety assessment by the industry and regulatory agencies based on the principles endorsed by the Convention of Biological Diversity. It proffered the modalities to be adopted in domesticating GM crops. Although the meeting noted that research and development in GM crops was in its infancy in Nigeria due to weak

human and infrastructural capacities, it however identified sorghum, cassava, cotton, wheat, gum Arabic, cowpea and soybeans as priority crops for Nigeria requiring genetic improvement.

Following are the other issues addressed in the communiqué:

- That there are glaring deficiencies in both the teaching and learning curricula at all levels and accordingly recommended more dynamic curricula to generate appropriate manpower to meet research and development needs in biotechnology activities.
- On regulatory and biosafety issues, the communiqué noted the undue delay in the processing of the Nigerian Biosafety Bill and urged the Ministers of Environment, Science and Technology, Health and Agriculture to collaborate and fast track the passage of the bill into law. In the meantime, all stakeholders were advised to abide by the rules contained in the 2001 National Biosafety Guidelines and the Cartagena protocol on biosafety.
- That any GM crop imported into Nigeria for domestication must be evaluated (under containment or confinement) for gene efficacy, agronomic performance and potential economic benefits and must take cognizance intellectual property requirements.
- Regarding commercialization, the communiqué suggested that Nigeria begins by focusing on GM crops with high industrial uses. In this regard, the meeting attendants advocated the training of farmers and other stakeholders in all aspects of commercialization, including the use of GM seeds.
- The communiqué expressed the attendants' explicit confidence in the ability of the Federal Government of Nigeria to implement these and other relevant strategies/policies in order to launch the country into the biotechnology era within the shortest possible time.

SECTION II. BIOTECHNOLOGY RESEARCH, TRADE AND PRODUCTION

A. Commercial Production of Biotechnology Crops

Nigeria does not currently produce any biotechnology crops commercially. A recent meeting organized by the NABDA, recommended that Nigeria should commence the commercialization of GM crops starting with crops with high industrial uses. The meeting further advocated the training of farmers and other stakeholders in all aspects of commercialization, including the use of GM seeds.

B. Biotechnology Research Efforts

Capacity exists at the International Institute for Tropical Agriculture (IITA) and to some extent at the GON's Sheda Science and Technology Complex (SHESTCO), to conduct and apply biotechnology research. Sustained research using modern agricultural biotechnology methods in Nigeria is being conducted at the IITA. The institute is doing preliminary work on bio-engineered cowpea. IITA also collaborates with the National Root Crops Research Institute (NRCRI) on biotech cassava research.

C. Biotechnology Crops under Development

There is no biotechnology crop under development in Nigeria that will be on the market in the coming year. With transgenic insect-resistant cotton soon to go into commercial

production in Burkina Faso, Nigerian cotton growers have indicated strong interest in conducting field trials.

D. Imports of Biotechnology Crops/Products

Officially, Nigeria does not import bioengineered products. However, agricultural products such as soybeans, soybean meal, soybean oil and processed food are freely imported from the U.S., EU, Brazil and Argentina and may contain biotech ingredients. Corn was imported from the U.S. until an import ban implemented in 2005 to protect local producers.

E. Food Aid

Nigeria has been a food aid recipient, with rice, soybean meal and skim milk powder having been monetized under USDA food aid programs in the past few years. No issues have arisen as a result of biotechnology and food aid.

F. Production of Biotechnology Crops Developed Outside the United States

At present, Nigeria does not produce biotechnology crops.

SECTION III. BIOTECHNOLOGY POLICY

A. Regulatory Framework for Agricultural Biotechnology

I. Responsible institutions involved in agricultural biotechnology in Nigeria:

- National Focal Point--Federal Ministry of Environment
- National Biosafety Authority (NBA) -Proposed
- The National Biosafety Committee (NBC)
- National Biosafety Technical Sub-Committee
- Institutional Biosafety Committees
- National Biotechnology Development Agency (NBDA)

The Federal Ministry of Environment is the national focal point on Biosafety in Nigeria. This Ministry is the GON's liaison with the Secretariat of the Convention on Biological Biodiversity for administrative functions required under the Cartagena Protocol on Biosafety. The National Focal point is responsible for all correspondences with importers, exporters and applicants on movement of products of modern biotechnology. Pending the passage of the National Biosafety Bill, the Minister of Environment acts for the National Biosafety Agency (NBA). The Ministry of Environment is proposing the establishment of an independent NBA.

The Ministry of Environment has developed a National Biosafety Framework (NBF) to provide guidance on the implementation of Nigeria's Biotechnology program. This framework is a combination of policy, legal, administrative and technical instruments that will regulate all biotechnological work. It is also intended to ensure the safe transfer, handling and use of biotech materials that may have adverse effects on the conservation and sustainable use of biological diversity. The Framework is meant to provide a one-stop clearinghouse in the NBC.

The Framework also require the establishment of Institutional Biosafety Committees (IBC) by all institutions in Nigeria, both private and public (e.g. research institutes, universities, international research centers etc.), which plan to undertake biotechnology research and/or development. The IBC shall consult and seek approvals from the NBC and implement recommendations from NBC among others.

ii) Role and Membership of the Biosafety Committee (NBC)

The NBC serves as the Competent National Authority for biosafety in Nigeria. The NBC is responsible for the safe management of biotechnology activities, including research, development, introduction and the use of LMOs/GMOs. The Committee has 16 members drawn from the Ministries of Agriculture, Science & Technology, Environment, Commerce, Education, Health (NAFDAC), Industry, Foreign Affairs, Internal Affairs (Nigerian Customs Service), Justice, and NACCIMA/Organized Private Sector. The NBC will also include a Biologist, a Physical Scientist, a Social Scientist and a Representative of NGOs distinguished in environmental/conservation matters. The NBC is required to review all applications for the release of products of bioengineering and make recommendations to the Minister of Environment on whether or not to allow such products. The NBC oversees the implementation of the National Biotechnology Program, consistent with the Biosafety Law.

The NBC has also established National Biosafety Technical Sub-committees (NBTS) to focus on sectoral interests such as agriculture, health, industry and the environment. The sub-committees review proposals for research and recommend the conditions under which experiments should be conducted. They are to provide technical advice to the NBC and contribute to its functions in relation to contained use, field trials, release and placement on the market.

All applications for import, field trials, transit and contained use must be routed through the registrar of the NBA. The NBC will meet and direct the relevant NBTS to carry out risk assessment and ensure participation of all relevant stakeholders. Findings of the NBTS are submitted to the NBC. The NBC takes a decision, which is then conveyed to the applicant by the Registrar of the NBA. A license to carry out event is issued by the Registrar of NBA.

The National Biotechnology Development Agency (NBDA) was established in 2001 in the Ministry of Science and Technology to promote the development of biotechnology in Nigeria. The agency is active in creating awareness for products of biotechnology. NBDA conducts regular workshops for the major stakeholders in biotechnology.

iii) Political factors

The Nigerian government appreciates the potential of biotechnology to improve agricultural productivity. The national biotechnology policy document states that the GON "supports biotechnology because of its immense potential to more rapidly contribute to sustainable food security and economic growth". Former President Obasanjo was also quoted as saying that "as a matter of priority, the government will initiate appropriate steps in the area of biotechnology and facilitate the effective utilization of this new technology for the benefit of our people." The government established the National Biotechnology Development Agency to the National Biosafety Committee (NBC) to introduce the first GMO was for virus resistant cassava variety developed at the Danforth Plant Science Center, St. Louis. A technical sub-committee (NBDA) adopted the National Biosafety Guidelines in 2001 and is in the process of establishing the Nigeria Biosafety Law.

B. Approval of Biotechnology Crops

At present, no law exists to approve biotechnology crops for food, processing and feed.

C. Field Testing

In 2001, the GON adopted the National Biosafety Guidelines. The guidelines have a provision for field-testing bio-engineered crops. In 2005, the first application for field trials of the NBC reviewed an application for field-testing and the sub-committee recommended to

the NBC that confined field-testing of the bio-engineered cassava clones should be allowed. However, while the approval process was in progress, the application for the field-testing of bio-engineered cassava was withdrawn because of a breakdown of its resistance. Although the withdrawal slowed down the process of field-testing of bio-engineered crops in Nigeria, it has, however, set a template for other applications to be filed. The NBC can hold more meetings if it receives applications for field-testing of bioengineered crop varieties. There are indications that the development of bioengineered cowpea in Australia resistant to Maruca, may reawaken Nigeria's interest to do field trials in the coming year.

D. Participation in Meetings of International Standard-Setting Organizations

Nigeria signed the convention on biosafety in 1992 and ratified the instrument in 1994, and was an active participant in the negotiations leading to the adoption of the Cartagena Protocol. Officials of Key biotech agencies such as the Federal Ministry of Environment and NABDA regularly attend meetings of international standard-setting bodies.

E. Stacked events

The NBC does not require additional approval for stacked events

F. Review and Approval Process for Biotech Products for Planting and Import

At present, no laws exist to approve biotech products for planting and imports. However, the National Biosafety Guidelines adopted by the GON in 2001 has provision for field-testing bio-engineered crops.

G. Coexistence

Nigeria's proposed biosafety bill is silent on co-coexistence. However, there are provisions for monitoring in the draft bill. The relevant portion of the bill states, "for the purpose of biosafety, monitoring shall be used as a tool to ensure that the concerns expressed by stakeholders are addressed, ensure compliance with the terms of approval, confirm claims and trace the fate of LMOs/GMOs".)

H. Labeling

The National Agency for Food and Drug Administration and Control (NAFDAC) is the GON's regulatory body responsible for food product manufacturing, importation, advertisement and distribution in Nigeria. The NAFDAC was established to protect and promote public health by ensuring the wholesomeness, quality, and safety of food and drugs consumed in Nigeria. NAFDAC regulations require food labeling to be informative and accurate. The minimum labeling requirements include net content, specifying essential ingredients in metric weight for solids, semi-solids and aerosols, and metric volume for liquids. Ingredients must be listed by their common names in order of their prominence by weight. The regulations are being strictly enforced, but they are not specific to products of biotechnology. The draft biosafety bill, however, requires the mandatory labeling of all products of agricultural biotechnology in order to protect "consumers right to know."

I. Biosafety Protocol

The GON signed and ratified the Convention on Biological Diversity in 1994 and the Cartagena Protocol on Biosafety in November 2002. Nigeria, having signed and ratified the protocol, is now under obligation to implement it. The implementation of the protocol is slow and has had no effect on trade.

J. Biotechnology-Related Trade Barriers

We are not aware of any biotechnology-related trade barriers affecting U.S. exports to Nigeria and products such as U.S. soybean meal have been imported without problems.

K. Pending Legislation

The Ministry of Environment has prepared a draft biosafety bill. The draft bill advocates mandatory labeling of all products of agricultural biotechnology to protect "consumers' right to know." If the bill were enforced once passed, it would likely affect exports of U.S. food products to Nigeria.

L. Technology Fees

Nigeria does not have any technology fees for bio-engineered crops; neither does it have legislation in place to collect such fees.

SECTION IV. NEW TECHNOLOGIES

There are no new technologies in use in Nigeria that go beyond biotechnology such as: the genetic engineering of agriculturally-relevant animals, animal cloning, plant that produce pharmaceuticals, etc.

SECTION V. MARKETING ISSUES

A. Market Acceptance

Generally, most Nigerians are not aware of products of modern agricultural biotechnology and the issues involved. Information and discussions on modern biotechnology have been undertaken largely among GON officials, scientists and researchers. Nigerian farmers and the general public will need to be educated about the technology.

Wheat importers in Nigeria favor the precautionary approach to biotechnology. They have learned about bio-engineered food products primarily from the U.S. - EU debate over biotechnology. Overall, Nigerian wheat importers have expressed the opinion that the U.S. should not introduce bio-engineered wheat into the market until all long-term health concerns are resolved. In MY 2007, Nigeria was the third largest export market for U.S. wheat.

B. Focus Group Survey

The results of a focus group survey on the attitude of the public to biotechnology revealed that about 40 percent of respondents would not mind consuming bio-engineered food products. Many respondents especially among those with little education were ignorant of biotechnology and its potential usefulness. While some respondents did express concern about the long-term health effects of consuming such products, these concerns seem to be overshadowed by their basic need for affordable food. The survey also revealed a marked preference for biotech products developed locally to those that are imported.

Another national survey on public awareness of agricultural biotechnology in Nigeria was conducted in May 2004, preparatory to the launch of the Nigeria Agriculture and Biotechnology Project (NABP). Survey results suggest that the Nigerian public is only marginally aware of biotechnology. Those who are aware have heard something about

biotechnology through stories in the news media. Most Nigerians do not have a clear understanding of biotechnology and many still confuse the technology with conventional breeding techniques. Nigerians are also not very knowledgeable about national and international policy issues relating to biotechnology. However, Nigerians are interested in the innovation and wish that it could be utilized to address the persisting problems of poverty in the country and one-third of respondents stated that they would be willing to eat genetically modified (GM) food if given the opportunity.

Following press statements by the AgAttache and a series of workshops conducted by USAID funded NAPB for civil servants, policy makers, legislators and for the members of the media, the level of awareness of issues relating to agricultural biotechnology has improved somewhat. Most newspaper articles are well balanced and are devoid of misconceptions about biotechnology.

SECTION VI. CAPACITY BUILDING AND OUTREACH

A. U.S. Government or USDA Funded Outreach activities

Over the last five years, the USDA has helped to fund scientists to work on biotechnology at the IITA, under its technical assistance program. In addition, the AgAffairs Office in Lagos utilized the Cochran Fellowship Program to provide training in agricultural biotechnology in the U.S. for four Nigerian scientists during the same period. In 2005, AgAffairs Office in Lagos also nominated a journalist to participate in a biotechnology seminar sponsored by the US Grains Council.

In 2004, agricultural biotechnology in Nigeria received a boost with the launch of two linked initiatives funded by the USAID. These are the West African Biotechnology Network (WABNET) and the Nigeria Agricultural Biotechnology Project (NABP), implemented by CGIAR's International Institute for Tropical Agriculture (IITA), in close collaboration with Tuskegee University. Signed on August 21, 2003, NABP is a \$2.1 million project to assist Nigeria in building the framework for decision-making that will facilitate access to the opportunities biotechnology offers and will ensure the safe and effective application of this technology to improve agriculture. A key element of the project is to improve implementation of bio-safety regulations; and, enhance public knowledge and acceptance of biotechnology.

The project developed collaborative linkages with and provided facilities to some Nigerian universities/institutes to facilitate implementation; National Biotechnology Development Agency (NABDA) for biotech information dissemination; Sheda Science & Technology Complex (SHESTCO) for training of scientists; National Root Crops Research Institute (NRCRI) for plant genetic transformation; Institute for Agricultural Research (IAR) for tissue culture and University of Agriculture, Abeokuta for advanced biotechnology training.

In 2004, the USAID sponsored four reporters on a biotech press mission to the United States.

B. Country Specific Needs

In order to assist the GON in its efforts to fast-track the creation of an enabling environment for biotechnology, Post would like to arrange an activity for high-ranking, policy level officers from the presidency, Ministry of environment, Agriculture, Science and Technology, Legislature, and academia. Nigerian policy-makers lack accurate information about the benefits of agricultural biotechnology and would benefit from this orientation to bolster their knowledge. The orientation program will highlight how products derived from agricultural biotechnology are considered in the U.S. food safety regulatory system. The proposed

program is targeted for individuals and institutions that will play vital roles in the passage of the biosafety bill into law and its implementation. It is anticipated that the group will return to Nigeria with a renewed determination to move forward the process of creating an enabling regulatory environment for biotechnology.

Capacity building training is required for the personnel of the Ministry of Environment to be able to develop a biosafety protocol. SHESTCO requires up-to-date laboratory facilities to act as a national center of excellence that will be able to conduct research and assessment tests.

SECTION VII. REFERENCE MATERIAL

Nigeria Biosafety Guidelines 2001
Draft Nigeria Biosafety Bill 2006
Draft National Biosafety Framework
National Biosafety Policy

Copies of these documents are available in the AgAffairs office.

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