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Indonesia

Agricultural Biotechnology Annual

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Report Highlights:
This report updates the Agricultural Biotechnology Annual Report 2012 in providing information on biotech development in Indonesia.

Section I. Executive Summary:
The United States exported over $1.3 billion of genetically engineered (GE) products to Indonesia in 2012, to include Bt cotton, herbicide tolerant soybeans and meal, Bt corn and a variety of food products derived from GE crops.

At present, there are no imported or locally developed commercial GE seed varieties approved for planting in Indonesia. However, the Government of Indonesia (GOI) and local universities are extensively researching a number of GE varieties to include, virus resistance for tomatoes and potatoes, delayed ripening for papaya, sweet potato pest resistance, and drought tolerant rice. As well, some Indonesian researchers have begun to focus on GE animals for genotyping or genetic markers of

Indonesian local livestock, such as poultry, bali cattle and sheep. Any practical applications in Indonesia for GE animals and animal products are still very long-term.

The GOI's overarching policy on agricultural biotechnology is to "accept with a precautionary approach" with respect to environmental safety, food safety, and/or feed safety based on scientific approaches as well as taking into considerations of religion, ethical, socio-cultural, and esthetical norms. Therefore, several regulations and guidelines have been issued to protect the public from the possibility of negative consequences of biotechnology utilization.

As of to date, seven GE corn varieties, two GE soybean varieties, and three GE sugarcane varieties have received approval for food safety in Indonesia. In addition, two GE corn varieties have received feed safety approval. According to Post sources, three GE sugarcane varieties that have been approved for environmental safety will receive variety-release approval from the Ministry of Agriculture in the near future.

However, the new environmental requirements for event approval may delay the importation or development local commercial of GE seeds. In addition, other unscientific considerations, such as: religion, ethical, socio-cultural, and esthetical norms could slow down the agriculture biotechnology acceptance.

Post sources indicated two more GE soybean varieties and one GE corn variety are in pipeline for food safety approval. Post anticipates that first GE plant to be officially commercialized in 2015 maybe locally produced drought tolerant sugarcane.

Section II. Author Defined:
CHAPTER 1: PLANT BIOTECHNOLOGY
PART A: PRODUCTION

1) PRODUCT DEVELOPMENT:
   Indonesia continues to develop GE crops, such as: rice (nitrogen use efficiency), sugarcane (modification of high glucose content), cassava (modification of amylase), tomato (resistant to virus), and delayed ripening papaya, albeit at a relatively modest pace. Below, Table 1 indicates the status of some GE crops development in biosafety containment test (BCT) and confined field trial (CFT)

Table 1. The status of GE crops development

Crops	Trait	Gene	Developer	BCF	CFT
Rice variety IR64	Beta carotene (GR2-R)	*psy*	The International Rice Research Institute (IRRI) and the Ministry of Agriculture.	v	
Corn	Corn borer resistant and	*Btk and*	PT. Syngenta Seed Indonesia		v

	herbicide tolerant (BT11xGA21)	*mEPSPS*			
Corn	Corn borer resistant BT11	*Btk*	PT. Syngenta Seed Indonesia		v
Corn	Herbicide tolerant GA21	*mEPSPS*	PT. Syngenta Seed Indonesia		v
Rice	Nitrogen use efficiency	*CsNitri1-L*	ICABIOGRAD	v	
Rice	Brown planthopper resistant		Padjadjaran University	v	
Sugarcane	High glucose content	SoSPS1	PTPN-XI/Jember University	v	
Tomato	Viruses resistance (tomato yellow leaf curl virus and cucumber mosaic virus)	Coat protein	ICABIOGRAD/RIV	v	
Tomato	Low seed content (parthenocarpy)	defH9-iaaM and defH9-RI-iaaM	ICABIOGRAD	v	
Cassava	Low amylose content	IRC-GBSS	ICABIOGRAD/IIS	v	
Papaya	Delayed ripening	Antisense ACC Oxidase	ICABIOGRAD	v	
Corn	Herbicide tolerant NK603		PT. Branita Sandhini		v
Corn	Insect resistant MIR 162		PT. Syngenta Seed Indonesia	v	
Tomato	Miraculin		University of Padjajaran	v	
Rice variety Rojolele	Yellow stem borer resistant		The Indonesian Institute of Science	v	

Source: FAS Jakarta from various sources (2013)

Post sources reported that the environmental safety assessment application for GE late blight resistant potato will be submitted to the ministry of environment in August 2013. In addition, the food safety assessment application is expected to be submitted to the National Agency of Drug and Food Control (BPOM) at the beginning of 2014. This GE product is produced by third party collaboration among the Ministry of Agriculture - Agricultural Biotechnology Support Project Phase II (ABSPII)/USAID - University of Wisconsin.

2) COMMERCIAL PRODUCTION:

Indonesia has not commercially cultivated any GE crops, to include GE seed production. However, Post sources indicated as soon as three GE sugarcane varieties received variety-release approval from the Ministry of Agriculture, PT. Perkebunan Nusantara XI (a state owned company) will cultivate these GE sugarcanes in their plantations and supply them to their own sugar mills for food consumption.

3) EXPORTS:

Indonesia does not export any GE crops to the United States or any other country.

4) IMPORTS:

Tempeh and tofu, which are soybean-based food products, are considered staple foods in Indonesia.

Indonesian soybean consumption tends to increases over time, in correspondence with population and economic growth. Total soybean consumption last year reached 2.6 million metric tons (MMT), which is mostly fulfilled by imports. U.S. soybean takes about 92% market share in Indonesia.

As the world's 10th largest textile exporter, Indonesia cotton consumption reached 457 MMT last year. However, Brazil overtook the United States as the largest cotton supplier to Indonesia.

The livestock feed industry determine the consumption of soybean meal and corn in Indonesia. Soybean meal consumption is around 3.2 MMT and for corn consumption is upwards of 6.2 MMT. Indonesia imported around 3.5 MMT of soybean meal in 2012. Argentina, Brazil, India, and the United States are the primary suppliers. Corn imports reached 1.7 MMT, which India held the largest market share and is followed by Argentina, Brazil, and the United States respectively. However, soybean meal and corn from India are not GE products.

Please see GAIN report ID1316, ID1317 and ID1318 for more info regarding trade of soybean, soybean meal, cotton, and corn.

5) FOOD AID RECIPIENT COUNTRIES:
At present Indonesia is not a receipt of USDA-funded food aid.

PART B: POLICY

1) REGULATORY FRAMEWORK:
The GOI's policy on biotechnology is "accept with a precautionary approach" with respect to environmental safety, food safety, and/or feed safety based on scientific approaches as well as taking into considerations of religion, ethical, socio-cultural, and esthetical norms. A few regulations and guidelines have been issued to protect the public from the possibility of negative consequences of biotechnology utilization. More details on Indonesia biotech legislation can be seen at the Indonesian Biosafety Clearing House (BCH)'s website. Unfortunately, a draft guideline for feed safety assessment was expected to be issued by the Ministry of Agriculture in February 2013. To date, it remains with the Bureau of Law and Public Information's desk and has not been signed by the Minister of Agriculture for reasons which remain unclear to post.

The Ministers of Environment, Agriculture, Forestry, Marine Affairs and Fisheries, and the Head of BPOM are the authorities most responsible for approving and releasing GE products. The Table 2 shows respective roles of the National Competent Authorities.

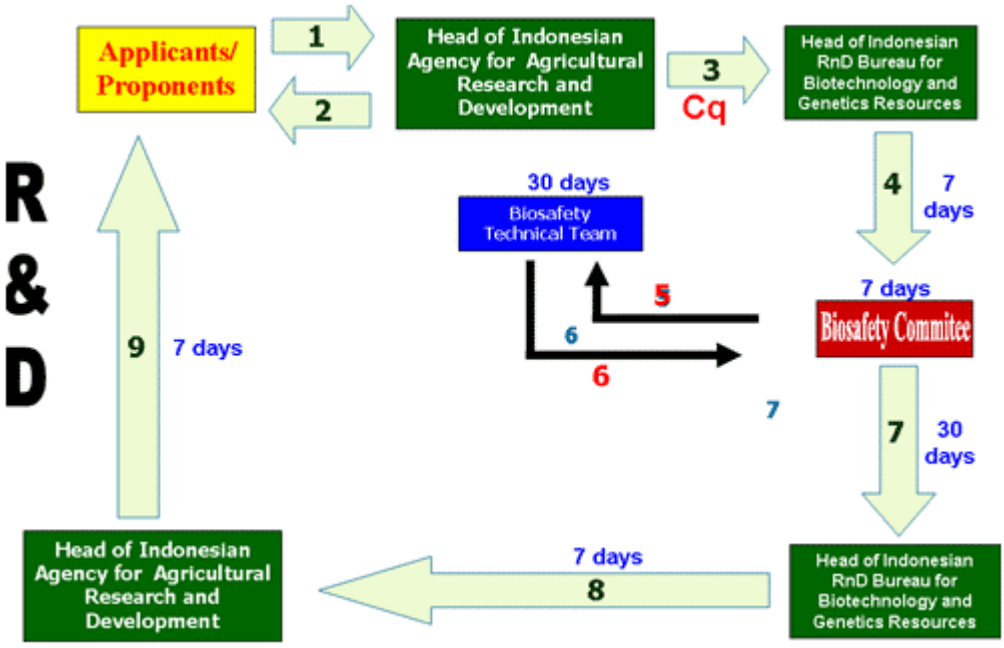
Table 2. The National Competent Authority for GE products

No.	National Competent Authorities		Responsible for
	Ministry	Office	
1.	Ministry of Environment	Deputy for Biodiversity Conservation Enhancement and Environmental Destruction Control	Bio-safety
2.	Ministry of Agriculture		Feed safety
3.	Ministry of Agriculture	Center for Investment and License	Seed imports permit

4.	Ministry of Agriculture	National Seed Agency	Crop variety release
5.	Ministry of Agriculture	Indonesian Agency for Agriculture Research and Development	Research permit
6.	Ministry of Agriculture	Indonesian Agency for Agriculture Quarantine	Plant and animal imports
7.	National Agency of Drug and Food Control (BPOM)		Food safety
8.	Ministry of Marine Affairs and Fisheries	Research Center for Marine and Fisheries Product Processing and Biotechnology	Fisheries products and fish feed
9.	Ministry of Forestry		Forestry plants

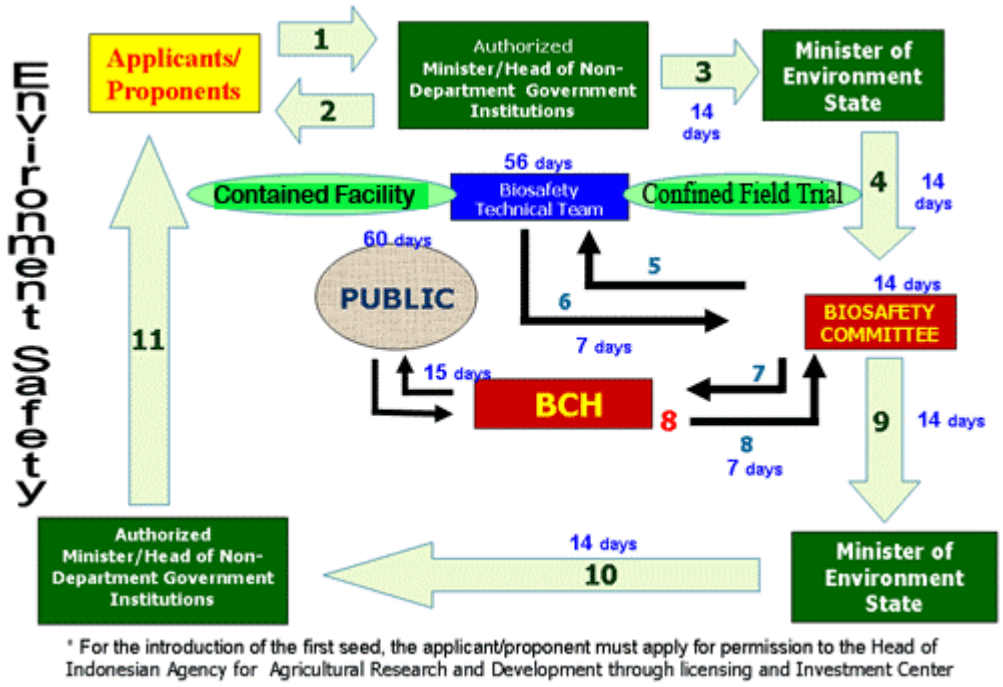
Source: Indonesia Biosafety Clearing House (2010) and FAS (2012)

According to the Government Regulation No. 21 in 2005, the procedures for approval of food, feed, processing and environmental releases are showed in the following figures.



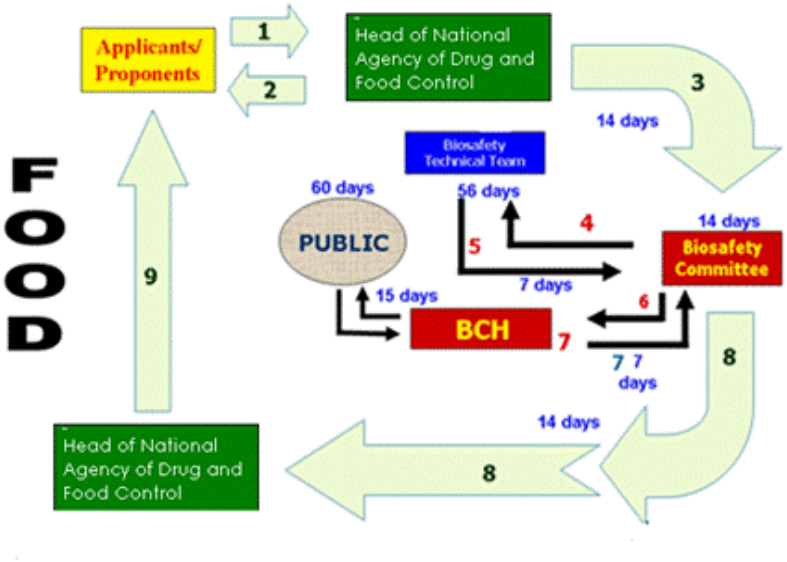
Source: Indonesia Biosafety Clearing House (2010)

Figure 1. Procedure for Research and Development based on Government Regulation No. 21/2005



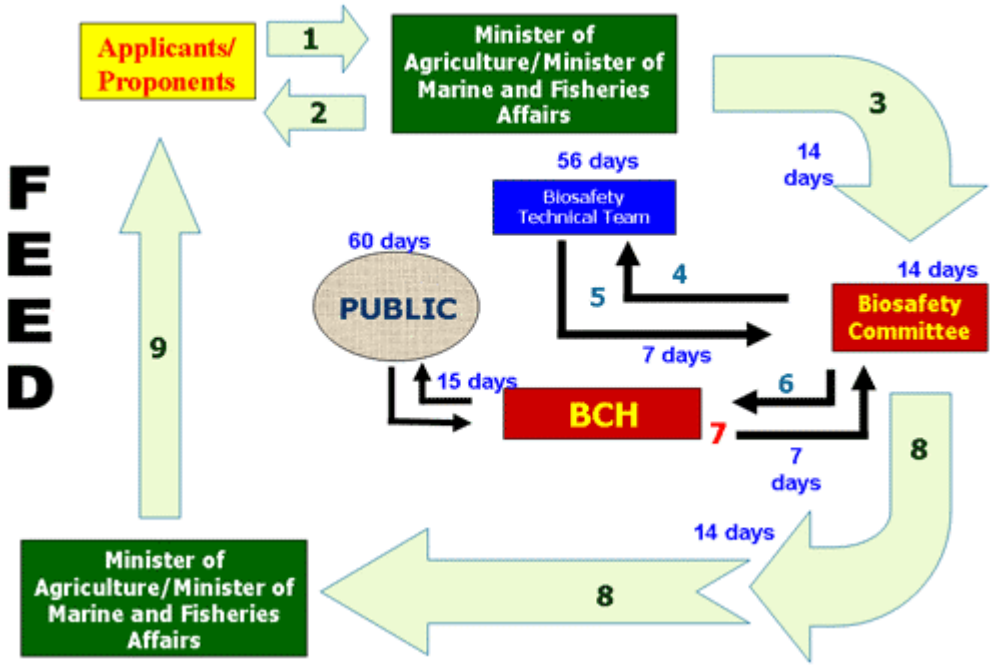
Source: Indonesia Biosafety Clearing House (2010)

Figure 2. Procedure for Environment Safety based on Government Regulation No. 21/2005



Source: Indonesia Biosafety Clearing House (2010) modified by FAS Jakarta (2012)

Figure 3. Procedure for Food Safety based on Government Regulation No. 21/2005 and the BPOM's Regulation No. HK.03.1.23.03.12.1563/2012



Source: Indonesia Biosafety Clearing House (2010)

Figure 4. Procedure for Feed Safety based on Government Regulation No. 21/2005

The National Biosafety Commission on Genetically Engineered Product (BCGEP) is responsible for providing biosafety recommendations, suggestions, and considerations of GE products to the authorized ministries. The BCGEP was established in 2010 based on the Presidential Regulation No. 39/2010. The Commission consists of 21 members from a variety of stakeholders, including government ministries, universities, and professional associations. GAIN report ID1017 explains BCGEP in more detail. June this year the members of BCGEP non-government officials, to include the chairman, have finished their terms. However, the President could extend these officials for one more term. Post sources reported that the Ministry of Environment has taken the lead in proposing of reappointment the members and currently is waiting the decision from the President.

Three technical teams for biosafety (TTB) assist the BCGEP in conducting the technical assessments and reviews for food, feed and environmental biosafety. In November 2011, BCGEP established a new technical team through the decree of the BCGEP's chairman no. Kep-01/KKH/11/2011. Each technical team has a coordinator and a vice coordinator. The technical team for environmental safety is divided into four groups, namely plant group, animal group, fish group, and microorganism group. The total TTB members consist of 52 people. In addition to this team, in 2012 BCGEP completed their organization by establishing the Team of Legal, Economic, Social, and Culture Assessment (TLESCA). This team consists of 5 additional members.

2) APPROVALS:

Several GE plants have received food, feed, and/or environmental safety certificates from the GOI.

However, due to incomplete biosafety assessment, no imported or locally developed GE plants have yet been commercialized. Please see the table below for the biosafety approved GE products.

Table 3. GE products that have been approved

For Food Safety		
No.	**Product**	**Applicant**
1.	Insect resistant corn event MON 89034	PT. Branita Sandhini
2.	Herbicide tolerant corn event NK 603	PT. Branita Sandhini
3.	Herbicide tolerant soybean event GTS 40-3-2	PT. Branita Sandhini
4.	Herbicide tolerant soybean event MON 89788	PT. Branita Sandhini
5.	Herbicide tolerant corn event GA21	PT. Syngenta Seed Indonesia
6.	Insect resistant corn MIR 162	PT. Syngenta Seed Indonesia
7.	Insect resistant corn BT 11	PT. Syngenta Seed Indonesia
8.	Insect resistant corn MIR 604	PT. Syngenta Seed Indonesia
9.	Corn event 3272	PT Branita Sandhini
10.	Drought tolerant sugarcane event NXI-1T	PT. Perkebunan Nusantara XI
11.	Drought tolerant sugarcane event NXI-4T	PT. Perkebunan Nusantara XI
12.	Drought tolerant sugarcane event NXI-6T	PT. Perkebunan Nusantara XI
For Feed Safety		
1.	Herbicide tolerant corn event NK 603	PT. Branita Sandhini
2.	Insect resistant corn event MON 89034	PT. Branita Sandhini
For Environmental Safety		
1.	Drought tolerant sugarcane event NXI-1T	PT. Perkebunan Nusantara XI
2.	Drought tolerant sugarcane event NXI-4T	PT. Perkebunan Nusantara XI
3.	Drought tolerant sugarcane event NXI-6T	PT. Perkebunan Nusantara XI

Source: Secretariat of Biosafety Commission for Genetically Engineered Product (2013)

Additionally, GE soybeans event MON 87701 and MON 87705 currently are still waiting for food safety approval from the National Agency of Drug and Food Control (BPOM). Moreover, GE soybean event MON 87708 and GE corn event TC 1507 recently completed public notification and comment period of 60 days at the Biosafety Clearing House for their food safety assessment. Reportedly, several GE corn events are also in the process of food safety assessment, such as: event MON 87769, event MON 87460, event MON 87427.

3) FIELD TESTING:

The Ministry of Agriculture's Regulation No. 61/2011 on the procedures of testing, evaluating, releasing, and withdrawing of GE plant variety speeds up the approval process, to include aspects of the environmental safety approval processes and the field trials for GE crops. Under this regulation, limited field trials for the environmental safety assessment can be done in parallel with the adaptation trial for variety release. In addition, if GE crop comes from approved conventional hybrids, that product will not require multi-location field trials and will only require one location field trial from one planting period.

Post sources reported the total area of limited field trial for corn BT 11, corn GA21, their stacked

event crops is around 1.2 hectares. Post expected the commercialization of both GE corn is in 2016.

In addition, the total area of limited field trial for GE corn NK603 is around 1 hectare in 4 locations. Post expected the commercialization of this GE crop is in 2015, following the commercialization of GE sugarcane which is produced by an Indonesian-owned company.

Moreover, for GE corn stacked event TC1507 x MON810 x NK603 and stacked event combination TC1507 x NK603, MON810 x NK603, and TC1507 x NK603 have the total area of limited field trial about 4 hectares in 4 locations.

4) STACKED EVENT APPROVALS:
Environmental safety approval for stacked event is similar to that of single event. Hence, GE crops must undergo laboratory and biosafety containment tests, confined field trial, as well as environmental risk analysis. However, the GOI has not decided yet whether the regulations for food and feed safety approval process of stacked event will be the same as for a single event.

5) ADDITIONAL REQUIREMENTS:
Post is not aware on the additional requirements of GE seeds registration.

6) COEXISTENCE:
Indonesia has no national policy on co-existence.

7) LABELING:
To implement the Government Regulation issued in 1999 that requires labels and special logos to be on packaging of food containing GE ingredients, BPOM issued the regulation on food labeling controls for GE products in March 2012. According to this regulation, the packaged food that contains at least 5 percent of transgenic product must be labeled and stated "Food Containing Genetically Engineered Material" on the label. This 5 percent threshold level is based on the content percentage of deoxyribo nucleid acid/DNA of GE product against the deoxyribo nucleid acid of non GE product. Furthermore, the content percentage is calculated based on each GE product if food contains more than one GE product. This regulation can be also seen at GAIN report ID1217.

8) TRADE BARRIERS:
The new environmental requirements for event approval may impede the importation or development of local commercial GE seeds. In addition, other unscientific considerations, such as: religion, ethical, socio-cultural, and esthetical norms could slow down the agriculture biotechnology acceptance. Post expects that Indonesia's capacity to commercialize GE seeds once again will be pushed back until at least 2015.

Moreover, the food registration procedure that requires a genetically modified organism (GMO) or non-GMO statement for food contained potato, soybean, corn, and their derivative products, sometimes makes confusion among the BPOM officials themselves in approving entry permit of these types of food. So, it would likely obstruct the imports. The officials always request GMO statement from the product derivates of potato, soybean, and corn. Additionally, if the importer provides a GMO statement then BPOM further requires GE testing of the product at the appointed local laboratory. BPOM's regulation states that product derivatives which have undergone further refining processes to the point where the GE material cannot be identified (to include but not limited to oils, fats, sucrose, and starch) do not require any GMO or non-GMO statements.

9) INTELLECTUAL PROPERTY RIGHTS (IPR):
The Law No. 14/2001 on the Patent Act and the Law No. 19/2009 on the Copyright Act are the legislations to address IPR. In addition, the Law No. 29/2000 on the Plant Variety Protection regulates the intellectual property of new plants varieties. The Center of Plant Variety Protection and Agricultural License has responsibility to manage new plant variety registration.

10) CARTAGENA PROTOCOL RATIFICATION:
In 2004 Indonesia ratified the Cartagena Protocol through Government Regulation No. 21/2004 concerning Biosafety to the Convention on Biological Diversity. As the Cartagena Protocol ratification country, Indonesia has also done to:

- Assign the Ministry of Environment as the National Focal Point of Cartagena Protocol;
- Appoint the Ministries to be the National Competent Authority of Cartagena Protocol;
- Publish the Government Regulation No. 21/2005 concerning the Biosafety of Genetically Engineered Product;
- Establish the Biosafety Clearing House (BCH)

More details can be found at the Indonesia BCH's website.

11) INTERNATIONAL TREATIES/FOR A:
Indonesia is a member of the International Plant Protection Convention (IPPC) and the Codex Alimentarius (Codex). However, Indonesia hasn't been taking any significant noteworthy positions in these international fora pertaining to biotechnology.

12) RELATED ISSUES:
Not applicable

13) MONITORING AND TESTING:
Although the Government Regulation No. 21/2005 on Biosafety of Genetically Engineered Product also regulates monitoring system for GE products, but the guidelines for the monitoring mechanism is still in the draft.

14) LOW LEVEL PRESENCE POLICY (LLP):
LLP is still a pending issue in Indonesia and seems a long way to go, although the Ministry of Agriculture indicates that Indonesia would endorse the International Statement on LLP and fully support the initiative to develop approaches to manage LLP.

PART C: MARKETING

1) MARKET ACCEPTANCE:
Indonesian farmers are open to new using technologies, to include biotechnology. There is broad support for the technology from farmer organizations in Indonesia. Post expects that the technology will be rapidly adopted following commercialization.

Due to a lack of information and general knowledge about biotechnology, consumers are more hesitant if they know their food contains GE products. Nonetheless, Indonesians have widely consumed GE soybean derived, tempeh and tofu for the last four decades.

2) PUBLIC/PRIVATE OPINIONS:

Several Indonesian non-governmental organizations (NGOs) occasionally oppose the production and use of GE plants, although actually their intended targets are usually the multi-national companies (MNC) behind the technology.

Modeled on the success of the Biotechnology Coalition of the Philippines, a pro-biotech advocacy association, the Society of Indonesian Agricultural Biotechnology (previously named the Indonesian Coalition on Agricultural Biotechnology (ICAB)) was formed in Lombok, West Nusa Tenggara on July 4, 2012 during the 5th Indonesia Biotechnology Conference for supporting the adoption of agriculture biotechnology in Indonesia. More information regarding ICAB can be seen at GAIN report ID1226. In addition, the Indonesian farmer association KTNA indicated their strong support for planting GE crops, as they believe the technology can greatly improve their family's livelihood.

3) MARKETING STUDIES:

There are no recent studies on marketing of GE plant and their products. However in 2006 there was a survey to determine the Indonesian public's willingness to accept GE products. The survey targeted students at a well-known agriculture university in Indonesia. The research showed that the students lack knowledge of GE foods, although they had a class in biology. The study also found that students: (1) are somewhat willing to consume GE food if these GE products reduce the amount of pesticides applied to crops, (2) are very willing to consume GE food if the food were more nutritious than non-GE food, (3) will avoid consuming GE food if the food posed a risk of causing allergic reactions for some people, (4) consider ethical and religious concerns as very important to purchasing decisions, (5) had mixed reactions on the importance of price when making the decision to purchase GE food, (6) feel labeling of GE food should be mandatory even though it will affect the price, and (7) think that existing governmental regulations on food safety remain poor.

PART D: CAPACITY BUILDING AND OUTREACH

1) ACTIVITIES:

Following is the list of the activities for capacity building and outreach on biotechnology through Cochran Fellowship Program, Borlaug Fellowship Program, USDA biotech fund, FAS' Emerging Markets Program, State Department, etc. over the past two years.

Cochran Fellowships Program

- Michigan State University – Biosafety Program 2012
- Michigan State University – Food Safety Program 2011
- University of Missouri – Plant Genetics and Food Crops 2011

Borlaug Fellowship Program

- Louisiana State University – Plant Genetic, 2011
- Washington State University – Plant Genetic, 2011
- Kansas State University – Plant Genetic, 2011

Sponsored by USDA

- 12th APEC High Level Policy Dialogue, June 27, 2013 in Medan, Indonesia.
- Workshop on Regulatory Issues on Emerging Market, June 25 – 26, 2013 in Medan, Indonesia (jointly funded and organized by the International Service for the Acquisition of Agri-biotech Application (ISAAA), APEC Secretariat, and Program for Biosafety System (PBS)).
- Communication workshop on Agricultural Biotechnology, May 16, 2013 (jointly organized by

the International Food Information Council (IFIC) and Indonesian Biotechnology Information Center (IndoBIC)).
- Media workshop on Communicating Food Science, May 15, 2013 (jointly organized by the International Food Information Council (IFIC) and Indonesian Biotechnology Information Center (IndoBIC)).
- 10th APEC High Level Policy Dialogue, February 28 – March 2 in Washington, DC, the United States.
- Study tour for High Level GOI officials on Biotech Crops, March 3 – 9, 2011 in Washington, DC and St. Louis, MO, the United States.

Sponsored by FAS Jakarta (through EMP, TIRF and CSS funding)
- Agricultural Biotechnology Short Course for the Technical Team for Biosafety of GE Product at the Michigan State University, East Lansing, MI, September 9 – 21, 2012 (jointly funded by Crop Life Asia).

- Experts Dialogue in Biotechnology: Transgenic Crops versus Food Security Challenges, Bogor, July 10, 2012 (jointly funded by Crop Life Indonesia, MNC, IndoBIC/ISAAA, and Bogor Agricultural University).
- Farmer to Farmer Workshop: Agricultural Biotechnology Outreach and Capacity Building, the Philippines, September 19 – 23, 2011 (jointly organized by ISAAA/SEARCA and FAS Manila).
- Providing U.S. domestic travel for one government of Indonesia (GOI) official to attend the Farm Progress Show in Boone, Iowa, August 27 – 31, 2012 (the program is organized by Crop Life Indonesia).
- Biosafety: an International Short Course in Environmental Aspects of Agricultural Biotechnology for the Ministry of Environment's officials at the Michigan State University, East Lansing, MI, July 31 - August 5, 2011 (joint funded with USAID).
- Seminar on "Agricultural Biotech Products Acceptance" seminar with sole speaker Dr. Val Giddings, Senior Fellow for Biotechnology Policy with the Information Technology and Innovation Foundation (ITIF), Bogor, May 30, 2011.

Funded under USAID through PBS
- Workshop on "Basic Biotechnology for High School Biology Teacher, Yogyakarta, July, 3 – 5, 2013.
- University Outreach in the University of North Sumatera, Medan, Indonesia, June 24, 2013.
- Workshop on "Socio-Economic and Legal Aspect of GMO Assessment", Jakarta, February 18 – 19, 2013.
- Workshop on "Process Management Mapping for Stakeholders", Jakarta and Bogor, February 4 – 8, 2013.
- Universities Outreach in the University of Gadjah Mada, Yogyakarta, December 6 – 9, 2012.
- Seminar on "Gate into Biotech Crops", Yogyakarta, October 4, 2012.
- University Outreach in the Bogor Agricultural University, Bogor, September 29, 2012.
- University Outreach in the University of Jember, Jember, September 27, 2012.
- Comparative Study to the Philippines for Indonesia Quarantine Officer, Manila, July 10 – 14, 2012.
- Workshop on "Feed Safety", Bogor, June 19 – 20, 2012.
- Workshop on "Environmental Risk Analysis", Bandung, March 6 – 8, 2012.
- Workshop on "Liability & Redress on Genetically Engineered Products", Jakarta, February 21,

2012.

- Workshop on "Low Level Presence", Jakarta, December 8, 2011.
- University Outreach in the University of Gadjah Mada, Yogyakarta, December 6, 2011.
- University Outreach in the University of Lampung, Tanjung Karang, December 3, 2011.
- Workshop on "Commercialization of Genetically Modified Organism (GMO)", Jakarta, September 15, 2011.
- Workshop on "Confined Field Trial (CFT)", Jakarta, September 12 – 13, 2011.
- Workshop on "Biology and Genetics of Genetically Modified Organism (GMO)", Jakarta, July 18, 2011.
- NetMapping workshop on "Developing a Biotechnology Outreach Strategy for Indonesia", Jakarta, June 14 – 15, 2011.
- Workshop on "Sociocultural considerations, Biosafety, Biotechnology and Decision Making in Indonesia", Jakarta, June 1, 2011.
- Workshop on "Legal and Policy Analysis", Jakarta, February 14, 2011.

Funded under Biotech Outreach Fund, Bureau of Economic, Energy, and Business Affairs (EEB), U.S. Department of State

- Seminar on the Role of New Technology in Strengthening Indonesian Food Security, Jakarta, September 11, 2012 (jointly organized by FAS Jakarta and Winrock International).
- Biotech Regulators Summit, Jakarta, August 8, 2012 (jointly organized by FAS Jakarta and Office of Economic Section, Department of State).
- Biotech Outreach Activities by sponsoring Dr. Roger Beachy to various meetings and workshops in Bogor, Jakarta, Malang, Yogyakarta, and Denpasar, from July 9 – 14, 2012 (jointly organized by FAS Jakarta, Economic Section of Department of State, and Winrock Indonesia) .
- Workshop on Potential for Farm Income and Business Growth in Java: An Agricultural Technology Assessment", Bogor, May 1, 2013 (organized by Winrock Indonesia).
- Roundtable Discussion on Identifying Farmers Needs on New Agricultural Technology, Jakarta, April 10, 2012 (organized by Winrock Indonesia).
- Biotech Speaker Series by sponsoring Dr. Roger Beachy, founding president of the Donald Danforth Plant Science Center to Jakarta Food Security Summit, and Roundtable Discussion, from February 6 – 9, 2012 (jointly organized by FAS Jakarta, Winrock Indonesia, and Indonesian Chambers of Commerce & Industry).

2) STRATEGIES AND NEEDS:

Indonesia has significant capacity to promulgate but limited capability to enforce regulations with respect to biosafety of GE products. Reportedly, Indonesia has specific needs in raising the capacity of this country to apply transparent and science-based regulations to plant biotechnology, such as: knowledge improvement of technical team through biosafety training on stacked event of GE products, finalizing the guideline for research and development of transgenic products in the laboratory, biosafety containment, and confined field, as well as developing food safety and feed safety assessment guidelines for stacked event, and monitoring program.

Although the GOI has admitted that biotechnology is one of tools in increasing Indonesia's capacity for food, but it hasn't been confident enough to adopt the technology. Therefore, post will continue to actively support the activities on advocating the positive roles of agriculture biotechnology in supporting food security in Indonesia and increasing farmers income.

CHAPTER 2: ANIMAL BIOTECHNOLOGY
PART E: PRODUCTION AND TRADE

1) PRODUCT DEVELOPMENT:
   Some research institutions and universities have reportedly conducted studies on molecular marker, such as: research on local genetic cow, bull, and chicken using gen markers, identification of animal characteristics to heat tolerance and feeding utilization, and GE chicken (resistant to new castle disease) using simple breeding method.

2) COMMERCIAL PRODUCTION:
   There is no commercial production of GE animals in Indonesia.

3) EXPORTS:
   Not applicable

4) IMPORTS:
   Not applicable

PART F: POLICY

1) REGULATION:
   Although the GOI has several regulations to legalize animal biotechnology, however there are no clear guidelines to assess and approve it.

2) LABELING:
   Not applicable

3) TRADE BARRIERS:
   Not applicable

4) INTELLECTUAL PROPERTY RIGHTS (IPR):
   Not applicable

5) INTERNATIONAL TREATIES/FORA:
   Not applicable

PART G: MARKETING

1) MARKET ACCEPTANCE:
   Not applicable

2) PUBLIC/PRIVATE OPINIONS:
   Not applicable

3) MARKET STUDIES:
   Not applicable

PART D: CAPACITY BUILDING AND OUTREACH

1) ACTIVITIES:

Not applicable

2) STRATEGIES AND NEEDS:
Not applicable