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Indonesia

Agricultural Biotechnology Annual

Annual 2012

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Report Highlights:
Throughout 2012, the Government of Indonesia (GOI) has taken additional steps to advance its agricultural biotechnology policies, albeit at a relatively slower pace over the previous year. Moreover, in 2012 a number of senior GOI decision makers indicated that enhanced agricultural technology will become a broader tool for increasing Indonesia's capacity for food production. This is reflected in more food safety approvals and more recently, Indonesia's first feed safety approval for a transgenic corn product. However, a number of challenges vis-à-vis the environmental safety approval process developed in 2012. Post is concerned that these issues may slow the momentum toward the commercialization of agricultural biotechnology in Indonesia.

Section I. Executive Summary:
In recent years, the GOI has issued a variety of new regulations pertaining to biotechnology (BT). In 2005, the GOI released Regulation No. 21 concerning Biosafety of Transgenic Products. In 2008, the National Agency of Drug and Food Control (BPOM) published the Guidelines for Food Safety

Assessment on Transgenic Products. An updated BPOM regulation was issued in March 2012, which further simplified the procedures for food safety approval. BPOM also issued labeling requirements for packaged and/or retail food products containing transgenic ingredients, which includes a five percent threshold level for transgenic ingredients. In 2010, Presidential Regulation No. 39 was issued, which established the Biosafety Commission for Transgenic Products (BCTP), a necessary mechanism to complete outstanding and new biotechnology regulations. Additionally, Post sources indicate that the guidelines for environmental safety assessment of transgenic crops may be released in the fall of 2012.

Two transgenic feed enzymes have been approved as feed additives. Also, two transgenic soybean varieties have received approval for food safety in Indonesia, as well as seven transgenic corn varieties. Moreover, three transgenic sugarcane varieties are currently approved for environmental safety by the Ministry of Environment; however, the Ministry of Agriculture has yet to provide a variety-release approval for sugarcane varieties, which is the final step prior to commercialization. One transgenic sugarcane variety has obtained food safety approval from BPOM, while as of today the other two varieties haven't received the food safety approval. Post sources report that the BCTP has provided its recommendation to the Head of BPOM for providing food safety approval to these two sugarcane varieties.

Section II. Plant Biotechnology Trade and Production:

Currently Indonesia is not producing any BT crops, but it does produce and commercialize seedlings using tissue culture techniques. These include:

- tree seedlings (eucalyptus, acacia, mangrove) designed for domestic reforestation
- certain flower species for export, primarily to the European Union
- teak (tectona grandis),
- bananas (musa sp) cultivars of cavendish, raja bulu, kepok and barangan
- zodiac (evodia suapeolens)
- satoimo (colocacia esculenta var. antiquorum)
- black velvet (alocasia reginula)
- silver velvet (alocasia sp.)
- philodendron lynette
- dragon scales
- cuprea sp.
- pineapples (ananas comusus)
- potatoes (solanum tuberosum L.)
- orchids
- asparagus sp.
- nilam (pacholi cublin)
- strawberries (duchesnea indica L.)
- pulai pandak (rauvolfia radix).

In October 5, 2011 the Ministry of Agriculture issued Regulation No. 61/2011 on the procedures of testing, evaluating, releasing, and withdrawing of transgenic crop variety. The issuance of this regulation sped up the approval process, to include aspects of the environmental safety approval processes and the field trials for transgenic products. 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 transgenic product 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. Unfortunately, BCTP has changed its requirements and had continued to ask event proponents for additional information. BCTP's recent requirements midstream is tantamount to "moving the goal posts in the middle of the game" and impedes the environmental safety approval processes. Post expects that Indonesia's capacity to increase transgenic seeds and/or develop transgenic crops will be delayed until at least 2013.

Recently, the GOI has conducted confined field tests of several transgenic crops, to include rice (resistant to biotic stress), sugarcane (tolerant to a-biotic stress and modification of high glucose content), cassava (modification of amylase), potato (resistant to biotic stress), and tomato (resistant to biotic stress).

Additional GOI research projects on transgenic plants such as virus resistance for tomatoes and potatoes, delayed ripening for papaya, sweet potato pest resistance, drought tolerant rice, and pest resistant soybeans, remain ongoing, albeit at a relatively modest pace.

Table 1. The status of environmental safety of the transgenic products is as follows:

No	Transgenic Product	Bio-safety Committee Recommendation	Government Approval Status
1.	BT Cotton Variety Bt DP 90 B (identical 90 BE 60023) & PM 1560 B (identical 1560 BE 72022) Event MON 531/757/1076 (MON-ØØ531-6, MON-ØØ757-7)	Safe towards environment and biodiversity (1999)	Limited release based on the Decree of Minister of Agriculture Decree in 2001, 2002, and 2003
2.	Roundup Ready Cotton Variety DP 5690 RR (identical 1220 RRA 68022) & DP 90 RR (identical 90 RE 60012) Event MON 1445/1698 (MON-Ø1445-2)	Safe towards environment and biodiversity (1999)	Approval letter by the Chairman of National Bio-safety Committee
3.	Roundup Ready Soybean Variety Cristalina RR & Jatoba RR Event GTS 40-3-2 (MON-Ø4Ø32-6)	Safe towards environment and biodiversity (1999)	Approval letter by the Chairman of National Bio-safety Committee
4.	Roundup Ready Corn Variety RR-1 & RR-2 Event GA 21 (MON-ØØ21-9)	Safe towards environment and biodiversity (1999)	Approval letter by the Chairman of National Bio-safety Committee
5.	BT Corn Variety Bt MON	Safe towards	Approval letter by the Chairman of

	810-1 & Bt Mon 810-2 Event MON 810 (MON-ØØ810-6)	environment and biodiversity (1999)	National Bio-safety Committee
6.	Ronozyme-P (probiotic feed)	Safe towards environment and biodiversity (2001)	-
7.	Finase-P and Finase-L (probiotic feed)	Safe towards environment and biodiversity (2001)	Bio-safety Recommendation from the Director General of Agriculture Research and Development Agency, Ministry of Agriculture
8.	Transgenic sugarcane	Safe towards environment and biodiversity (2011)	Environmental safety recommendation from the Ministry of Environment

Source: Indonesia Bio-safety Clearing House (2009) and FAS Jakarta (2011)

The Ministry of Environment recently submitted a recommendation for the environmental safety of transgenic sugarcane to the Ministry of Agriculture. The Ministry of Environment's recommendation is the final step and most important consideration by the Ministry of Agriculture to give the final approval for the environmental safety approval of the transgenic sugarcane variety. In theory, once the food safety and environmental safety approvals have been granted, the event can be fully commercialized and planted. The Technical Team for Biosafety of Transgenic Product (TTBTP) has suggested that NK 603, a transgenic corn event, has made good progress. However, this event has not received the environmental safety recommendation from BCTP and had not obtained any environmental safety approval from the Ministry of Environment. More recently, NK603 was given feed safety approval by the Ministry of Agriculture, becoming the first biotech corn event to receive feed safety approval in Indonesia.

It is reported that some new transgenic crops have been assessed for their feed safety and food safety. The tables below show the status of these transgenic crops:

Table 2. The status of food and feed safety assessment results of transgenic products

No	Transgenic Crops	Bio-safety Committee Recommendation	Government Approval Status
1.	Herbicide Tolerant Corn (NK 603)	Safe for food consumption (2010) Safe for feed use (2012)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011) Feed Safety Certificate issued by the Ministry of Agriculture (2012)
2.	Insect Resistant Corn (MON89034)	Safe for food consumption (2010)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011)
3.	Herbicide Tolerant Corn (GA21)	Safe for food consumption (2011)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011)
4.	Insect Resistant Corn (BT11)	Safe for food consumption (2011)	Food Safety Certificate issued by the National Agency of Drug and Food

			Control (2011)
5.	Insect Resistant Corn (MIR162)	Safe for food consumption (2011)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011)
6.	Insect Resistant Corn (MIR604)	Safe for food consumption (2011)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011)
7.	Herbicide Tolerant Soybean (GTS40-3-2)	Safe for food consumption (2011)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011)
8.	Herbicide Tolerant Soybean (MON89788)	Safe for food consumption (2011)	Food Safety Certificate issued by the National Agency of Drug and Food Control (2011)
9.	Ronozime AX (CT)	Safe for feed consumption	Feed Safety Certificate issued by the Ministry of Agriculture (2010)
10.	Sugarcane (NXI-1T)	Safe for food consumption	Food Safety Certificate issued by the National Agency of Drug and Food Control (2012)
11.	Corn (Event 3272)	Safe for food consumption	Food Safety Certificate issued by the National Agency of Drug and Food Control (2012)
12.	Ice Structuring Protein	Safe for food consumption	Food Safety Certificate issued by the National Agency of Drug and Food Control (2012)

Source: FAS Jakarta (2012)

Table 3. The status of bio-safety assessment of transgenic crops in Bio-safety containment test (BCF) and Confined field trial (CFT)

Crops	**Trait**	**Gene**	**Institution**	**BCF**		**CFT**	
				Green house	**Screen house**	**Small scale**	**Large scale**
Corn	Corn borer resistant (MON89034)	*Cry1A.105 and cry2Ab2*	Monsanto	2009-2010	-	-	2010
Corn	Corn borer resistant (TC1507)	*Cry1F*	Dupont-Pioneer	2009-2010	-	-	-
Corn	Herbicide tolerant (NK603)	*CP4EPSPS*	Monsanto	2001	-	-	2002
Corn	Corn borer resistant	*Btk*	Syngenta	2011	-	2011	-

	(BT11)						
Corn	Herbicide tolerant (GA21)	*mEPSPS*	Syngenta	2011	-	2011	-
Corn	Corn borer resistant and herbicide tolerant (BT11xGA21)	*Btk and mEPSPS*	Syngenta	-	-	2011	-
Rice	Stem borer resistant	*Cry1Ab*	CBRD-IIS	2001 - 2002	-		2002-2006
Rice	Nitrogen use efficiency	CsNitri1-L	ICABIOGRAD	2007 - 2010	-	-	-
Rice	Brown planthopper resistant		Padjadjaran University	2010	-	-	-
Sugarcane	Drought tolerant	betA	PTPN-XI/Jember University	2005 - 2007	-	-	2005-2007
Sugarcane	High glucose content	SoSPS1	PTPN-XI/Jember University	2008	-	-	2008 - 2010
Potato	Leaf blight resistant	RB	ICABIOGRAD/RIV	2007 - 2008	-		2007 - 2011
Tomato	Viruses resistance (tomato yellow leaf curl virus and cucumber mosaic virus)	Coat protein	ICABIOGRAD/RIV	2007 - 2008	-	-	2009
Tomato	Low seed content (parthenocarpy)	defH9-iaaM and defH9-RI-iaaM	ICABIOGRAD	2006 - 2007	2009	-	-
Cassava	Low amylose content	IRC-GBSS	ICABIOGRAD/IIS	2005	2006 – 2008	-	2007 - 2010
Papaya	Delayed ripening	Antisense ACC Oxidase	ICABIOGRAD	2005	2006 – 2010	-	-

Source: Dr. M. Herman, Indonesian Center for Agricultural Biotechnology and Genetic Resources Research Development, Ministry of Agriculture (2011)

Based on the recommendation from BCTP that transgenic corn NK603, MON 89034, MIR 162, MIR 604, BT11, GA21 and transgenic soybean MON 89788 and GTS 40-3-2 are safe for human consumption, BPOM issued the food safety certificate for those transgenic crops. In addition, transgenic corn event 3272, transgenic sugarcane NX-1T, and ice structuring protein also received the food safety certificate from BPOM. Post sources reported that BCTP already provided the

recommendation to the Head of BPOM for food safety approval for transgenic sugarcane NX-4T and NX-6T.

Following a public notification and comment period of 60 days, transgenic corn NK603 and MON 89034 recently completed the Biosafety Clearing House. All public comments received during the comment period were submitted to the secretariat of BCTP. The secretariat forwarded the comments to BCTP members for their consideration. FAS Jakarta sources also reported that BCTP already provided its recommendation to the Minister of Agriculture for providing feed safety approval for these two transgenic plants.

It is also reported that the biosafety containment test of Golden Rice gene in popular Indonesian rice varieties – Ciherang and IR-64 for research purposes has started in May 2012. This project is a collaboration between the International Rice Research Institute (IRRI) and the Ministry of Agriculture. In addition, there is a third party collaboration among the Ministry of Agriculture - Agricultural Biotechnology Support Project phase II (ABSPII)/USAID - University of Wisconsin for the research of transgenic potato leaf blight resistant. The confined field trials of this transgenic potato have been done in a few years. The latest field trial begun at the end of May 2012 in Garut and Banjarnegara, West Java. The transgenic potato's application for environmental safety assessment will be submitted to the Ministry of Environment in 2013.

Section III. Plant Biotechnology Policy:

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. Therefore, several regulations and guidelines have been issued to protect the public from the possibility of negative consequences of biotechnology utilization.

The Ministers of Environment, Agriculture, Forestry, Marine Affairs and Fisheries, and the Head of BPOM are the authorities that have responsibility for approving and releasing the transgenic products. The table 4 shows respective roles of national competent authorities.

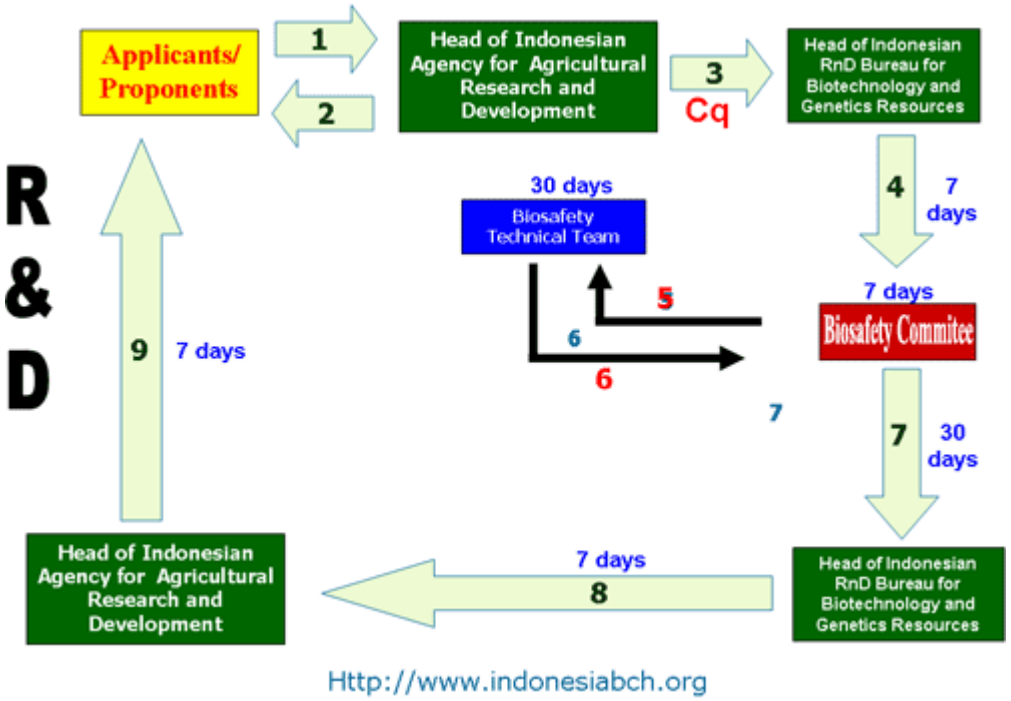
Table 4. The National Competent Authority for Biosafety and Food Safety of Transgenic Products

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

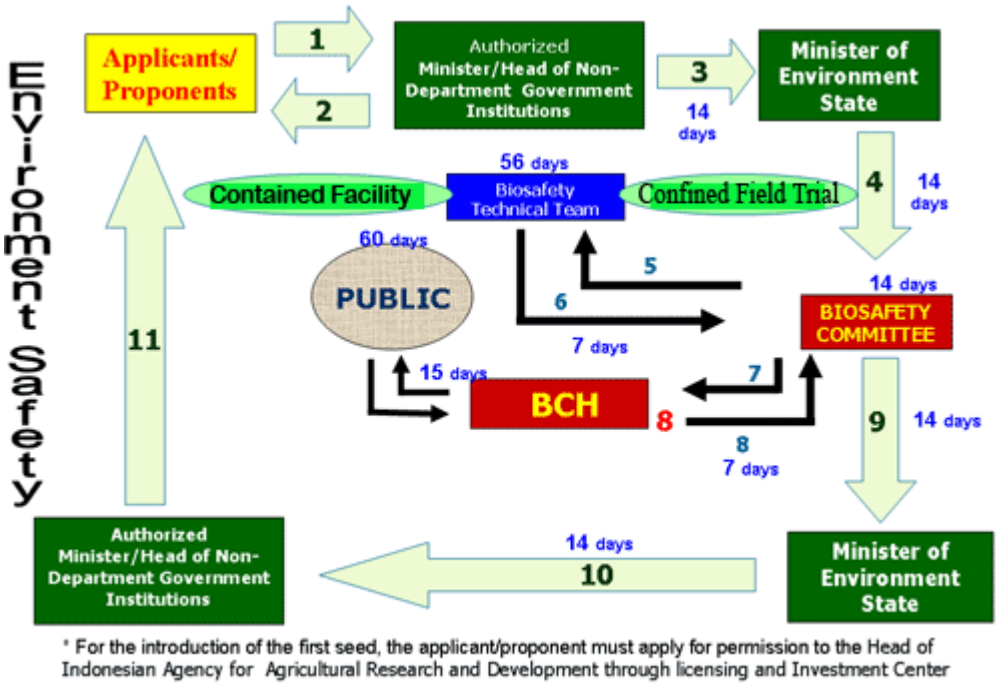
Source: Indonesia Bio-safety Clearing House (2010) and FAS (2012)

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.



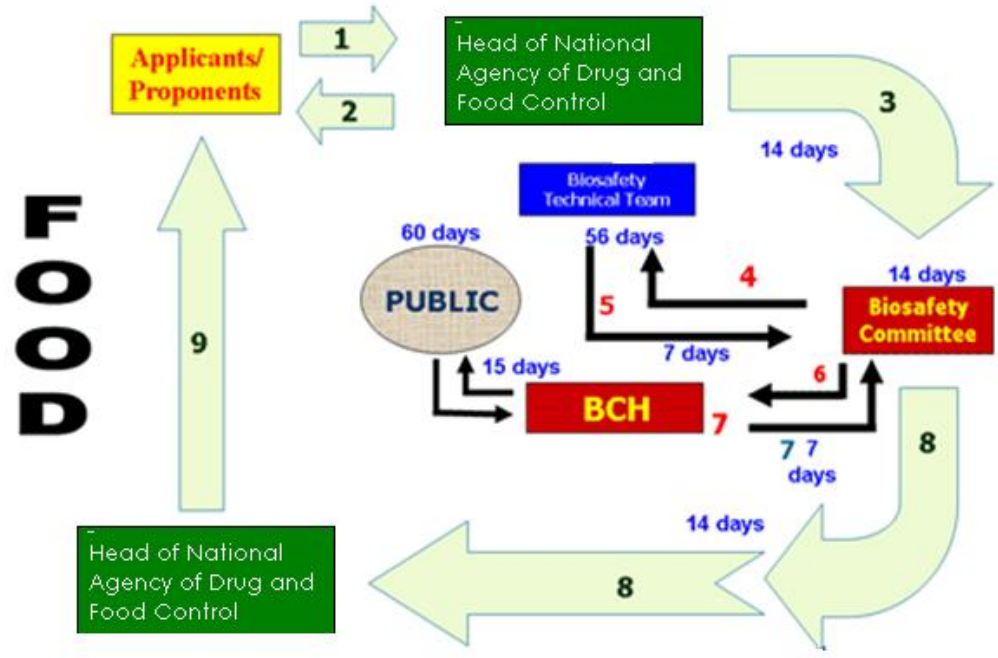
Source: Indonesia Bio-safety Clearing House (2010)

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



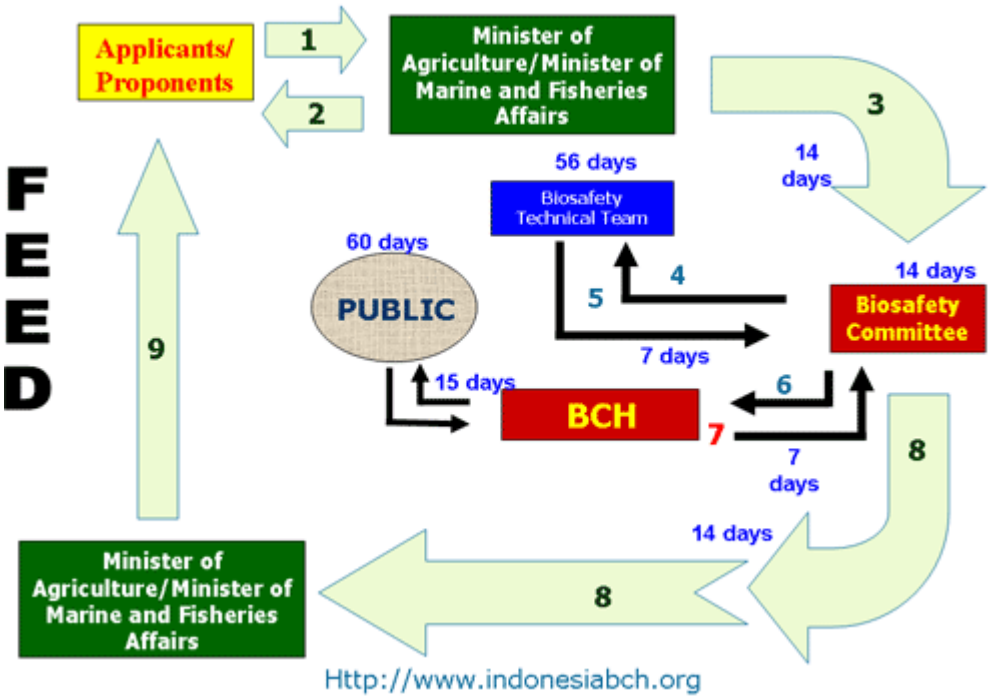
Source: Indonesia Bio-safety Clearing House (2010)

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



Source: Indonesia Bio-safety 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 Bio-safety Clearing House (2010)

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

Most of the members of BCPT are high-level government officials, although they are not all biotechnology experts. In November 2011, BCTP established a new technical team through the Decree of the BCTP's Chairman No. KEP-01/KKH/11/2011. The BCTP consists of three technical teams, which assesses for environmental safety, food safety, and feed safety. 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.

To implement the government regulation on Biosafety of Transgenic Product in 2005 and in conjunction with the government regulation on food safety, quality, and nutrition in 2004 BPOM finally released its regulation concerning the guideline for food safety assessment for transgenic products in July 2008. In addition, the guidelines do not include the threshold level of GMO content in the product. Reportedly, the guideline is needed in order to bring Indonesia into compliance with the Cartagena Protocol on biosafety. In March 2012, BPOM revised the guideline to simplify the procedures of the application for the safety assessment of transgenic products. More information regarding the regulation can be found at GAIN Report ID1217.

To implement the government regulation issued in 1999 that requires labels and special logos to be on packaging of food containing transgenic ingredients BPOM issued the regulation on food labeling controls for transgenic products also 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 Modified Material" on the label. This 5 percent threshold level is based on the content percentage of Deoxyribo Nucleid Acid/DNA of transgenic product against the Deoxyribo Nucleid Acid

of non transgenic product. Furthermore, the content percentage is calculated based on each transgenic product if food contains more than one transgenic product. This regulation can be also seen at GAIN Report ID1217.

It is reported that the Ministry of Environment is expected to publish the guideline for the environmental risk analysis of transgenic product at the end of 2012.

Other than environmental safety and food safety assessment, transgenic crops for feed consumption also need to be formally assessed for their feed safety. However, at the present there is no guideline for a viable feed safety assessment. Therefore, to assess the feed safety of transgenic corn NK603 and MON 89034, TTBPT still used the joint decree of the Ministry of Agriculture (No. 998.1/Kpts/OT.210/9/99), the Ministry of Forestry and Estate (No. 790.a/Kpts-IX/1999), the Ministry of Health (No. 1145A/MENKES/SKB/IX/1999), and the State Ministry of Food and Horticulture (No. 015A/NMenegPHOR/09/1999) in September 1999. FAS Jakarta sources reported that the Program for Biosafety Systems (PBS) has given assistance to the Indonesia government in developing the guidelines. It is expected the guideline for feed safety assessment will also be released in the near future.

In 2004 Indonesia ratified the Cartagena Protocol with Government Regulation No. 21/2004 concerning Bio-safety to the Convention on Biological Diversity.

At present, there are no imported or locally developed commercial transgenic seed varieties approved for planting in Indonesia. Nevertheless, research activity continues, albeit at a relatively slow pace (for example: second replication of containment trials). Also, the GOI and some local universities continue to conduct research and development. However, the new environmental requirements for event approval may delay the importation or development local commercial transgenic seeds. In addition, other unscientific considerations, such as: religion, ethical, socio-cultural, and esthetical norms could slow down the agriculture biotechnology acceptance.

Local development, multiplication and use of transgenic seed continue to be hampered by the current regulatory system. This, plus additional confusion in the IPR sector, are major impediments to increased investment in Indonesian biotechnology activities.

Given the current situation, forecasting likely outcomes for the Indonesian biotech sector is problematic. However, variety of efforts aimed at advocating the positive roles of biotechnology in supporting food security in Indonesia continue.

Modeled on the success of the Biotechnology Coalition of the Philippines, a pro-biotech advocacy association, the Indonesia Coalition for Agricultural Biotechnology (ICAB) was recently formed in Lombok, West Nusa Tenggara on July 4, 2012 during the 5th Indonesia Biotechnology Conference for supporting the Indonesia agriculture biotechnology. More information regarding ICAB can be seen at GAIN Report ID1226.

Section IV. Plant Biotechnology Marketing Issues:

In 2006 there was a survey to determine the Indonesian public's willingness to accept transgenic products. The survey targeted students at a well-known agriculture university in Indonesia. The

research showed that the students lack knowledge of transgenic foods, even if they had a class in biology. The study also found that students: (1) are somewhat willing to consume transgenic foods if transgenic products reduce the amount of pesticides applied to crops, (2) are very willing to consume transgenic foods if the foods were more nutritious than non-transgenic foods, (3) will avoid consuming transgenic foods if the foods 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 transgenic foods, (6) feel labeling of transgenic foods should be mandatory even though it will affect the price, and (7) think that existing governmental regulations on food safety remain poor.

Section V. Plant Biotechnology Capacity Building and Outreach:

Indonesia has significant capacity to promulgate but limited capability to enforce regulations with respect to food safety and biosafety of transgenic-origin 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 future transgenic products, improvement of biosafety facilities (environment, food, and feed safety), revision of the guideline for environment safety assessment, finalization the guideline for feed safety assessment, finalizing the guideline for research and development of transgenic products in the laboratory, biosafety containment, and confined field, as well as developing a guideline for monitoring and risk management.

FAS Jakarta has actively recruited Cochran Fellows and participants for other USDA-sponsored events since 1998. Following is a list of the activities from FAS Jakarta for capacity building and outreach on biotechnology over the past two years.

Cochran Fellowships from Indonesia Related to Biotechnology

- Michigan State University – Biosafety Program 2012
  4 Cochran Fellows

- Michigan State University – Food Safety Program 2011
  2 Cochran Fellows

- University of Missouri – Plant Genetics and Food Crops 2011
  2 Cochran Fellows

Biotechnology "Capacity Building" Events Sponsored by USDA

- 10TH APEC HIGH LEVEL POLICY DIALOGUE – WASHINGTON, DC
  February 28 – March 2, 2011
  2 Indonesian attendees

- STUDY VISIT OF HIGH LEVEL GOI OFFICIALS ON BIOTECH CROPS IN WASHINGTON, DC AND ST. LOUIS, MO
  March 3 – 9, 2011
  5 participants and 1 LES

Biotechnology Capacity Building and Outreach Events Sponsored by FAS Jakarta (through EMP, TIRF and CSS funding)

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).

Farmer to Farmer Workshop: Agricultural Biotechnology Outreach and Capacity Building, September 19 – 23, 2011 (jointly organized by ISAAA/SEARCA and FAS Manila).

Experts Dialogue in Biotechnology: Transgenic Crops versus Food Security Challenges, July 10, 2012 (jointly funded by Crop Life Indonesia, MNC, IndoBiC/ISAAA, and Bogor Agricultural University).

Agricultural Biotechnology Short Course for the Technical Team for Biosafety of Transgenic Product at the Michigan State University, East Lansing, MI, September 9 – 21, 2012 (jointly funded by Crop Life Asia).

Biotechnology Capacity Building and Outreach Events Sponsored by U.S. Government

Workshop on "Biology and Genetics of Genetically Modified Organism (GMO)", July 18, 2011 (funded under USAID through IFPRI/PBS).

Workshop on "Confined Field Trial (CFT)", September 12 – 13, 2011(funded under USAID through IFPRI/PBS).

Workshop on "Commercialization of Genetically Modified Organism (GMO)", September 15, 2011 (funded under USAID through IFPRI/PBS).

Universities Outreach, December 6 – 9, 2012 (funded under USAID through IFPRI/PBS).

Workshop on "Liability & Redress on Genetically Engineered Products", February 21, 2012 (funded under USAID through IFPRI/PBS).

Workshop on "Environmental Risk Analysis", March 6 – 8, 2012 (funded under USAID through IFPRI/PBS).

Workshop on "Feed Safety", June 19 – 20, 2012 (funded under USAID through IFPRI/PBS).

Biotech Outreach Activities by sponsoring Dr. Roger Beachy, founding president of the Donald Danforth Plant Science Center to various meetings and workshops from July 9 – 14, 2012 (funded under Biotech Outreach Fund, Bureau of Economic, Energy, and Business Affairs (EEB), U.S. Department of State).

Comparative Study to the Philippines for Indonesia Quarantine Officer, July 10 – 14, 2012 (funded under USAID through IFPRI/PBS).

Regulators Summit, August 8, 2012 (funded under Biotech Outreach Fund, Bureau of Economic, Energy, and Business Affairs (EEB), U.S. Department of State).

Post also actively supported several agricultural biotech events in 2012, such as: inviting Dr. Roger Beachy, former director of the National Institute for Food and Agriculture, as well as the founding president of the Donald Danforth Plant Science Center, and other well-known speakers.

Dr. Roger Beachy visited Indonesia two times in 2012. During his first visit in February 2012, he delivered a keynote address at the Indonesian Chamber of Commerce's (KADIN) Jakarta Food Security Summit. During his second visit in July 2012, he presented the world wide outlook of transgenic crops deployment in front of academia at the Bogor Agricultural University in Bogor and at the Brawijaya University in Malang. The event in Malang was in collaboration with the Winrock Indonesia. Dr. Beachy also met with high-level GOI officials and discussed biotechnology as a broader tool for increasing Indonesia's capacity for food. His first visit was sponsored by KADIN and his return visit was sponsored by the U.S. Department of State.

In addition, Post organized the Biotech Regulators Summit in Jakarta on August 8, 2012. FAS Jakarta invited the Government of Philippines officials to share their regulatory and experiences in processing transgenic plants in the Philippines with members of the Biosafety Commission for Transgenic Products and the Technical Team of Biosafety for Transgenic Products. United States Assistant Secretary for Economic and Business Affairs, Jose W. Fernandez gave opening remarks on the Summit. Moreover, Post helped to organize A/S Fernandez's visit to the transgenic corn limited field trial at the Indonesian Center for Agricultural Biotechnology and Genetic Resources Research Development, Ministry of Agriculture in Bogor on August 9, 2012.

To introduce the Indonesia Coalition for Agricultural Biotechnology to the public, FAS Jakarta in collaboration with Winrock International organized a seminar on addressing the role of technology in strengthening Indonesian food security on September 11, 2012 in Jakarta. Dr. Rusman Heriawan, the Indonesian Vice Minister of Agriculture expressed his positive views on the adoption of agriculture biotechnology in Indonesia during the opening speech. Dr. Leo Gonzales of the STRIVE Foundation and Dr. Val Giddings of United Soybean Board as speakers emphasized the benefits of transgenic crops for the global farmers.

Please see GAIN Report ID1134 and ID1144 to know the others FAS Jakarta activities in previous years.

Section VI. Animal Biotechnology:

Although the regulations regarding transgenic animals are in place, Indonesia does not currently produce or commercialize transgenic animals. The general consensus is that the application of transgenic animals in Indonesia is still a long ways off. However, some research institutions and universities have conducted studies on molecular marker, such as: research on genetic cow and bull using gen markers, identification of animal characteristics to heat tolerance and feeding utilization, and transgenic chicken (resistance to New Castle disease) using simple breeding method.

Section VII. Author Defined:

Useful websites:

- Indonesia Biosafety Clearing-House: http://indonesiabch.org
- Indonesian Center for Agricultural Biotechnology and Genetic Resources Research and Development (ICABIOGRAD), Ministry of Agriculture: http://biogen.litbang.deptan.go.id/cms/
- Clearing House Mechanism of National Biodiversity: http://bk.menlh.go.id/?&lang=en
- Indonesian Biotechnology Information Center (IndoBIC): http://www.indobic.or.id/