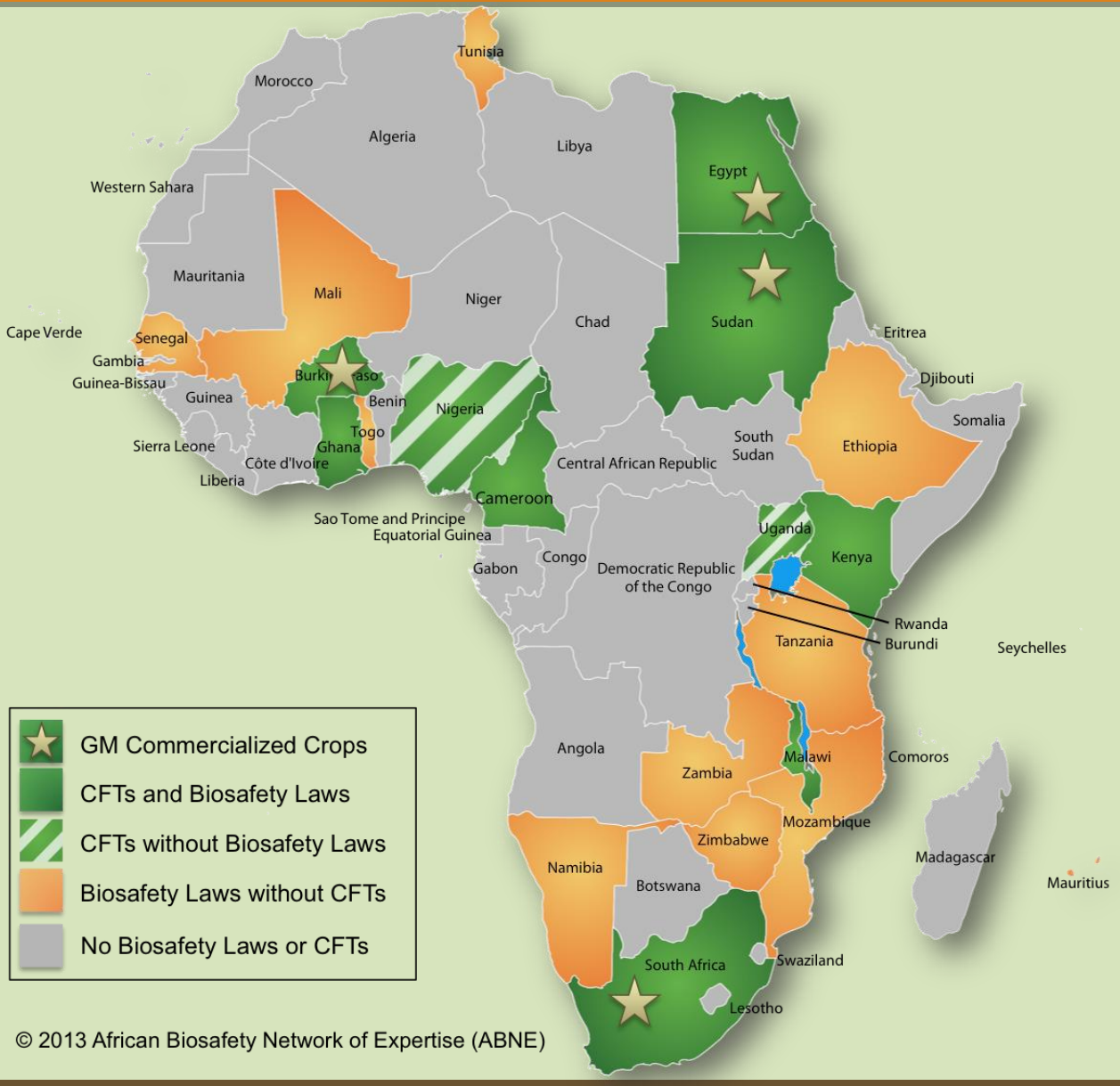
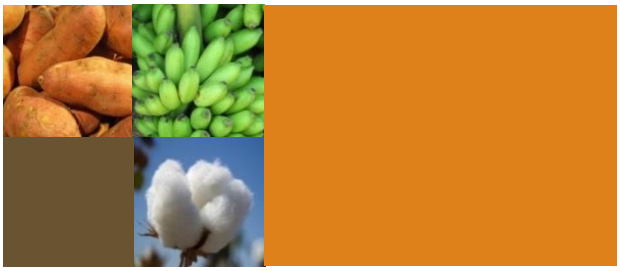
NEPAD
TRANSFORMING AFRICA

ABNE in Africa

Towards Building Functiona Biosafety Systems in Africa



African Biosafety Network of Expertise (ABNE)



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NEPAD Agency ABNE Director's Introductory Remarks

The African Biosafety Network of Expertise (ABNE) is in its fifth year of offering biosafety services on the African continent. ABNE's contribution in assisting African countries to build functional biosafety systems has been significant. As a result, a number of African countries have made progress in building their biosafety implementation capacity. This promises to offer choices to farmers on the continent to adopt improved seeds developed using modern biotechnology to enhance crop productivity and other aspects of agricultural production.

During the past two years, ABNE has published annual updates on the progress made by the ABNE service network in building biosafety capacity in a publication titled "ABNE in Africa." This is the third issue of "ABNE in Africa" and it highlights advances made and lessons learnt to better serve the continent with biosafety services into the future. ABNE biosafety services include information resources, training workshops, short courses, online biosafety courses, internships, "seeing-is-believing study tours," technical support, consultations, and networking.

ABNE works in close partnership with national governments (regulators and policy-makers), other biosafety service providers, universities, research institutions, regulatory agencies, and individuals in and outside the continent in building functional biosafety systems within Africa. It is my hope that this vigorous networking will continue in the coming year and beyond.

In this issue are highlights of ABNE's activities in 11 focus countries in Africa in building functional biosafety regulatory systems: Burkina Faso, Ghana, Kenya, Malawi, Mali, Mozambique, Nigeria, Tanzania, Togo, and Uganda. These countries were identified based on criteria such as technological readiness, political will, ongoing biotechnology research and development programmes, and ongoing process in receiving biosafety applications. ABNE realizes the continually changing flux of progress on biosafety regulatory affairs in individual countries. ABNE also notes and appreciates positive policy and regulatory developments in some countries in Africa.

ABNE's approach to biosafety service delivery builds on prior progress and existing capacity, and is demand-driven and need-based. It also provides generic services such as information resources – the ABNE website, newsletters and news bulletins, and policy briefs – which connect national systems to potential partners and service providers. These services are open to all African Union (AU) member states.

Modern biotechnology has significantly increased agricultural output and stimulated national economies in other continents, for example, Latin America and Asia. However, the potential of modern biotechnology has not yet been realized in African countries. It is worth nothing that NEPAD Planning and Coordinating Agency's flagship agricultural programme, the Comprehensive Africa Agricultural Development Programme (CAADP), maintains its unrelenting commitment to harnessing new science and technology, including modern biotechnology, in a scientifically sound manner to enhance agricultural output in Africa. This forms the basis for ABNE's engagement in building functional biosafety systems in African countries.

At present, four African countries (South Africa, Burkina Faso, Sudan and Egypt) have released genetically modified (GM) crops, while countries such as Cameroon, Ghana, Kenya, Malawi, Nigeria and Uganda are conducting confined field trials of commodities of interest that will proceed to multi-location trials. Some of these GM crops are expected to be commercialized soon. One of the reasons for lack of wider adoption is the absence of functional regulatory systems, including inability to perform timely decision-making. Other factors include unworkable national legislation and regulations, risk assessment guidelines or procedures, and inadequate capacity for implementing functional regulatory systems. However, it is heartening to note that many more African countries are revisiting their biosafety policies, regulations and directives to subsequently start field testing and/or commercialization GM crops of interest.

With this third issue of "ABNE in Africa," we provide vital information to decision-makers, regulators, scientists and other biosafety service providers about the state of biosafety/ biotechnology regulatory developments in selected African countries. It is our hope that this information and activities will facilitate collaboration and experience-sharing; assisting member states in meeting global, regional and national obligations, including having adequate regulatory preparedness to enable biosafety and biotechnology decision-making.

Prof. Diran Makinde
Director, ABNE
January 2014

Burkina Faso

With a functional biosafety system in place, Burkina Faso approved the commercial release of Bt cotton in 2008 after completing six years of field trials. The country thus became the third country in Africa to grow GM crops following South Africa and Egypt. In 2011, the adoption of Bt cotton was approximately 60 percent with about 250,000 hectares cultivated. As of today, five GM events have been approved in Burkina Faso. Of these, the insect resistant cotton (Bt) was commercialized in 2008 and the herbicide-tolerant cotton (Roundup Ready Flex) and insect-resistant cowpea are currently under field trials. In addition, a GM fungus (*Metarhizium robertsii)* is being tested with the aim of controlling the malaria mosquito, *Anopheles gambiae*. Furthermore, Burkina Faso is also involved in another GM mosquito project that will use genetic modification of the male mosquitoes to make them sterile. This project is conducted in partnership with the Homing Endonuclease Genes group and will involve other African countries such as Mali, Kenya, and Uganda.

Based on the efforts made by the government to make the best use of new agricultural technologies in a responsible manner, in February 2010, the NEPAD Planning and Coordinating Agency which is the technical arm of the African Union, signed an agreement with the Government of Burkina Faso to host the African Biosafety Network of Expertise (ABNE), the mission of which is to assist African countries build functional biosafety systems. The first node of ABNE was then established within the campus of the University of Ouagadougou and was officially launched in April 2010. This agreement granted ABNE freedom to operate with all the privileges and benefits, allowing the relevant activities to be undertaken towards empowering regulators and regulatory systems in Burkina Faso as well as in other African Union member state countries. The Table 1 gives an overview of the ABNE capacity building activities that benefited regulators and stakeholders in Burkina Faso since 2009.

Table 1: Summary of ABNE capacity building activities for Burkina Faso Regulators and Stakeholders (July 2009 – December 2013)

Activity	Venue and date	Numbers benefited
Training workshop on Agricultural Biotechnology	Senegal, July 2009	1
ABNE Regulators and Scientists Forum	Burkina Faso, April 2010	60
In-country workshop on Liability and Redress (L&R) workshop for Deputies, senior government officials, scientists and other stakeholders	Burkina Faso, July 2010	30
COP MO5 on Liability and Redress preparatory meeting	Kenya, July 2010	1
Study tour	South Africa, November 2010	2
West Africa regional training workshop on coexistence	Burkina Faso, November 2010	60
E-Biosafety Programme	Italy and Burkina Faso, July 2011	1
Internship	South Africa, November 2010	1
Science Technology Communication short course	Michigan State University –	2

	USA, August 2010 2011	
Agricultural Biotechnology short course	Michigan State University – USA, September 2011	2
International meeting (ABIC Conference)	Egypt	1
BCH training	Tunisia, November 2011	1
Biotechnology and Biosafety Internship and Study Tour Programme for African Regulators	South Africa, May 2012	1
Environmental Biosafety short course	Michigan State University – USA, August 2012	1
Training of Trainers (ToT) Programme	Michigan State University – USA, July 2012	2
1-year Biosafety Certificate Programme (Long Term Training Programme)	Michigan State University – USA, 2012- 2013	1
Sensitization workshop for Members of Parliament in Burkina Parliamentarians	Burkina Faso, December 2011 and October 2012	143 (95 MPs + 48 representatives from ministries and institutions)
Technical meeting on Burkina Faso revised draft Law	Burkina Faso, 2011 and 2012	56
Scientists and Regulators Forum	Tanzania, September 2012	2
Information sharing workshop for the preparation of the biosafety short course to be conducted in the Polytechnic University of Bobo-Dioulasso	Burkina Faso, May 2012	9
Training of Trainers (ToT) Programme	Michigan State University – USA completed in May 2013	2
Biosafety for lawyers short course	Michigan State University – USA, July – August, 2013	2
Sensitization workshop on the key issues contained in the ECOWAS–CILSS-WAEMU regional draft biosafety framework	Togo, October, 2013	2
Study tour to India	India, October, 2013	1
International training programme on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	4
TOTAL		**388**

To date, over 200 Burkina Faso regulators stakeholders have directly benefitted from ABNE capacity building programmes and activities organized in-country as well as outside where Burkinabe participants were sponsored to attend. Additionally, based on requests from the *Agence Nationale de Biosécurité* (ANB) and/or its partners, ABNE has been providing the necessary expertise for activities conducted by ANB in collaboration with relevant initiatives such as ICEGB, AATF, and/or under the bilateral cooperation between Burkina Faso and countries such as the USA.

ABNE has also been undertaking various initiatives at the diplomatic level in Burkina Faso so as to comply with the requirements of the status conferred by the host country agreement. For instance, ABNE team initiated a series of visits to foreign embassies and other diplomatic missions accredited to Burkina Faso. These were mainly intended for

policy advocacy purposes, but also gave ABNE the opportunity to explore future collaboration and sources of co-funding. In total, around 15 foreign missions in Ouagadougou were visited in 2010 and 2012. In August and September of 2013, ABNE facilitated the NEPAD-CEO's visit to Burkina Faso. His Excellency Dr. Ibrahim Assane Mayaki took this opportunity to meet with high ranking government official including the Minister of Scientific Research and Innovation who represents the National Biosafety Authority (NBA), various other ministers as well as the President of the West Africa Economic and Monetary Union (WAEMU) and the Chiefs of African Diplomatic Missions accredited to Burkina Faso. The NEPAD-CEO explained ABNE's role and mission and what has been achieved so far. The Minister of Scientific Research and innovation strongly expressed his gratitude and recognition to the NEPAD-CEO for the technical assistance provided by ABNE in the review of the Burkina Faso biosafety law.

Adoption of a workable, revised biosafety law

The Government of Burkina Faso adopted a revised biosafety law in December 2012 after a two-year long process. The new law received the Presidential ascent in February 2013. ABNE played an instrumental role in the process by providing technical assistance to the key players involved. Beneficiaries of ABNE's specific interventions include not only regulators, but also the Members of the Parliament as well as the members of the farmers' association and those of the cotton companies all involved in the value chain of the cotton sector. It is worth noting that ABNE was consulted by a specialized commission of the national parliament before the bill was recommended for final adoption. ABNE took this privileged opportunity to raise critical issues on liability and redress still remaining in the draft and requested the commission to adequately address them before sending the bill for final adoption.

As a result, the newly adopted law is deemed balanced and fully workable. Most stakeholders at the national level as well as those connected with the technology at the global level have expressed their satisfaction with regards to the provisions of the new law. For instance, the scope of the law now focuses only on living modified organisms and no longer covers products derived from modern biotechnologies, thus avoiding unnecessary confusion. The liability regime was also improved and is now mainly built on the fault-based basis. Definitions of terms including damages are now also well aligned with those of the Cartagena Protocol on Biosafety as well as with the Nagoya Kuala Lumpur Supplementary Protocol on Liability and Redress. It is expected that the Burkina Faso's new biosafety law serve as a model for other francophone countries in West Africa sub-region and could also inform the development of the harmonized biosafety framework at the WAEMU level.

Development and institutionalization of a biosafety short course at a University in Burkina Faso

Given the increased need for training in biosafety, ABNE is in the process of institutionalizing biosafety education at local universities in Africa. Based on the progress encountered by ABNE in the country, the Polytechnic University of Bobo-Dioulasso was

selected as one of the initial three universities together with the University of Ghana and the Makerere University in Uganda for offering biosafety short courses programme. In implementing this programme, faculty members from these three universities were trained at Michigan State University and a pilot course was successfully launched in Polytechnic University of Bobo-Dioulasso from November 4 - 9, 2013. More than 40 participants from 11 countries (Burkina Faso, Benin, Cameroon, Cote d'Ivoire, Ghana, Kenya, Mali, Nigeria, Senegal, Uganda, and Togo) attended the short course. This is the first time that ABNE institutionalized a biosafety short course at an African university. Having this type of short course offered at local universities in Africa will assure continuous training of regulators and other stakeholders in Africa at a lower cost.

The Polytechnic University of Bobo-Dioulasso is expected to serve as a centre of excellence in offering biosafety training within the francophone West Africa region. The selection of the Polytechnic University was supported by a number of reasons, including the fact that this university hosts the College of Rural Development, the *"Institut de Développement Rural"* which trains agronomists and related specialists, and also the fact that the main agricultural research station, the "Farakoba-Station," and the biggest cotton company, SOFITEX, are all located in the Bobo-Dioulasso area. This gives the short course participants the opportunity to visit and interact with Burkinabe farmers growing Bt cotton and also with scientists conducting field trials as well as with the cotton companies' staff.

The President of the Polytechnic University of Bobo-Dioulasso with Director of ABNE Prof. Diran Makinde at the launch of the ABNE Biosafety short course programme in November 2013

Continued efforts in sensitizing stakeholders on biosafety

Similarly as in other African countries, public institutions in Burkina Faso frequently face staff movement. Therefore, there is a need for continued efforts to keep sensitizing new regulators and decision makers on biosafety and biotechnology. ABNE often joins other partners either local or international in conducting specific outreach activities. In 2013 for instance, through the Open Forum for Agricultural Biotechnology (OFAB) platform, ABNE joined the Burkina Faso National Agricultural Research Institute (INERA), the Africa Agricultural Technology Foundation (AATF), the Burkina Faso Ministry of Scientific Research and Innovation and the U.S. Embassy in Burkina Faso to conduct the following activities:

- An information sharing workshop targeted to Burkina Faso media personnel was conducted in July 2013 in two main cities, Bobo-Dioulasso and Ouagadougou, and benefited around 40 journalists.
- Forums for information sharing and open discussions on agricultural biotechnology and biosafety targeted to various stakeholders.

In addition, ABNE sponsored the Burkina Faso Minister of Scientific Research and Innovation to participate in a study tour to India organized jointly by MSU and ABNE in October 2013.

Making Burkina Faso a learning place for African policy and decision makers

Since Burkina Faso is the first country in West Africa and the third in the continent to commercialize biotech crops, ABNE has been supporting participants from various countries for study tours in Burkina Faso. The aim is to provide an opportunity to decision makers from other African countries to visit cotton farms and discuss directly with local smallholders farmers about growing Bt cotton. In 2011, for example, ABNE joined Africa Harvest to successfully organize a farmer's day in Bobo-Dioulasso for representatives of the Farmers' Unions of Benin, Togo, Mali, and Burkina Faso. A high ranking delegation from Tanzania comprising of three Ministers, Members of Parliament, and the Cotton Board staff visited Bt cotton farms in Burkina Faso in 2012. In December 2013, ABNE joined other partners to organize a study tour to Bt cotton farms in Bobo-Dioulasso, targeting policy and decision makers from three francophone countries including Togo, Benin, and Burkina Faso.

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Ghana

A maturing biosafety regulatory system

Ghana's biosafety regulatory system continues to evolve into a full-fledged, fully functional biosafety regulatory regime through to the leadership of ABNE and support of other biosafety capacity building initiatives. The nation continues to make remarkable progress in creating a robust biosafety regulatory system for the regulation of biotechnology to ensure the country benefits from its enormous potentials while minimizing potential risks. Currently, the regulatory regime in Ghana is fluidly processing and making sound regulatory decisions on applications for activities regulated under the Biosafety Act 2011. Notwithstanding the notable achievements and the legitimate mandate of the National Biosafety Committee (NBC) which has been steering affairs so far, the absence of a National Biosafety Authority (NBA) has been a key missing link in biosafety administration in Ghana. Fortunately, the Government of Ghana has demonstrated strong commitment and significant political will towards establishing a NBA including the appointment of the Board members. This coupled with the finalization of Ghana's Biosafety regulations (currently near completion) are expected to be the final piece to complete Ghana's legal and institutional framework and to steer the nation's biosafety regulatory regime towards full autonomy.

Insect resistance cowpea trial

GM Rice (Nitrogen Use Efficiency – NUE) trial at CSIR-SARI - Kumasi, Ghana

In 2012 and early 2013, three CFT applications (insect resistance cowpea; high protein sweet potato and N-use efficiency; water–use efficiency; salt tolerant. NEWEST rice) and a multi-locational trial of Bt cotton were reviewed and approved by the NBC to commence in

the 2013 planting season. Currently, three of these field trials are successfully underway and are at different phases, including confined trials of Bt cowpea and nitrogen use efficiency (NUE) rice and the multi-location trial of Bt cotton. ABNE hopes to continue providing leadership in biosafety capacity building and harmonize capacity building efforts with other service providers to ensure maximum impact.

ABNE biosafety capacity building activities in Ghana

Ghana is gradually amassing a good number of trained and competent human resources in the area of biosafety regulation through the capacity building platforms of ABNE and partner biosafety initiatives actively operating in Ghana. Since 2010, ABNE has provided assistance to Ghanaian regulators, including the NBC, Institutional Biosafety Committees (IBCs) of research institutes, and state regulatory agencies charged with biosafety monitoring and inspection under the Biosafety Act 2011. This has been in the form of logistical support to make the biosafety secretariat functional, human resources capacity building, and provision of technical assistance and expertise. Three strategic goals drove ABNE activities in Ghana in 2013. They include 1) creation of an enabling policy, legal and institutional environment for biosafety regulation; 2) empowering a critical mass of regulators with improved competencies to administer the biosafety regulatory regime; and 3) enhancing biosafety communication to promote general biosafety awareness and public participation in Ghana. These strategic directions proved impactful and are expected to drive our design of activities for Ghana in 2014 to ensure continuity and to consolidate gains made in 2013.

Our target audience in Ghana has been and will continue to be the NBC, research institutions, state regulatory bodies charged with biosafety monitoring and regulation and the media. However, in 2014 we hope to expand our coverage to reach out to farmers and farmer-based organizations.

On-field, practical, hands-on experience by a section of Ghanaian biosafety inspectors at the NUE rice field trial site at CSIR-SARI - Kumasi, Ghana

Guided by these three goals, ABNE undertook a number of capacity building activities in Ghana. These are summarized in Table 2 below. In all, a total of 124 regulators were empowered in Ghana in 2013 through our training and education platforms such as workshops, internships and study tours, and biosafety short-courses, making the total regulators and other stakeholder trained to date 329. In addition, regulators had access to biosafety resources available via ABNE web portal and list serve. ABNE has maintained an open communication with the Ghanaian regulators who approach us for guidance where necessary. This has established us as a credible and trusted source of biosafety regulatory information for the competent authority in Ghana.

Impact of ABNE activities in Ghana

There were some notable achievements by Ghana in 2013 under the guidance of ABNE and partner biosafety initiatives. Below is a synopsis of some of these achievements.

Multi-location trial of Bt cotton successfully approved and currently on-going

The NBC and its Technical Advisory Committee (TAC) were empowered to successfully review and make a decision on the conduct of a multi-location trial of Bt cotton in Ghana. This particular trial was special because it was a precedent in the sub-region, being the first time a nation moved straight to multi-location trials using confined field trial data from a neighbouring country with similar agro-ecology. ABNE provided useful guidance and technical assistance that instilled confidence in the Ghanaian regulators, enabling them to make sound, regulatory judgment on this issue and confidently skip confined trials using regulatory data from Burkina Faso.

Multi-location trial of Bt cotton at Kpalkore site in Tamale, Ghana

Successful monitoring and inspection of on-going field trials ensured compliance

As mentioned earlier, three field trials are currently ongoing in Ghana. These trials needed to be inspected and monitored. The National Biosafety Secretariat has been empowered to adopt ABNE's inspectors manual for their operations. In addition, biosafety inspectors were trained to provide the NBC with a pool of human resources for inspection duties in all three trial sites for compliance. Institutional biosafety committees (IBC) are, as a matter of fact, the first safety valve in each of the research institutions currently involved in the field trials. All IBCs have been trained and are successfully monitoring these ongoing trials to ensure safety and compliance to terms and conditions.

Biosafety regulations developed

Following the passage of the Ghana Biosafety Act, ABNE provided technical support and input towards the development of biosafety regulations required to operationalize the act.

The draft document is due for submission to the Ghanaian cabinet and subsequently to parliament for consideration.

Draft biosafety communication strategy developed

ABNE provided technical support and strategic guidance for the development of a communication manual to facilitate biosafety communication and subsequently public participation in biosafety decision making in Ghana. This document was inspired by ABNE's Communications Manual and is due to be finalized and adopted in 2014. In addition, ABNE provided support for the development of communication materials on Biosafety in Ghana. These were titled "Development of Biosafety (Management of Biosafety) in Ghana" and "Key Documents on Biosafety in Ghana." Again, under this collaboration, a flow chart on biosafety application processing was also developed providing step-by-step guidance.

Draft position document on ECOWAS biosafety regulations developed

In an attempt to stimulate a harmonization of biosafety regulation in the Economic Community of West African States (ECOWAS), some detrimental provisions were introduced that, if adopted, would derail any success made in Ghana and the sub-region as a whole. ABNE actively participated in the national consultative process and provided technical inputs to shape position on a Draft ECOWAS Ghana's regulations to ensure that final document reflects international standards and best practices.

Regulators empowered through various training platforms

A total of 124 regulators were empowered in Ghana in the year 2013 (see Table 2). This was through various ABNE delivery platforms like workshops, study tours, short courses and technical assistance. This increasing mass of trained regulators provides the necessary skilled resource to ensure sustained functionality of the Ghanaian regulatory system. Refresher training would, however, be required to improve their knowledge and understanding and increase their confidence.

Increased confidence and political buy-in culminating concrete steps to ensure the inauguration of the board of the Ghana National Biosafety Authority (NBA)

A "seeing is believing" tour of small holder Bt cotton farms in India by a deputy minister of environment from Ghana and meetings held with the deputy minister of environment helped re-emphasize the significance and implications of the absence of a NBA in Ghana. Consequently, Ghana is taking steps to ensure that the NBA is established and functional. ABNE hopes to leverage from its cordial relationship with the competent authority to re-emphasize the significance of this step and to ensure that this comes to fruition.

Table 2: Summary of ABNE activities for Ghana (2010 – 2013)

Activity	Venue and Date	Numbers Benefited
Training workshop on biosafety decision-making	Ghana, March 2010	40
Environmental biosafety short course	Michigan State University – USA, July 2010 and August 2012	3

Food safety short course	Michigan State University – USA, August 2010	1
Internship	South Africa, November – December 2010 and May 2012	3
Study tour	South Africa, November – December 2010 and May 2012	4
Study tour	India, December 2010	1
Training workshop on administrative handling of biosafety applications and operating a functional biosafety secretariat	Ghana, November 2010	27
Sensitization workshop for Members of Parliament in Ghana on the Biosafety Bill	Ghana, 22 January 2011	40
Training to strengthen regulatory capacity for application review, decision making and compliance	Ghana, January, 2012	31
Training to strengthen biosafety communication capacity	Ghana, August 2012	25
Technical guidance for risk assessment review of applications for confined field trials for Maruca-resistant cowpea; protein-enriched sweet potato; and nitrogen-use efficiency, water-use efficiency and salt-tolerant rice (NEWEST) in Ghana	Ghana, August 2012	30
Preparatory meeting on multi-location trial of GE crops in Ghana; Case of Bt cotton	Ghana, April 2013	12
Technical support for application review of multi-location trials of Bt cotton in Ghana	Ghana, April 2013	27
Technical support for decision making on multi-locational trials in Ghana (case of Bt cotton)	Ghana, May 2013	15
Strengthening regulatory capacity of inspectors for inspection, monitoring and compliance of single cite/multi-locational trials in Ghana	Ghana, June 2013	30
Training to strengthen regulatory capacity of Institutional Biosafety Committees (IBCs) in Ghana	Ghana, July 2013	20
Biosafety for lawyers short course	Michigan State University – USA, July – August 2013	1
Follow-up and technical support for the drafting of a biosafety communication strategy	Ghana, May 2013	13
Training of Trainers (ToT) programme	Michigan State University – USA, May 2013	2
Regulatory study tour	India, October, 2013	1
International training programme on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	3
TOTAL		**329**

Future capacity building efforts

ABNE hopes to consolidate gains made in 2013 by pursuing the three strategic goals outlined earlier. Particularly, we hope to motivate the establishment of the NBA and to empower its staff to ensure effective biosafety administration in Ghana. Also important is the adoption of the new biosafety regulations by parliament. This would require some efforts at sensitizing the new parliament on biosafety issues, providing the necessary legal environment for handling requests for general release. ABNE will continue to provide

technical expertise based on its rich African experience and support to regulators in Ghana through various capacity building programmes. ABNE acknowledges that it takes multiple training sessions to reach the requisite level of confidence required by regulators in this field. Mindful of the significance of the public and other stakeholders in biosafety decision-making, ABNE hopes to continue to assist Ghana to finalize its communication strategy to promote effective public participation in GMO decision making. ABNE is also looking to support Ghana to ratify and implement the Nagoya-Kuala Lumpur supplementary protocol on liability and redress and to institutionalize biosafety training in the University of Ghana.

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Kenya

Kenya enacted its Biosafety Act in 2009 as the legal framework necessary to regulate agricultural biotechnology. This was followed by the publication of implementing regulations in August 2011, paving the way for commercialization of GM crops. Kenya therefore became the fourth country in Africa after South Africa, Egypt, and Burkina Faso to open up to gene technology. With the legal framework in place, the focus has shifted to establishing the infrastructure and processes essential for an effective and functioning biosafety system and ABNE has been instrumental in giving appropriate support.

Kenyan regulators attending a biosafety workshop on risk assessment risk management and decision making processes in July 2010

Kenya's institutional biosafety framework as outlined in the Biosafety Act of 2009 revolves around the National Biosafety Authority (NBA), an agency whose mandate is to act as the coordinating institution on matters relating to the safe development, transfer, handling, and use of genetically modified organisms (GMOs). Operations of the NBA are supervised by a Board of Management that was appointed in April 2010. The Board of Management is composed of a broad spectrum of representatives from relevant government ministries, supporting regulatory agencies, scientists, farmers, private sector, and consumer organizations. The board makes the final decision on behalf of the government of Kenya with respect to agricultural biotechnology. The NBA has so far only handled applications for contained and confined use of GMOs, but with the recent publication of requisite regulations, commercialization is expected in the near future.

Towards the end of 2012, the Kenya Parliament pronounced a ban on the importation of GMO food products into Kenya. This ban was premised upon the finding of the Seralini paper which has found to be incorrect and subsequently withdrawn. Following the ban, the government appointed a committee whose role is to collate information and advise the government on the lifting of the ban. In 2013, the National Biosafety Authority Board was also reconstituted and there will be a need to work closely with them in early 2014 to identify their training and capacity building needs. ABNE will continue to work with other partners

such as ABSF, PBS, and ISAAA to monitor the progress in lifting of the ban. ABNE will continue to actively participate in the review of regulations that were reviewed last year for handling, transport, and packaging of GM products.

ABNE biosafety capacity building activities in Kenya

A summary of ABNE's biosafety capacity building activities in Kenya is presented in table 3.

Table 3: Summary of ABNE Activities for Kenya

Activity	Venue and Date	Numbers Benefited
Workshop on risk assessment, risk management, and decision making processes for Kenyan regulators	Kenya, July 2010	35
Training workshop on biosafety regulatory processes in agricultural biotechnology for the National Biosafety Authority	Kenya, April 2011	17
Short courses in Agricultural Biotechnology; Environmental Biosafety; Food Safety; Science and Technology Communication; and Biosafety Training for Lawyers	Michigan State University –USA, July - September, 2011; July – September 2012; and July – August 2013	12
Regulatory study tours	South Africa, November 2010; February 2012	4
Strengthening biosafety communication capacity of the Board of the National Biosafety Authority	Kenya, September 2012	22
Building decision making capacity for commercialization of genetically modified crops in Kenya	Mombasa, Kenya, November 2012	20
International training programme on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	1
Masters e-biosafety course	Italy, January – December 2013	1
Regulatory study tour	India, October 2013	2
Biosafety internships	South Africa, November – December 2010; May 2012	2
International Meetings	Burkina Faso, South Africa and Sri Lanka, December 2010 and 2013	16
TOTAL		**132**

Impact of ABNE activities in Kenya

Recognizing the importance of the NBA in Kenya's regulatory framework, and with the need to build its capacity to regulate agricultural biotechnology, ABNE has offered biosafety services to address NBA's needs since its inception. Consequently, the NBA is progressively gaining confidence in processing applications and making decisions involving agricultural biotechnology, and is currently preparing for the review of general release applications. Furthermore, ABNE's expert consultation

has been instrumental in the development of the Biosafety Communication Strategy for Kenya.

Future capacity building strategy

Members of the Kenya National Biosafety Authority Board of Management at a biosafety training Workshop in April 2011

Having established the necessary legal framework, Kenya is now primed for general release approvals. ABNE will continue providing capacity building support to Kenya through training of regulators and expert consultations in developing the requisite regulatory infrastructure and processes in preparation for commercialization of GM crops and importation of GM products. Following the workshops, a Biosafety Communication Strategy for Kenya is being developed and will be disseminated to stakeholders. ABNE will work closely with the authority during this process and will also work with the authority on all issues related to the commercialization of GM crops in Kenya, including organizing training and workshops in this area. ABNE will also work with the NBA to identify the training needs for the newly appointed Board of Management and will actively participate with other stakeholders in meeting with policy makers with a view to lifting the ban on GMOs in Kenya.

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Malawi

The Government of Malawi signed the Cartagena Protocol on Biosafety in May 2000 and ratified it in 2009. In line with the requirements of the protocol, the Malawian Parliament enacted the Biosafety Act in October 2002. The act is administered by the Ministry of Environment and Climate Change Management. The act provides for an institutional framework for its operationalization consisting of the following:

- National Biosafety Regulatory Committee
- Reviewers
- Inspectors
- Biosafety registrar

Participants of the Bt cotton confined field trial regulatory progress review and training in Lilongwe, Malawi, July 2013

The country issued its Biosafety (Management of Genetically Modified Organisms) Regulations in 2007 and approved the National Biotechnology and Biosafety Policy on June 26, 2008. Among provisions in the Malawi biotechnology and biosafety policy is the delineation of roles and responsibilities at government level as well as at the R&D and other service delivery institutional levels. In the policy, the mandate for promoting and developing biotechnology in Malawi is vested in the National Commission for Science and Technology (NCST). The NCST hosts the National Biotechnology Committee, which is responsible for promoting biotechnology, public awareness, and coordination of biotechnology research and development. On the other hand, the Environmental Affairs Department (EAD) is responsible for the regulation of biotechnology, which entails receiving and reviewing applications for activities with genetically modified organisms and issuing licenses or permits. The EAD hosts the National Biosafety Regulatory Committee (NBRC). In addition, there is a third set of public institutions that are responsible for providing biosafety regulatory and enforcement services in the country. The mandate of these institutions is provided through regulatory provisions included in the various acts that established them. These include: the Ministry of Agriculture and Food Security; Ministry of Industry and Trade; Ministry of Health; Malawi Bureau of Standards;

Pharmacy and Medicines Board; Pesticides Control Board; Seed Services Unit; Plant Protection Unit; Ministry of Labour; Fisheries Department; Forestry Department; National Herbarium and Botanic Gardens of Malawi; Department of National Parks and Wildlife; Ministry of Local Government; Ministry of Women and Child Welfare; and Malawi Investment Promotion Agency.

The Ministry of Agriculture and Food Security has also established its Institutional Biosafety Committee (IBC) known as the Agricultural Biotechnology and Biosafety Committee (ABBC) which is technically and financially supported by the Ministry of Agriculture and Food Security.

Commencement of insect-resistant cotton CFT in Malawi

In 2009, Bunda College of Agriculture at the University of Malawi through Professor Moses Kwapata submitted applications for confined field trials of insect-resistant and herbicide-tolerant cotton. The two applications for confined field trials (CFTs) for Bt cotton (*Gossypium hirsutum*) with the events MON88913 (herbicide-tolerant) and MON15985 (insect-resistant) were submitted according to the provisions of the Malawi Biosafety Act #13 of 2002, Biosafety Regulations, 2007, and the Malawi Biotechnology Guidelines, 2009, to the National Biosafety Regulatory Committee (NBRC) through the Biosafety Registrar. In January 2013, Malawi commenced the first CFT for Bt cotton at Bunda College.

Prof. Moses Kwapata, the Bt cotton confined field trial investigator at the Bunda College in May 2013

Malawi is a focus country for ABNE in Southern Africa. A number of capacity building activities have been conducted since 2010 (Table 4). In the year 2013, two major biosafety capacity building activities were conducted in the country. At the workshop in February 2013, regulators and scientists received training on CFT monitoring, inspection, and compliance. In July 2013, a forum for Malawian National Biosafety Regulatory Committee was convened in Lilongwe in order to review regulatory progress on Bt cotton CFT and train the regulators in the area of biosafety communication. The events enhanced the capacity of the NBRC in broad areas of biosafety administration and that of scientists in CFT implementation. However, given that Malawi is making rapid advance into multi-location testing of Bt cotton with a view to commercialization, the need for continued engagement and backstopping was found to be essential. A summary of ABNE activities in Malawi are presented in Table 4.

Looking ahead: Biosafety needs and gaps

Malawi has made significant progress in building workable biosafety policies and regulations. The country has also acquired experience in testing Bt cotton. Malawi is moving forward to conducting multi-location trials of Bt cotton. Recently, the NBRC granted "partial approval" to Bt cotton multi-location trials based on the data provided from the CFT.

Table 4: Summary of ABNE activities in Malawi

Activity	Venue and Date	Numbers Benefited
Environmental Biosafety short course	Michigan State University – USA, July 2010	1
Study tour	South Africa, November – December 2010	2
Study tour	India, December 2010	1
Malawi Biotech/Biosafety Net-mapping in collaboration with IFPRI/PBS	Malawi, April 2011	34
ABNE Scientist and Regulators' Forum	Tanzania, September 2012	1
1-year Biosafety Certificate Programme (Long Term Training Programme)	Michigan State University – USA 2012- 2013	1
Strengthening the Capacity of Inspectors in CFT Inspection, Monitoring, and Compliance	Malawi, February 2013	23
Bt Cotton Confined Field Trial Regulatory Progress Review and Training	Malawi, July 2013	15
Biosafety for Lawyers short course	Michigan State University – USA, July – August 2013	1
TOTAL		**78**

Areas requiring ABNE intervention in the future:

- Training of the Biosafety Registrar, institutional biosafety committee members and members of the NBRC for their roles and responsibilities as biosafety regulators.
- Facilitating attendance of the Biosafety Registrar and members of the NBRC in a biosafety committee meeting of another country with a functional biosafety system.
- Auditing of the regulatory "value chain", identifying missing elements and enriching or developing operating modalities such as SOPs and Terms and Conditions, especially in preparation for approval and oversight of multi-location trials.
- Creating a platform for interactions among stakeholders, especially between the NBRC and scientists.
- Leading through or training NBRC members on the Malawian Biosafety Act and Biosafety Regulations.
- Training the NBRC, IBCs and scientists to prepare, handle and review applications, and risk assessment, inspection and compliance monitoring.
- Training members of the Agricultural Biotechnology and Biosafety Committee (ABBC) as an agricultural technical group of experts to serve as a team of scientific safety reviewers and strengthen their capacity in risk assessments.
- Supporting the NBRC in biosafety communication using the ABNE Biosafety Communication Manual.

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Mali

Mali ratified the Cartagena Protocol on Biosafety in 2003 and enacted the Biosafety Law in 2008 with the aim of establishing a regulatory system for agricultural and food biotechnology. This was an important achievement that was viewed by scientists and many other stakeholders as a significant step towards starting the process for approval of agricultural biotechnology activities in Mali, especially trials with Bt cotton.

Group photo of the Participants of the ABNE Biosafety Information sharing workshop and reflection on the Malian Biosafety regime in Bamako, July 2011

In a continued effort, the government adopted two decrees in December 2010, which established the composition, duties and working procedures of the National Biosafety Committee (NBC); and the conditions for conducting research on genetically modified organisms. It was believed that the adoption of these decrees would provide research institutes and laboratories in the country with the regulatory framework necessary for starting experiments, trials and release of GMOs in a safe and responsible manner. However, to date, despite the fact that Malian farmers have clearly expressed interest in growing Bt cotton and the national research institute *Institut d'Economie Rurale* (IER) allowed by its board to conduct confined field trials (CFT) of Bt cotton, no CFT applications have yet been received by NBC for Bt cotton trials in Mali.

ABNE efforts in building a functional biosafety system in Mali

Due to the actual political situation in Mali, the ABNE team has not been able to intervene directly in this country since 2012. However, ABNE has continued building Malian regulators' capacity through sponsoring a number of them in training programmes taking place in neighbouring countries.

Training of Malian regulators

Right from the inception of its capacity building programmes in 2009, ABNE has been engaged with Malian regulators through sponsoring regulators to participate in various meetings and training workshops in Africa and outside the continent. In 2011, on request from the Malian farmers' organization, ABNE conducted an information-sharing workshop for 60 participants. A major outcome from this meeting was the commitment demonstrated to improve the Malian regulatory system and allow scientists and farmers to test biotech products, especially Bt cotton. As a matter of fact, the Malian biosafety bill, like in many others African countries is considered too preventive and therefore needs to be improved through a better alignment with the provisions of the Cartagena Protocol on Biosafety and the Supplementary Nagoya-Kuala Lumpur Protocol on Liability and Redress.

A view of the participants to the ABNE Biosafety Information-sharing workshop and reflection on the Malian Biosafety regime in Bamako, July 2011

Table 5: Summary of ABNE capacity building activities for Mali regulators and stakeholders (July 2009 – September 2011)

Activity	Venue and Date	Numbers Benefited
Training workshop on Agricultural Biotechnology	Senegal, July 2009	2
ABNE Regulators and Scientists Forum	Burkina Faso, April 2010	2
Training workshop	Burkina Faso, November 2010	6
Information sharing workshop and reflection on Malian biosafety regime	Mali, July 2011	60
Biosafety short course	Michigan State University – USA, August 2011	1
Farmers' Day: farmers' experience sharing on agricultural biotechnology (jointly organized by Africa Harvest and ABNE	Burkina Faso, December 2011	5
ABNE biotechnology and Biosafety study tour programmes	South Africa, May 2012	1
ABNE training workshop on IBCs	Togo, July 2013	2
Sensitization workshop on the key issues contained in the ECOWAS –CILSS-WAEMU regional draft biosafety framework	Togo, October 2013	1

International training programmes on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	2
TOTAL		**82**

Unfortunately, the current political crisis facing the country compelled ABNE to slow its direct intervention in Mali. Nevertheless, ABNE continues to build Malian regulators' capacity through support to attend various training sessions and meetings in neighbouring countries. Malian scientists and regulators participated in the training on IBCs organized in July 2013 in Togo and also in the biosafety short course held in November 2013 in the Polytechnic University of Bobo-Dioulasso, Burkina Faso. The Table 5 summarizes ABNE's capacity-building activities carried out by ABNE in Mali.

Future capacity building efforts in Mali

Malian farmers in a field visit during the Farmers' day in Bobo-Dioulasso, December 2011

ABNE has recently received a request from the Mali biosafety committee to organize a one week biosafety training programme in Bamako. This would provide the opportunity for regulators and scientists to revisit the key fundamentals of biosafety and biotechnology and look into how the agricultural research institute (IER) can initiate field trials. An application for trials with GM mosquitoes is expected in 2014.

As the political situation improves and based on the fact that Malian farmers were the first in West Africa to publicly and officially demand genetically engineered improved seeds of Bt cotton, ABNE remains committed to continue working with the regulators to create an enabling regulatory environment. Therefore, ABNE will focus on:

- Conducting in-country training that will allow for an increased number of trained regulators.
- Providing the necessary support to review the current biosafety law.

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Mozambique

The government of Mozambique acknowledges the contribution that modern biotechnology can make to meet critical needs for food and nutritional security. At the same time, the government also recognizes that developing modern biotechnology must go hand-in-hand with appropriate regulations in order to maximize the benefits while minimizing potential risks. Therefore, developing a functional biosafety system has become a key priority of the government of Mozambique.

The Honourable Minister of Science and Technology of Mozambique requested ABNE to assist GIIBS Mozambique, May 2011

The government has taken positive steps towards achieving this goal, including: ratifying the Cartagena Protocol on Biosafety in December 2001; establishing an inter-institutional working group (GIIBS, Grupo Inter-Institucional Sobre Bio-Segurança) in 2002 to serve as the National Biosafety Committee (NBC), followed by the designation of the Ministry of Science and Technology to serve as the National Biosafety Authority; and drafting biosafety regulations and guidelines in 2007.

Presentation of office supplies to the Honourable Minister of Science and Technology of Mozambique, for the secretariat of GIIBS in Maputo, May 2011

Mozambique is part of AATF's Water Efficient Maize for Africa (WEMA) project with Kenya, Uganda, Tanzania, and South Africa. Mock field trials were conducted in 2010 in Mozambique as part of the training programme offered by the WEMA team. Mozambique is also a cotton growing country and faces the same challenges in controlling damaging pests as many other cotton producing countries. Yet, no application for the use of modern biotechnology has been submitted due to the lack of a regulatory process.

ABNE support to GIIBS in Mozambique

ABNE is engaged with the government of Mozambique through GIIBS to set up a functional biosafety system that would allow the country to efficiently regulate the use of agricultural biotechnology towards meeting the current challenges. The Table 6 summarizes ABNE's services offered to Mozambique. Around 50 Mozambican regulators have directly benefited from ABNE training activities. In addition to this, in May 2011 ABNE provided GIIBS with office supplies to facilitate the functioning of the biosafety secretariat, particularly to help with Internet access that will allow GIIBS members to access biosafety information resources.

Main impact of ABNE interventions in Mozambique

Acknowledging the relevance of ABNE capacity building programme in Mozambique and following the recommendations made at the workshop of May 2011, the Honourable Minister for Science and Technology requested NEPAD-ABNE to assist the national regulatory body (GIIBS): 1) to review and revise the Biosafety Decree No. 6/2007 to expand its scope to adequately cover R&D activities on GMOs in Mozambique and specifically align its content to reflect current developments in modern biotechnology and biosafety, such as the recently adopted Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress; and 2) to review and help develop a final draft of Biosafety Implementing Regulations for consideration and endorsement by the government of Mozambique as an official Ministerial document. Other partners, namely PBS and AATF, joined ABNE to take up this challenge. Significant progress was made since then. A MoU was signed with GIIBS and ABNE provided consultancy support to develop a revised draft decree. This task was successfully completed and the final report was officially submitted to the Minister's office by the Director of ABNE in February 2012. It was then expected that the Minister would take the next steps toward adopting the revised decree by the ministerial council so that the country could start confined field trials of Bt cotton and water efficient maize for Africa (WEMA) this year. A follow-up visit was jointly organized by ABNE and AATF in August 2012 with the aim of meeting the Honourable Minister and discussing the next steps for the completion of the process.

Presentation of office supplies to the Honourable Minister of Science and Technology of Mozambique, for the secretariat of GIIBS in Maputo, May 2011

ABNE hired a consultant to assist Mozambique in revising the "Regulation on Biosafety Related to Management of Genetically Modified Organisms." The revised version is yet to be submitted to the ministerial council. In order to move the process, a stakeholders meeting was organized in August 2013 with the support from ABNE and AATF. The objective was to provide a

workshop for legal officers and members of the National Biosafety Committee (GIIBS) for final input into the Mozambique Biosafety Legislative Review Process.

Table 6: Summary of ABNE activities in Mozambique

Activity	Venue and Date	Numbers Benefited
Consultative visit	Mozambique, December 2009	-
ABNE launch and Regulators-Scientists' Forum	Burkina Faso, April 2010	1
Training workshop on CFTs	Mozambique, March 2010	30
Environmental Biosafety short course	Michigan State University –USA, July 2010	3
Science and Technology Communication and Short Course	Michigan State University –USA, August 2010	1
Study tour	South Africa, November 2010 and India, December 2010	2
Technical assistance workshop on Mozambique biosafety regulations	Mozambique, May 2011	14
Office supplies	Mozambique, May 2011	
Consultancy support to review the biosafety decree	July – December 2011	
Follow up visit and technical meeting at the Minister's office	Mozambique, August 2013	10
1-year Biosafety Certificate Programme (Long Term Training Programme)	Michigan State University – USA, 2012- 2013	1
Workshop for legal officers and members of the National Biosafety Committee (GIIBS) for final input into the Mozambique Biosafety Legislative review process	Mozambique, August 2013	12
TOTAL		**74**

Future areas of focus for ABNE in Mozambique: Completion of the biosafety bill review process

ABNE, together with its partners, will follow up with the new Minister for Science and Technology and the national biosafety committee (GIIBS) to ensure this process is completed.

Training and technical assistance in CFTs application review, inspection and monitoring

It is expected that after completion of the biosafety bill review process, applications for CFTs of the water efficient maize and Bt cotton will be submitted to GIIBS. ABNE will then avail technical assistance to GIIBS to facilitate the review of biosafety applications, conduct inspections, and monitor the CFTs.

Public awareness

At the last meeting, the Honourable Minister regretted the widespread misinformation and misperception over GMOs in Mozambique, and requested ABNE to assist GIIBS in public education and awareness. To start, GIBBS and ABNE agreed to jointly conduct an information-sharing and sensitization workshop in Maputo in February 2013, targeting various decision-makers including committee chairs from the Parliament.

A follow up meeting between ABNE, AATF and the Hon. Minister for Science and Technology at the Minister's office in Maputo, August 2012

Mozambique participants at the 2nd ABNE Scientists and Regulators Forum in Arusha, Tanzania, September 2012

Long-term capacity building programme on biotechnology and biosafety

The Honourable Minister expressed needs for assistance in building the national capacities on biotechnology and biosafety. He especially requested assistance to:

- Help build human resources on biotechnology and biosafety through long-term training at Masters and PhD levels in this field.
- Support biotechnology and biosafety infrastructures such as well-equipped laboratories for research and risk assessment.

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Nigeria

Building on earlier gains for increased functionality

Nigeria continues to be a prime example of a regulatory system that focuses on safely harnessing different technologies for sustainable growth in agriculture. This policy includes creating an enabling environment for safe management of biotechnology by strengthening domestic regulatory capacity. Guided by the concept of "learning by doing" and with the delay in obtaining executive assent to the biosafety law notwithstanding, support was provided towards establishing processes essential for an effective and functional biosafety system. Biosafety was administered within the existing legal framework to ensure commencement of multi-location trials in Kaduna, Zamfara, and Kano States for Maruca-resistant cowpea and continued conduct of confined field trials for biofortified sorghum. It must be noted that unrelenting efforts were made throughout 2013 to explain the ramifications of the absence of the biosafety law. When assented to and operationalized, the law would ensure government support in the technology, assure the public safety, and facilitate public research and corporate collaboration as well as industry investment.

Biosafety inspectors at the Maruca-resistant cowpea CFT site in Zaria

ABNE's biosafety capacity building activities in Nigeria

The government of Nigeria has prioritized the functionality of its biosafety regulatory system and also the continuous engagement with gatekeepers through dialogue on biosafety issues for an all-inclusive approach to regulating agricultural biotechnology. Recognizing ABNE's increasing and impactful role in biosafety capacity building in Africa, the Competent National Authority on Biosafety requested for ABNE's assistance.

ABNE's approach in assisting Nigeria to address biosafety capacity needs have included building on prior progress and existing capacity through a demand-driven process. This entails collaborating with other global, regional and sub-regional biosafety initiatives in service delivery, forging strategic partnerships with institutions and stakeholders within the national system, and adopting a flexible approach to accommodate changing and emerging needs.

A farmer making a submission during the sensitization seminar on biosafety issues for Nigerian farmers in Abuja, December 2013

ABNE has, to date, offered biosafety expertise to Nigeria, covering issues in environmental safety; food safety; socio-economic aspects of biosafety, policy and regulations; and biosafety communication with 576 regulators, scientists, farmers, policy and decision makers directly benefiting from ABNE services (Table 6). Technical assistance was provided through biosafety training workshops; technical support in the review and adaptation of guidelines for biosafety administration; access to biosafety information resources through ABNE's web portal, policy briefs, newsletters, news bulletins and training manuals; short courses in environmental safety, food safety, and science and technology communication; biosafety internship programme in South Africa; study tours to South Africa and India; and global networking opportunities through participation in international meetings. Regulators were enrolled in a Masters e-biosafety course, a distance-learning programme designed to assist regulators who cannot be away from their duty posts for extended periods of time.

Table 6: Summary of ABNE activities for Nigeria

Activity	Venue and Date	Numbers Benefited
Technical support for the development of implementing regulations	Nigeria, April, 2013 and Nigeria, May, 2013	55
Training workshop on biosafety decision-making	Ghana, March, 2010	12
Environmental biosafety short course	Michigan State University –USA, July 2010 July – August 2011 and August 2013	5
Science and technology communication short course	Michigan State University –USA, USA August, 2011	1
Biosafety for Lawyers short course	Michigan State University –USA, July – August, 2013	1
International training programme on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	10
Masters e-biosafety course	Italy, January – December 2011 - 2013	2
Training workshop on CFT compliance and in-country study tour	Nigeria, September 2010 (included field visits to CFT sites)	52
Training to strengthen regulatory capacity for confined field and multi-location trial inspection, monitoring, compliance and biosafety	Nigeria, June 2012 and July 2013	83

communication		
Training to strengthen regulatory capacity of Institutional Biosafety Committees	Nigeria, November 2012	48
Strengthening biosafety communication capacity of the Competent National Authority and stakeholder institutions	Nigeria, November 2012	52
High level meeting on biosafety on the Biosafety Bill	Nigeria, September 2013	28
Regulatory study tours	India, October 2013	4
Regulatory study tours	South Africa, November – December 2010; May 2012 India, December 2010	4
Biosafety internships	South Africa, May 2012	1
Sensitization workshop for stakeholders in Nigeria on biosafety on the Biosafety Bill	Nigeria, February 2011 and September 10, 2013	123
1-year Biosafety Certificate Programme (Long Term Training Programme)	Michigan State University – USA, 2012 – 2013	1
Technical support for review of national biosafety communication strategy	Nigeria, December 2013	32
Sensitization seminar for farmers in Nigeria on biosafety issues	Nigeria, December 2013	34
Technical support for the review of guidelines on socio-economic considerations in biosafety	Nigeria, December 2013	28
TOTAL		**576**

Impact of ABNE activities in Nigeria (2010 – 2013)

Stakeholders participating in the review of national guidelines on socio-economic considerations in biosafety decision-making in Abuja, December 2013

Biosafety capacity building requires concerted efforts, hence ABNE is working with various stakeholders to promote progress in Nigeria. Impacts are achieved through partnerships and cooperation shaped by a shared vision and mechanisms for joint decision-making. Overall, the various biosafety activities contributed to enhancing knowledge and skills of Nigerian regulators' in adopting best practices for performing regulatory functions and also broadened their understanding of core issues in biosafety decision-making, resulting in increased confidence in the regulatory system. Impact was observed in three areas of strategic thrusts.

Creating an enabling legal environment for biosafety regulation

The national biosafety administration guidelines were adapted from the ABNE administrative manual to improve quality management systems and this, coupled with presentation of office equipment, has resulted in increased functionality of the national biosafety secretariat. While awaiting executive assent to the biosafety law, strategic guidance was provided during the review of various implementing regulations and guidelines towards operationalizing the biosafety law. This resulted in more workable provisions. Four regulations were reviewed, i.e., regulations for contained use and confined field trials; commercial release; import, export and transit; and handling, transporting, packaging and labelling. Also reviewed and recommended for redrafting were guidelines on socioeconomic considerations of GMOs. The review of implementing regulations afforded an opportunity to train lawyers involved in the formulation regulation on biosafety issues and key considerations in drafting workable implementing regulations.

Building the critical mass of regulators with enhanced competencies in biosafety

The training workshops to strengthen regulatory capacity for CFT compliance and monitoring for ongoing confined field and multi-location trials helped build the critical mass of regulators with expertise in biosafety inspection, monitoring and compliance. This resulted in the adoption of best practices for inspectorate functions, strengthened competencies, and increased confidence in the regulatory system. The short courses at Michigan State University and Polytechnic University of Bobo-Dioulasso for regulators, policy and decision-makers strengthen competencies in executing mandated functions. The farmer sensitization seminars and high-level stakeholder meetings promoted understanding of the regulation of GMOs and cleared myths and misperceptions. This resulted in increased stakeholder awareness and involvement as well as their support for biosafety processes. Participation in the study tours enabled Nigerian regulators to build a network of regulators and practitioners that will facilitate continuous cross-learning and sharing of experiences and lessons.

Enhancing biosafety communication and cooperation

Technical support was provided to develop a national biosafety communication strategy. This communication plan will support the day-to-day communication activities of the Competent Authority. It will also provide a platform for enhanced public understanding on issues of biosafety and improve public participation in biosafety decision-making and policy. Technical guidance was provided in clarifying the implications of the proposed ECOWAS regulations for Nigeria. This resulted in submissions to the ECOWAS Secretariat to ensure Nigeria's best interests are served within the regional framework. The training for Institutional Biosafety Committees and ABNE's multi-stakeholder approach to capacity building resulted in improved networking and cooperation among scientists, regulators, and policy-makers.

Future capacity building efforts

ABNE, at the request of the Federal Ministry of Environment, the Competent National Authority (CNA) on Biosafety in Nigeria, plans to continue providing biosafety services through 2014 in three broad areas.

Creating an enabling legal environment for biosafety regulation

ABNE envisages continual support for the National Competent Authority in obtaining executive assent to the law and also finalizing the regulations and guidelines to implement the biosafety law. The national biosafety secretariat will receive further technical support for increased functionality in biosafety administration through an internship programme in a more advanced regulatory system. This will enhance competencies in biosafety regulation. Assistance has also been requested for review of the biosafety decision document, IBC guidelines, and for developing guidelines on emergency response.

Building the critical mass of regulators with enhanced competencies in biosafety

ABNE plans to provide further training to regulators in the research institutions, regulatory institutions, and the National Competent Authority on Biosafety to ensure strengthened competencies in monitoring compliance and regulation enforcement. A study tour to South Africa and in-country seminars on biosafety issues are planned for regulators, scientists, farmers, and the media to improve understanding of biosafety and biotechnology management. Participation in biosafety short courses at Michigan State University and Makerere University in Uganda in 2014 will also improve regulator's knowledge and understanding of biosafety and biotechnology.

Enhancing biosafety communication and cooperation

Technical support will be provided to finalize the national biosafety communications strategy, considering that a solid communications strategy will allow the National Competent Authority to exercise control on the delivery of key messages and ensure the continuous and systematic process of information sharing while elevating the visibility of the authority. A forum for regulators and scientists will be a platform for improved cooperation and collaboration among scientists and regulators through networking and understanding each other's roles. Going forward into 2014, ABNE will ensure that current impetus is sustained in the broad areas of technical assistance through effective post-training support and follow-up programmes.

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Tanzania

Building a functional biosafety system in Tanzania

Tanzania is a signatory to the Cartagena Protocol on Biosafety and has put in place a National Biosafety Framework for the safe use, adoption, and utilization of modern biotechnology. In line with the Cartagena Protocol, Tanzania has developed an Environmental Policy (1997), a regulatory framework as contained in the Environmental Management Act (2004) together with regulations (2009) and guidelines, including manuals. Tanzania has institutional arrangements that include a National Biosafety Committee, National Competent Authorities, and Institutional Biosafety Committees.

In 2002, the National Biotechnology Advisory Committee (NBAC) was established to advise the government and other stakeholders in all aspects of biotechnology. The National Biotechnology Policy (2010) was adopted to promote safe development and application of biotechnology in order to help realize the MKUKUTA/MKUZA and National Development Vision 2025.

ABNE efforts in building a functional biosafety system in Tanzania

Since the inception of its capacity building programmes, ABNE has been engaged with Tanzanian regulators through the facilitation of their participation in various meetings and training workshops in Africa and abroad. In 2012, ABNE hosted a high-level delegation of policy makers and regulators from Tanzania to the Bt cotton farms in Burkina Faso. The fact-finding delegation of 18 included three cabinet members: the Minister for Communication, Science and Technology (head of the delegation); the Deputy Minister for Agriculture, Food Security and Cooperatives; and the Deputy Minister for Environment in the Vice President's Office. Others were the Chairpersons of the Parliamentary portfolio committees for S&T, Agriculture and Environment; Chair of the Tanzanian Cotton Board; and regulators, scientists and media personnel. The study tour was organized in collaboration with the *Agence Nationale de Biosécurité* (ANB) of Burkina Faso.

The main outcome from this study tour can be summarized with a quote from the head of the Tanzanian delegation, His Excellency, Honourable Prof. Makame M. Mbarawa, Minister of Communication, Science, and Technology, when giving his concluding remarks:

> ***"We have seen that Bt cotton works in Burkina Faso, and farmers have clearly explained that they are benefitting from it. Now, back home we will work on our law so that experiments and studies can be carried out in Tanzania to see if the technology works the same way as in Burkina Faso."***

Environmental Biosafety short course at Michigan State University – USA, August 2011

In 2013, the Programme for Biosafety System (PBS) in collaboration with COSTECH held a two-day workshop on critical legal issues surrounding biotechnology and biosafety on May 8-9, 2013, at Kunduchi Beach Hotel, Dar, Tanzania. The workshop's purpose was to introduce government lawyers, scientists and regulators to critical legal issues surrounding the regulation of genetically modified organisms. The training intended to bring a common understanding to the participants on critical issues as well as the international legal obligations that shape national biosafety regulatory systems. ABNE was engaged in the training and during the workshop, it was recommended that there is need for scientists and lawyers to work together so that each group can forge a clear understanding of the law and science. To this end, Tanzania will organize an internal workshop for scientists and lawyers to address concerns of all stakeholders.

Table 7: Summary of ABNE Activities for Tanzania

Activity	Venue and Date	Numbers Benefited
Regulatory study tour	India, December 2010	1
Collaboration meeting with PBS	Tanzania, August 2012	15
Study tours and internship	South Africa and Burkina Faso, February and November 2012	20
International meetings	Various meetings in 2012	2
Collaboration meeting with PBS	Tanzania, May 2013	27
Biosafety short course	Michigan State University – USA, August 2013	2
TOTAL		**67**

Way forward

ABNE will continue to work with other stakeholders in Tanzania and intervene on a need basis.

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Togo

Building a functional biosafety system in Togo

The Togolese Biosafety Focal Point attending ABNE first training workshop in Dakar, Senegal, June 2009

Further to ratifying the Cartagena Protocol on Biosafety in 2003, the Togo government developed a national biosafety framework in 2004 and enacted a biosafety law in 2009. The Ministry of Environment and Forestry Resources was designated to endorse and coordinate the biosafety framework. Under its auspices, the national biosafety committee started drafting the regulations required to guide implementation of the law, but had to hold on the process when the negotiations for the supplementary protocol on liability and redress were about to be concluded at the international level. It is thought that the current Togo biosafety law focuses on an overly precautionary approach and thus puts too much emphasis on potential risks associated with biotechnological applications and products.

Over the last two years, the ABNE has been assisting the Togo government to develop a functional national biosafety system that will operate for all interested parties in the country. One major achievement so far from this continued effort is the recent signature of the Nagoya – Kuala Lumpur Supplementary Protocol to the Cartagena Protocol on Biosafety by the Government of Togo.

View of participants attending the Togolese Stakeholders' information-sharing workshop organized by ABNE in Lomé, June 2011

ABNE efforts in building a functional biosafety system in Togo

ABNE started working with the Togolese biosafety regulators in early 2009 when ABNE, in response to a request from the National Biosafety Committee, organized an in-country consultative meeting in Lomé. Afterwards, a number of Togolese stakeholders including regulators, scientists, and lawmakers have been regularly involved in ABNE's key activities, which are summarized in Table 8. In addition, further to the signing of the Kuala Lumpur Supplementary protocol on liability and Redress, ABNE is currently providing assistance to the Togo government to revise and improve the biosafety law.

Empowering Togolese regulators through biosafety training activities

Togolese participants including regulators and scientists were sponsored to attend ABNE's biotechnology training workshop organized in Dakar from July 8-10, 2009, in collaboration with the Cheikh Anta Diop University of Senegal. They then attended the West Africa regional training workshop on coexistence organized from November 10-12, 2010 in Bobo-Dioulasso, Burkina Faso, and the Biosafety Summer Academy jointly organized by ABNE and University of Groningen, in the Netherlands in June 2012.

On invitation by the Togolese Government, ABNE organized a biosafety stakeholders' information-sharing workshop in Lomé from June 28-30, 2011. The workshop brought together 55 participants including regulators, members of parliament, scientists, civil society representatives, farmers, and media personalities. This event was the first opportunity for such a large audience to discuss the Togolese national biosafety regime. Participants benefited not only from the up-to-date scientific information from the ABNE experts, but also from the ground experiences and views shared by Burkinabe specialists who joined the ABNE team as invited experts.

Supporting Togolese regulators' participation in international biosafety meetings

Togo regulators were sponsored to attend the ABNE launch meeting and participate in the technical discussions at the first forum of regulators and scientists held in Ouagadougou in April 2010. Since then, representatives from the National Biosafety Committee attended various meetings including the biosafety coordination meeting in Nairobi, Kenya, in April 2011, the African Green Revolution Forum, and the ABNE 2nd Scientist and Regulators Forum held in Arusha, Tanzania in September 2012.

ABNE team meeting with the Togolese Minister of Environment (centre) to discuss the country's priority needs on biosafety capacity building in December 2012

Improving the regulatory system in Togo: Review of the biosafety law

With assistance from ABNE, in 2013 the Togo government started the process of revising the biosafety law which was passed in 2009, but deemed unworkable by many partners. A draft text is ready and now awaiting for stakeholder's validation before it is tabled to the Parliament. Indeed, such a process is highly political and could take time for various reasons including cabinet reshuffles. However, it is expected that once the process is complete, Togo will be the second West African francophone country after Burkina Faso to

have a workable biosafety law. These two countries will then constitute a driving force for the rest of the WAEMU member countries in the West Africa sub-region.

Establishment of Institutional Biosafety Committees (IBCs)

In June 2013, ABNE organized a training workshop in Lomé focused on the roles and responsibilities of IBC members. It aimed at sensitizing and empowering scientists and faculty staff to create institutional biosafety committees within their respective departments to facilitate decision-making for contained experiments with biotech crops. This workshop benefited scientists from the Togo Agriculture research institute and from the University of Lomé, together with participants from Burkina Faso and Mali.

Table 8: Summary of ABNE activities in Togo

Activity	Venue and Date	Numbers Benefited
Capacity building workshop on biotechnology and biosafety for regulators and trainers	Senegal, July 2009	2
ABNE launch and Regulators-Scientists' Forum	Burkina Faso, April 2010	1
West Africa regional training workshop on coexistence	Burkina Faso, November 2010	5
Biosafety initiatives coordination meeting	Kenya, April 2010	1
Information sharing workshop and reflection on Togolese Biosafety regime	Togo, June 2011	55
Workshop on the Togo biosafety law No 2009-001	Togo, April 2012	20
Biosafety Summer Academy	Netherlands, June 2012	2
COP-MOP6 preparatory meeting	South Africa, August 2012	1
ABNE Scientist and Regulators' Forum	Tanzania, September 2012	1
Technical meeting with Togolese government officials	Togo, December 2012	3
Training on roles and responsibilities of IBCs	Togo, June 2013	15
Training on biotechnology and biosafety for lawyers	MSU, July – August, 2013	1
Technical meeting on the key issues contained in the ECOWAS –CILSS-WAEMU regional draft biosafety framework, October 17-18, 2013	Togo, October 2013	6
International training programme on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	4
Study tour to Bt cotton farms in Burkina Faso	Burkina Faso, December 2013	5
TOTAL		**122**

Improving Togo contribution to building a workable harmonized regional biosafety framework

In partnership with PBS, ABNE organized a technical meeting in Lomé, Togo in October 2013, focusing on the regional biosafety framework being developed by ECOWAS, WAEMU, and CILSS to serve as a regional biosafety act. The meeting aimed to improve the understanding of the main issues contained in the draft framework and their implications at the West Africa regional level. Participants included were lawyers involved in the biosafety regulation and were selected from Togo, Burkina Faso, Mali, and Senegal. Table 8 summarizes the ABNE capacity building activities for Togolese regulators.

Togolese lawyers discussing at the technical meeting on Togo Biosafety law in Kpalimé , April 2012

Togolese participants to ABNE and PBS technical meeting on the West Africa Regional Biosafety Framework in Lomé 2013

Togolese MPs, regulators, and representatives of the Ministry of Environment and the Ministry of Agriculture participating in a study tour organized by ABNE and partners to Bt farms in Bobo-Dioulasso, Burkina Faso, December 2013

Main outcomes of ABNE interventions in Togo

- Key recommendations from the stakeholders' information-sharing workshop held in June 2011 in Lomé aim to speed up the process of building a functional biosafety system in Togo and are to be addressed by the Togo government with support expected from ABNE.

- Togo Government signed the Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress on September 27, 2011. Togo thus became the fifth African country signing this protocol after Cape Verde, Madagascar, Mauritania, and Mozambique.
- The Togo biosafety law is being revised. The process stared in 2013 and is expected to conclude in 2014.

Togolese participating in the ABNE Biosafety short course at Polytechnic University of Bobo-Dioulasso in November 2013

Future capacity building efforts

ABNE will continue to engage with the Togo government in building a functional biosafety system following recommendations emerged from various meetings with Togolese stakeholders. Particularly, ABNE will focus on:

- Completing the process of revising the biosafety law.
- Continuing to build regulator's capacity through training and other capacity building activities.

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Uganda

Building a functional biosafety system in Uganda 2013

Uganda has made tremendous progress in biotechnology research involving transgenic crops. It has approved several GM crops for confined field trails (CFTs), setting a highest record of CFTs in Sub-Saharan Africa (SSA) at any given time. However, without a biosafety law in place, these efforts have being stagnating at the CFT level, making it impossible for Uganda's resource of poor farmers to benefit from genetically engineered crops.

Study tour to South Africa organized by ABNE's partner AfricaBio in March 2013

The Uganda National Council for Science and Technology (UNCST), which houses the second node of ABNE in Kampala, spearheaded the development of the Biotechnology and Biosafety Policy approved by the Cabinet in 2008. Consequently, UNCST and other biotechnology stakeholders championed the drafting of a biosafety bill to operationalize the policy. Finally, with the assistance of the Ministry of Justice and Constitutional Affairs, a National Biotechnology and Biosafety Bill (2012) was drafted and tabled on the floor of Parliament for the first reading by the Minister of State for Planning responsible for Science and Technology. Accordingly, the bill was assigned to the Parliamentary Standing Committee on Science and Technology (S&T). Consequently, the S&T Committee drew a comprehensive programme, comprised of retreats, and workshops to receive stakeholder's views on the bill. To crown these activities, the committee planned a benchmarking study tour to South Africa which has already commercialized biotechnology crops. These new

developments have provided momentum for stakeholders to place more energy towards fast-tracking enactment of the biosafety bill.

Due to insufficient funds to conduct the study tour by itself, the S&T Committee through UNCST approached ABNE with a concept note for a possible partnership, settling on South Africa as the desired destination. With shared responsibility, ABNE agreed and fully supported the participation of 16 MPs and four non-MPs which included three staff of the National Assembly (a scientist, a clerk to the Committee, and a parliamentary lawyer) and one representative of the UNCST (Deputy Executive Secretary), whereas the S&T Committee sponsored both its chairman and vice-chairman and three other staff of the National Assembly. This study tour organized through ABNE's partner, AfricaBio, in South Africa took place from March 25-29, 2013. The Uganda National Biosafety Committee was reconstituted in 2013 and now has a mix of both experienced and new members. The Biotechnology and Biosafety Bill was debated and was returned back to the council on the grounds that there should have been more public participation. It is hoped that the bill will be resubmitted to Parliament in early 2014.

In 2014, ABNE will continue to work with the Uganda National Council for Science and Technology, more particularly with the newly appointed National Biosafety Committee. Training for the committee members will be organized early in 2014 and it is expected to help identify other training needs for the committee. ABNE with other stakeholders will follow up on the progress of the draft Biotechnology and Biosafety Bill with the aim of ensuring that information is available as needed for the parliamentarians as they discuss the bill.

Identified biosafety needs and gaps

- Passage of the National Biosafety Bill
- Support and training for the new members of the National Biosafety Committee
- Post CFT regulatory activities that will lead to general release (commercialization) of approved GM crops in Uganda

ABNE involvement in providing biosafety support to Uganda

- To sensitize the newly elected members of Parliament on the current status of the National Biotechnology and Biosafety Bill that will soon be presented to the House for reading and debate.
- Given the advancements made in conducting CFTs, provide regulatory support towards general release activities.
- To work with the National Biosafety Committee on the Risk Assessment Tool that was developed by the Ad-hoc Expert Group of the Cartagena Protocol

The activities ABNE has supported for Uganda are summarized in the table below:

Table 9: Summary of ABNE activities for Uganda

Activity	Venue and Date	Numbers Benefited
Workshops	Uganda, December 2012	30
Biosafety and Biotechnology short course	Michigan State University –USA, July – September, 2012	7
Study tours and internship	South Africa, February 2012	2
International meetings	Various	4
1-year Biosafety Certificate Programme (Long Term Training Programme)	Michigan State University –USA, 2012-2013	1
Biosafety short courses (environmental and food safety and lawyers' training)	Michigan State University –USA, 2013	1
Regulatory study tour	South Africa, March, 2013	25
Regulatory study tour	India, October 2013	2
TOTAL		**72**

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Francophone Emerging Countries: Cameroon, Cote d'Ivoire, and Senegal

Over the past two years, ABNE has been facing a growing demand for biosafety services from African countries. Although the focus is on 10 selected priority countries, ABNE as an AU/NEPAD programme is not in a position to ignore the needs coming from other AU Member States. Thus Cameroon, Senegal and Cote d'Ivoire have been considered emerging countries and have started benefiting from ABNE services.

Cameroon

The Cameroon government ratified the Cartagena Protocol on Biosafety in 2003 and in April of the same year, adopted the biosafety *Law N° 2003/006 of 21 April 2003* to enforce safety regulations governing modern biotechnology in Cameroon. The Decree No. 2007/0737 was then adopted in May 2007 fixing application of the biosafety law. In 2010, the Cameroon cotton company (SODECOTON) expressed interest in experimenting with GM insect-resistant and/or herbicide-tolerant cotton varieties. However, some of the product developers declined the tender, arguing that the regulatory provisions were not well aligned with those of the international treaties such as the Cartagena Protocol on Biosafety. Nevertheless, the cotton company managed to establish a partnership with Bayer Crop Science Company to start field testing of GM cotton in 2010. This achievement prompted needs and demand for biosafety regulatory capacity building in the country. It is worth noting that Cameroon is also implementing a biosafety project titled *"*Cameroon: Development and Institution of a National Monitoring and Control System (Framework) for Living Modified Organisms (LMOs) and Invasive Alien Species (IAS) under the Global BS Programme.*"*

Based on this development, in May 2013 ABNE conducted a fact-finding and needs-assessment mission in Cameroon that led to the conclusion that although the national biosafety committee approved GM cotton CFT two years ago, regulators, decision and policy makers need more training, information, and exposure on biosafety fundamentals and regulations. A road map was then developed to shape ABNE contribution to building regulatory capacity in the country. The main areas defined for ABNE intervention are described below with most of the activities scheduled to start in 2014. In the meantime, ABNE sponsored a member of the NBC to attend the International Biosafety short course at Polytechnique University of Bobo-Dioulasso.

Areas for ABNE intervention in Cameroon

Capacity building

ABNE will work towards information, sensitization of the NBC members, policy, and decision makers on various aspects of biosafety. The necessary activities to implement will include conducting an inception general biosafety training workshop that will be followed by a series of more specific training sessions focused on key topics such as roles and responsibilities of NBCs and IBCs; risk assessment for decision-making, inspection and

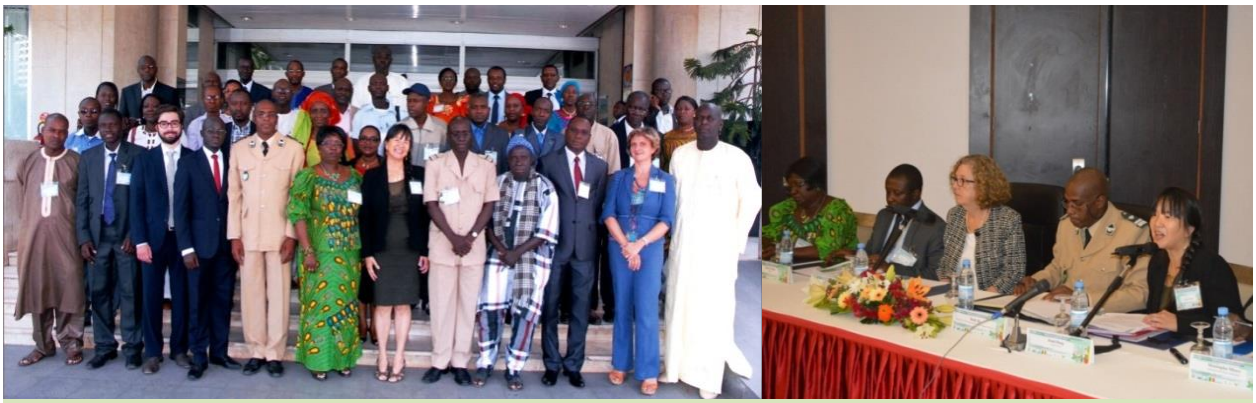
monitoring of CFTs; and biosafety communication. ABNE will also facilitate participation of NBC members in study tours, short courses and international meetings on biosafety-related topics. The aim is to improve their exposure to experience from other regulators and countries.

Improvement of the regulatory framework

ABNE will first support the ongoing efforts towards the ratification of the Nagoya Kuala Lumpur Supplementary Protocol on Liability and Redress by the Government. ABNE will then facilitate the revision of the biosafety law for a better alignment with the Nagoya Kuala Lumpur provisions and other international treaties on biosafety.

Senegal

The Senegal government ratified the Cartagena Protocol on Biosafety in 2003 and then adopted the biosafety law in July 2009. A decree was also adopted in December 2009 to lay down the composition, missions and functions of the National Biosafety Authority (NBA), for which the chairman was nominated in March 2012 through a ministerial decree. ABNE showed commitment in assisting the Senegalese NBA by organizing a training workshop in Dakar in July 2009 through the partnership with the Cheick Anta Diop University. It is also worth noting that the country was granted a support from the WAEMU Biosafety Project to acquire biosafety laboratory equipment.



Sensitization workshop for Senegal Regulators, Policy and Decision Makers in Dakar, September 2013

Senegalese participants at the ABNE Biosafety short Course in Polytechnic University of Bobo-Dioulasso, Burkina Faso, November 2013

Recently through the Ministry of Environment in Senegal requested ABNE's support to effectively move forward with the biosafety regulatory system and make it operational. In view of the leading role played by Senegal within the Francophone West Africa region, other initiatives such as the USDA regional office in Dakar and CORAF/WECARD showed interest in supporting Senegal to improve its agricultural conditions. Senegal remains to be one of the biggest food product importers within the sub-region. Thus, in 2013 ABNE agreed to involve Senegal's NBA members in a number of activities including the Bobo-Dioulasso Biosafety short course and the technical meeting on the regional biosafety framework in Lomé. More importantly, ABNE joined the above mentioned institutions to organize a sensitization workshop in Dakar in September 2013, aimed at sensitizing Senegalese stakeholders for moving forward with the regulatory set up. The main outcome from this intervention was that participants developed a roadmap clearly outlining actions and steps towards operationalization of the regulatory framework. ABNE activities that have involved Senegalese regulators and decision makers are listed in the table below.

Table 10: Summary of ABNE capacity building activities for Senegalese regulators and decision makers

Activity	Venue and Date	Numbers Benefited
Biotech workshop in Dakar in July 2009	Senegal, July 2009	70
Sensitization workshop	Senegal, September 2013	50
Sensitization workshop on the key issues contained in the ECOWAS –CILSS-WAEMU regional draft biosafety framework	Togo, October 2013	1
International training programme on biosafety for African regulators, policy, and decision makers	Polytechnic University of Bobo-Dioulasso – Burkina Faso, November 2013	2
TOTAL		**123**

Main achievement in Senegal

- A clear roadmap describing the necessary actions to improve the regulatory system in Senegal was developed. One of the key priority actions in the roadmap is to revise the Senegal biosafety law that is considered too preventive and not aligned with the international provisions.
- Senegal representatives to the development process of the West Africa regional biosafety framework are well-informed and sensitized on the key issues contained in the draft text, and are ready to provide an informed contribution to building a workable regulatory environment for the sub-region.

Areas for ABNE future interventions

Improving the regulatory system

Review of the biosafety law was listed as a top priority in the roadmap. With the experience gained, ABNE will provide the necessary technical assistance for this to be achieved in the near future.

Training regulators, policy and decision makers

The roadmap also listed a number of training programmes needed by Senegalese regulators, policy and decision makers, and ABNE was requested to provide the necessary support. ABNE hopes to follow up on these requests and assist Senegal in developing a workable Biosafety law.

Senegalese NBA member and Lawyer participating at the technical meeting on the regional harmonization of biosafety framework in Lomé, October 2013

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Cote d'Ivoire

Côte d'Ivoire remains among the few countries yet to ratify the Cartagena Protocol on Biosafety (CPB), though the country is party to the Convention on Biodiversity (CBD). In fact, the Cote d'Ivoire government started the CPB ratification process in 2002, but could not complete it due to an expected terminology error. The term "biotechnics" was used instead of "biotechnology" in the ratification file submitted by the government. However, the government has drafted a biosafety law along with two implementing regulations that are now ready for adoption. The government has also developed a policy document that states the national position and orientations with regards to technology and biotechnology. Currently the government is working hard with international partners to soon start field trials with a number of crops including Bt cotton.

Based on this, regulators took a proactive approach and requested ABNE's assistance to start building the required capacity. Preliminarily, ABNE sponsored two regulators to attend the Biosafety short course in Bobo-Dioulasso in November 2013. Institutionalizing biosafety education at African universities allows ABNE to expand its services to other countries beyond the 11 priority countries.

Côte d'Ivoire participant to the ABNE Biosafety short course visiting Bt cotton farms in Burkina Faso, November 2013

Côte d'Ivoire together with Nigeria plays a key role in the regional bodies, namely WAEMU and ECOWAS. In the near future, ABNE and Cote d'Ivoire envisage coming up with a roadmap to outline ABNE's interventions in the country.

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Building a Regional Harmonized Biosafety Framework in West Africa

ECOWAS, WAEMU and CILSS, the three West African regional bodies, agreed some years ago to develop a harmonized biosafety framework to avoid adopting different biosafety regulations within the sub-region. Draft text was developed and is under consultation. In May 2013, ABNE was invited to be an observer for the first time at a technical meeting in Abuja together with other biosafety initiatives such as PBS. ABNE provided substantive technical input to the discussion. Nevertheless, the draft biosafety framework that was developed still remains too precautionary and may not create an enabling regulatory environment for the safe use of biotechnology applications within the West African sub-region. ABNE and other partners are of the view that this framework will certainly undermine efforts already invested at the country level within the sub-region. Hence, ABNE and its partners, especially PBS, undertook to educate and sensitize representatives from a number of Francophone countries, namely Burkina Faso, Benin, Togo and Senegal, on the issues contained in the draft regional act. In line with this, a workshop was conducted in Lomé to prepare the country representatives for the next meeting convened by ECOWAS in October 2013. The workshop highlighted the issues related to the nature of the draft framework under development, whether it is an act or a directive; the scope of the draft, whether it should or should not include the genetically engineered products thereof; the institutional arrangements; whether decisions over the use of biotechnology products are made at the regional or the country level; the socio economic aspects and (vi) the liability and redress regimes.

Technical meeting for francophone countries on the regional harmonization of biosafety framework in Lome, October 2013

The draft framework is still under development and the discussions are ongoing. ABNE and its partners remain committed to follow the process and provide technical guidance and support as needed.

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ABNE in Africa

Towards Building Functional Biosafety