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Report Highlights:

The report provides an update on the Biosafety Act legislation in Thailand. The report also provides information on possible labelling regulation changes for manufactured/imported foods containing Genetically Engineered (GE) raw materials.

SECTION I. EXECUTIVE SUMMARY

In December 2015, the Thai Prime Minister (PM) reversed his Cabinet's earlier decision in November 2015 to approve the draft Biosafety Act. The Biosafety Act was designed to provide a solid regulatory framework for agricultural biotechnology including research, field trials, and commercialization. The National Legislative Assembly (NLA) is currently attempting to revise the Biosafety Act. This is a lengthy process with an uncertain outcome.

At the same time, an attempt by seed developers to conduct field trials under the 2007 Cabinet's criteria has stalled due to internal disagreement among stakeholders.

Additionally, the Thai Food and Drug Administration (TFDA) is considering adopting a mandatory labelling regulation for manufactured/imported foods containing GE raw materials.

The lack of policy changes on biotechnology means that many of the issues remain unchanged from the 2015 Annual Report.

SECTION II. PLANT AND ANIMAL BIOTECHNOLOGY

CHAPTER 1: PLANT BIOTECHNOLOGY

PART A: PRODUCTION AND TRADE

- a) **PRODUCT DEVELOPMENT:** Thailand has not passed regulations permitting genetically engineered (GE) crops for cultivation. In early 2013, Monsanto Thailand submitted a field trial proposal to the Department of Agriculture (DOA) for herbicide-resistant NK603 corn. In 2015, the DOA issued guidelines for field trials that further clarified the 2007 Cabinet's criteria. For example, the DOA guidelines detailed the paperwork that would need to be submitted to the DOA and explained proper procedures for holding public hearings. However, despite the new guidelines, some of the project stakeholders are uncertain about how best to proceed. Syngenta Thailand and Pioneer Thailand have reportedly discontinued their project to conduct greenhouse trials of GE corn seeds.
- b) **COMMERCIAL PRODUCTION:** Thailand has a de facto ban on GE crop cultivation. Although there were field trials for several imported transgenic plants and local plant varieties in mid 1990s, the Thai government issued a blanket ban in 2003 on further field trials after public opposition initiated by BioThai and the Organization of the Poor. Since then NGOs' opposition has stalled the implementation of effective policies to regulate the commercial production of biotechnology.
- c) **EXPORTS:** Thailand does not officially export GE products. However, according to the EU Rapid Alert System for Food and Feed (RASFF) report, about ten shipments of papayas originating from Thailand were rejected due to detections of GE contamination from 2013-2015. The DOA regulated in 2014 that all fresh/dried papaya or food products containing papaya

exported to the EU and Japan are subject to a GE detection test prior to shipping.

- d) **IMPORTS:** The importation of GE plants for processed foods, soybean and corn for feed and industrial uses, and cotton lint is allowed by the Thai government. It is estimated that 95 percent of total soybean imports and 80-90 percent of cotton imports in 2015 were GE plants. In 2015, according to the Thai Customs Department, Thailand imported US \$1,120 million of soybeans and US \$532 million for cotton from all sources. The imports of U.S. soybeans and cotton in 2015 totaled US \$487 million.
- e) **FOOD AID:** Thailand is not a food aid recipient and does not provide food aid on a regular basis. Rice has occasionally been used for disaster relief in other neighboring countries.
- f) **TRADE BARRIERS:** Currently, there are no additional biotechnology-related trade barriers. However, some trade associations have expressed concern that the Thai Food and Drug Administration (TFDA) may revise GE food labeling regulations to be more restrictive. This could in the future potentially cause trade disruptions in foods containing GE plant materials. Further details are discussed in the 'Labeling' paragraph.

PART B: POLICY

The status quo of Thailand's biotechnology policies has not changed from the 2015 Annual Report.

- a) **REGULATORY FRAMEWORK:** Four main government agencies are involved in the regulation of agricultural biotechnology. They are the: 1) Department of Agriculture (DOA), Ministry of Agriculture and Cooperatives (MOAC); 2) National Center for Genetic Engineering and Biotechnology (BIOTEC), Ministry of Science and Technology (MOST); 3) Ministry of Natural Resources and Environment (MONRE); and 4) Food and Drug Administration (FDA), Ministry of Public Health (MOPH). In addition, the National Bureau of Agricultural Commodity and Food Standards (ACFS) under MOAC represents the Thai Government in negotiating all SPS issues in international organizations (i.e., Codex, OIE, etc.), including food safety in GE products.

The National Biosafety Committee (NBC) was established in 1993 to serve as a coordination body with Institutional Biosafety Committee (IBC), to develop National Biosafety guidelines, to oversee the imports of living organisms, to review and direct research methodologies, etc. According to sources, the NBC is no longer active. As a result, the review of any biosafety issues for GE plants and animals is currently being conducted by Technical Biosafety Committee (TBC), an ad hoc technical advisor of BIOTEC.

Government Agencies	Role	Responsibilities
National Center for Genetic Engineering and Biotechnology (BIOTEC), Ministry of Science and Technology (MOST)	<ul style="list-style-type: none"> - Research and development - Technical Expertise 	<ul style="list-style-type: none"> - Research and development on genetic engineering - Technical advisory - Funding agency - DNA technology laboratory
Department of Agriculture (DOA), Ministry of Agriculture and Cooperatives (MOAC)	<ul style="list-style-type: none"> - Competent national authority - Research and development (mostly plants) 	<ul style="list-style-type: none"> - Regulate imported GE seed for planting - Conduct research and development on plant genetic engineering and risk assessment
Food and Drug Administration (FDA), Ministry of Public Health (MOPH)	<ul style="list-style-type: none"> - Regulate trade on GE food products 	Regulate and monitor the use of GE food including labeling
Ministry of Natural Resources and Environment (MONRE)	<ul style="list-style-type: none"> - National focal point - Coordinators for risk assessment on environmental aspects 	<ul style="list-style-type: none"> - Act as the national focal point for Convention on Biological Diversity (CBD) and Cartagena Protocol on Biosafety (CPB) - Fully responsible for drafting the National Biosafety Law

According to the Cabinet's agreement in 2007, the proposed Biosafety Act legislation will provide the legal framework regulating the use of agricultural biotechnology including research, field trials, and commercialization. In November 2015, after receiving approval from the Cabinet, the draft Biosafety Act was rejected by the PM, stating that he did not see the legislation providing any benefit to Thailand.

In early 2016, the NLA's Committee on Science, Technology, and Communication appointed a sub-committee to revive the Biosafety Act legislation. The sub-committee based its work on the previous draft, however, the final draft contained several potential trade hindering elements such as a prominent role for NGOs and political actors in the approval process and the use of positive lists.

On September 26, 2016, the Biosafety Act Drafting Sub-Committee met with public stakeholders and agreed that the NLA's Science, Telecommunication, and Public Communication Committee should establish a new drafting taskforce to review the revised legislation.

On November 1, 2016, the Chairman of NLA's Science, Telecommunication, and Public Communication Committee endorsed a new sub-committee on the Biosafety Act. The sub-committee, called Taskforce of Reviewing the Draft Biosafety Law, consists of 17 members, as compared to 10 members in the previous sub-committee. While the Chairman and Secretary from the previous taskforce remain the same, pro-biotech representatives are cautiously optimistic due to greater sub-committee representation.

In principle, the draft legislation this taskforce produces will then receive endorsement by NLA's Science, Telecommunication, and Public Communication Committee, before being submitted to the entire NLA for a final law making process. This legislative process is lengthy and the outcome is uncertain.

- b) **APPROVALS:** Currently no GE crops have been approved for cultivation nor have any field trials been undertaken. Biotech opponents have thus far been able to use public hearings to prevent Cabinet approvals from being granted.
- c) **STACKED or PYRAMIDED EVENT APPROVALS:** No GE crops with stacked or pyramided event have been approved for cultivation thus far. Thailand currently lacks a specified regulatory framework for the approval of cultivation of GE stacked/pyramided events.
- d) **FIELD TESTING:** According to the 2007 Cabinet's criteria, all field trials must be located on government properties, hold public hearings prior to implementation, and obtain approval from the Ministerial Cabinet.
- e) **INNOVATIVE BIOTECHNOLOGIES:** It is rumored that some universities may conduct a research study on gene editing, but nothing official has been announced.
- f) **COEXISTENT:** Thailand has not established any framework or guidelines regarding coexistence with non-GE crops.
- g) **LABELING:** The TFDA under the MOPH enforces the labeling requirement for processed foods containing GE plant materials. Effective in 2002, the MOPH lists 22 food products which are subject to labeling requirements when their contents exceed the five percent threshold. The labeling requirements are: (a) food containing only one main ingredient should include a statement of "genetically modified" in conjunction with, or in close proximity to, the name of foods such as "genetically modified corn," or "tofu produced from genetically modified soybean," etc.; (b) for multi-ingredient foods, labels should include a statement of "genetically modified" in conjunction with, or in close proximity to, or under the names of top three main ingredients of the food product such as "genetically modified corn starch," etc. However, the regulation is not applied to small producers who produce and directly sell to consumers. The products subjected to labeling requirements are:
 - 1. Soybeans
 - 2. Cooked soybean
 - 3. Roasted soybean
 - 4. Bottled or canned soybean or soybean contained in retort pouch

5. Natto
6. Miso
7. Tofu or tofu fried in oil
8. Frozen tofu, soybean gluten from tofu or its products
9. Soybean milk
10. Soybean flour
11. Food containing product(s) from (1) to (10) as main ingredient
12. Food containing soybean protein as main ingredient
13. Food containing green soybean as main ingredient
14. Food containing soybean sprout as main ingredient
15. Corn
16. Popcorn
17. Frozen or chilled corn
18. Bottled or canned corn or corn contained in heat-treated pouch
19. Corn flour or cornstarch
20. Snack foods deriving from corn as main ingredient
21. Food containing product(s) from (15) to (20) as main ingredient
22. Food containing corn grits as main ingredient

According to trade sources, the TFDA is considering adopting a mandatory food safety dossier submission regarding GE singled/stacked/pyramided events to be approved by the TFDA's as a positive list of GE event. This would mean that only manufactured/imported foods which contain approved GE event raw materials are allowed to be marketed. Some have suggested that if enacted, this new regulation may disrupt the trade flow of GE crops/foods into Thailand, as the regulatory institutions may lack capacity to efficiently handle the food safety assessments. The TFDA is also being lobbied by NGOs to lower the applicable threshold from 5 percent to 0.9 percent.

- h) **MONITORING AND TESTING:** Although Thailand has laboratory facilities to test GE products, sources indicate that officials do not closely test/monitor manufacturers' compliance of the biotech food labeling requirements.
- i) **LOW LEVEL PRESENCE (LLP) POLICY:** Thailand has not established any framework or guidelines regarding low level presence.
- j) **ADDITIONAL REGULATORY REQUIREMENTS:** None.
- k) **INTELLECTUAL PROPERTY RIGHTS (IPR):** Seed developers believe that the current Thai Plant Variety Protection Act (PVP) does not fairly protect patents for a new plant varieties derived from genetic engineering. In particular, the PVP regulates that the use of foreign plant varieties to develop new breed seed in Thailand, including GE crop seeds, is subject to a requirement of benefit sharing for local communities. The Thai Seed Trade Association (THASTA) and other stakeholders have been working with MOAC in the past couple years to revise these provisions under the Act to align the PVP Act with the International Union for the Protection of New Variety of Plants (UPOV)'s guidelines.

On the other hand, copyright protection for GE crops is covered under Trademark Act (No.2)

B.E. 2543 (2000), which is regulated by the Ministry of Commerce's Department of Intellectual Property.

- l) **CARTAGENA PROTOCOL RATIFICATION:** Thailand signed the Convention on Biological Diversity (CBD) in 1992. Thailand signed the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety in March, 2012.
- m) **INTERNATIONAL TREATIES/FORA:** Thailand regularly participates in international organization conventions such as the International Plant Protection Convention (IPPC) and the Codex Alimentarius (Codex). However, Thailand has not taken any clear positions on issues relating to GE crops and related products.
- n) **RELATED ISSUES:** The Thai government, especially the Ministry of Agriculture and Cooperatives, promotes agricultural organic production and self-sufficient agricultural production. Most Thais perceive organic crops as being safer than GE crops and view farmers who adopt self-sufficiency in agricultural production as being less dependent on expensive agricultural practices.

PART C: MARKETING

- a) **PUBLIC/PRIVATE OPINIONS:** The latest survey on this issue available is from 2010. According to the 2010 survey, 66 percent of the 340 surveyed respondents said they would not purchase GE foods. On specific health risks, 40 percent of respondents believed that consumption of GE foods could create an allergic reaction and 56.2 percent believed that consumption could lead to antibiotic resistant diseases. On consumption benefits, 59.7 percent felt that GE foods could enhance food traits while 54.4 percent believed that consumer could pay less for GE foods. Regarding the environment, 68.3 percent believed that GE crops could cause an unbalanced ecosystem while 75.1 percent agreed that the flow of GE crops into other traditional crops could occur.
- b) **MARKET ACCEPTANCE/STUDIES:** In general, Thai producers, retailers, and consumers remain misinformed about the safety and use of transgenic plants or related foods. Contrary to public perceptions, Thailand consumes large amounts of biotech crops either directly (such as soybean oil) or indirectly (through the garments, meat, and processed foods that use biotech inputs). Although mandatory labeling is required for food products with more than five percent GE content, unpackaged products or products packaged in bulk are exempt from the rules.

CHAPTER 2: ANIMAL BIOTECHNOLOGY

Thailand has not engaged in the development of genetically engineered animals, however, it has conducted animal cloning for research purposes.

PART D: PRODUCTION AND TRADE

- a) **PRODUCT DEVELOPMENT:** Thailand does not engage in the development or production of

genetically engineered animals. Cloning research in cattle, buffalo, goats, and pet animals has been conducted in some universities such as Chulalongkorn University, Kasetsart University, and Suranaree University of Technology, but Post is unaware of initiatives to develop this technology for commercial purposes.

- b) COMMERCIAL PRODUCTION: None.
- c) EXPORTS: None.
- d) IMPORTS: None.
- e) TRADE BARRIERS: Although no regulatory framework on trade has been established, trade of GE animals is subject to a de facto import/export ban.

PART E: POLICY

- a) REGULATORY FRAMEWORK: None.
- b) INNOVATIVE BIOTECHNOLOGIES: None.
- c) LABELING AND TRACEABILITY: None.
- d) INTERNATIONAL PROPERTY RIGHTS (IPR): None.
- e) INTERNATIONAL TREATIES/FORA: None.
- f) RELATED ISSUES: None.

PART F: MARKETING

- a) PUBLIC/PRIVATE OPINIONS: None.
- b) MARKET ACCEPTANCE/STUDIES: None.