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Report Highlights:
This report contains an update on the Cabinet's agreement to revoke the ban on biotech field trials and the development of National Biosafety Act. Also see our section on new technologies.

Includes PSD Changes: No
Includes Trade Matrix: No
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Bangkok [TH1]
[TH]

SECTION I: EXECUTIVE SUMMARY

Although the Thai Cabinet revoked the ban on biotech field trials in Thailand in December 2007, government and private sector stakeholders voiced frustration because the Cabinet's new requirements are considered too restrictive. According to these stakeholders, the requirement to hold public hearings for field trial approval is unclear and provides an avenue for anti-biotech NGOs to become a part of the Government's decision-making process. In addition, the requirement that the field trials must be submitted for Cabinet approval on a case-by-case basis makes approvals subject to political decision-makers, many of whom are opposed to advancing biotechnology in Thailand.

There has been some progress in developing a national biosafety framework. The Cabinet approved a draft National Biosafety Act in principle in January 2008. The draft law was then forwarded to the Office of the Council of State for legal review in April 2008. This review is expected to conclude in early 2009.

SECTION II: BIOTECHNOLOGY TRADE AND PRODUCTION

There has been no change in biotechnology trade and production in Thailand since the latest annual reports in 2006 and 2007 TH6077 and TH7090.

SECTION III: BIOTECHNOLOGY POLICY

3.1 Current Biotechnology Policy

Thailand does not allow importation or production of any transgenic plants for commercial purposes except for: (1) processed food; and (2) imports or sales of soybeans and corn for feed use, human consumption, and industrial use.

Biotech field trials were banned by the Cabinet in April 2001 in response to pressure from anti-GMO groups. In early 2007, the MOAC initiated efforts to revoke the 2001 ban. In May 2007, the Minister of Agriculture and Cooperatives met with representatives from the Ministry of Science and Technology, the Ministry of Natural Resources and Environment, and Kasetsart University to discuss guidelines for re-opening field trials of biotech crops. Although the MOAC reportedly finished its draft proposal in mid 2007, its plan to submit the proposal to the Cabinet was repeatedly delayed.

On December 25, 2007, the Thai Cabinet revoked the biotech field trial ban in Thailand. Reportedly, the Cabinet required that future field trials will be conducted under new restrictive controls and surveillance, including confining trials to government properties only and conducting public hearings prior to initiating new field trials. Furthermore, field trials must be submitted to the Cabinet for case-by-case approval. See also TH8003.

Government and private sector stakeholders voiced frustration with this Cabinet decision. The requirement to hold public hearings for field trial approval is considered unclear and provides an avenue for anti-biotech NGOs to become a part of the Government's decision-making process.

In addition, the requirement that the field trials must be submitted for Cabinet approval on a case-by-case basis makes approvals subject to political decision-makers, many of whom are opposed to advancing biotechnology in Thailand. See also TH8096.

Processed foods containing biotech products, must comply with the 2003 Ministry of Public Health's labeling law, which maintains a five percent tolerance (see also TH6077) for biotech materials/products. Processed products containing more than five percent biotech materials require additional labeling.

3.2 Responsible Government Agencies and Institutes

There have been no changes to the government agencies, institutes or universities involved in biotechnology research and development and regulating the use of biotechnology at different levels. Additional details can be seen at TH6077.

3.3 National Biosafety Framework

Existing Biosafety Guidelines, including Biosafety Guidelines in Genetic Engineering and Biotechnology for Laboratory Work, Field Work, and Planned Release, are voluntary. Prior to the 2001 ban, several transgenic crops underwent biosafety testing and assessment in accordance with these Biosafety Guidelines, including virus-resistant papaya.

In 2003, Thailand began drafting the National Biosafety Framework to monitor and enforce laws on biosafety management. The legislation seeks to establish the necessary framework for ensuring the safety of agricultural biotech products in Thailand, and is being developed in relationship to their commitments as a party to the Cartagena Protocol. The Framework covers eight concepts:

1.) Sustainable use and conservation of biotechnology
2.) Risk assessment and management
3.) Risk classification
4.) Risk communication
5.) Cautionary preparedness
6.) Freedom of choice
7.) Domestic capacity building
8.) Encouraging education and public comment

After several public hearings, the Ministry of Natural Resources and Environment (MONRE) received Cabinet approval of the draft National Biosafety Act in principle on January 22, 2008. The Biosafety law was then forwarded to the Office of the Council of State for legal review in April 2008. This review process is expected to conclude in early 2009. During this process, the Office of the Council of State maintains a dialogue with MONRE to make adjustments to the draft law. After legal review, final legislation will be submitted to the House of Representatives for review and approval. This process normally can be terminated anytime if the Prime Minister decided to dissolve the House of Representatives, a political tool used in the past to circumvent political difficulties. See also TH8096.

In general, the draft Act contains 9 Chapters, including appointment and responsibility of National Biosafety Committee, appointment and responsibility of Biodiversity Office, the control of living modified organisms (LMOs), public participation and information access, biosafety fund organization, responsible officers, the right of law petition, violation and compensation, and penalties. The Chapter of the Control of Living Modified Organisms (LMOs), which is a highlight of this Act, describes the control on importation/export/transit, utilization, confined field trial, release to the environment, and commercialization as food and feed or for processing.

3.4 National Biotechnology Policy Framework

The National Biotechnology Policy Committee (NBPC), which was established in 2003 and chaired by the Prime Minister, approved the National Biotechnology Policy Framework (2004-2009) in December 2003. However, the framework has lost momentum under the deadlock on biotechnology research and development. In addition, the NBPC's responsibilities will be transferred to National Science Technology and Innovation Policy Council under the National Science Technology and Innovation Act 2008, which was officially endorsed on Febraury 13, 2008.

A summary of the framework was discussed in TH6077. The full report on National Biotechnology Policy Framework can be downloaded from http://www.biotec.or.th/biotechnology-en/policy.asp.

SECTION IV: NEW TECHNOLOGIES

National Center for Genetic Engineering and Biotechnology (BIOTEC) provides grants to projects ranging from basic, developmental and applied research, to capacity building and to infrastructure development, in a comprehensive and holistic manner to maximize the social and economic benefits. In addition to agricultural biotechnology, the Research and Technical Program covers environmental biotechnology, bioresources management and utilization, medical biotechnology, and genomics and bioinformatics.

The goal of biotech agricultural biotechnology program is to improve productivity and quality of plants and animals especially aquaculture, as well as to reduce the detrimental environmental impact of some agricultural practices, and increase value to agricultural produce to enhance their competitiveness in the world market. The program also incorporates the development of disease diagnostics for plants and animals, the improvement of animal feed and the production and utilization of probiotics.

- **Rice Biotechnology Program.** The Program involves functional genomics, positional cloning, comparative genomics, genome mapping, and marker-assisted breeding. Rice traits that are the focus for improvement are; tolerance to drought, high-salinity, rapid flooding, resistance to blast, blight and pests, yield, nutrition and cooking quality.
- **Shrimp Biotechnology Program.** This Program supports research and development contributing to sustainable shrimp farming, covering areas of shrimp disease, genetic breeding, nutrition and farm management. Major projects are the Express Sequenced Tag

(EST) and genome study for application in genetic breeding and diagnostic technology for diseases, as well as shrimp domestication.

- **Cassava and Starch Technology Program.** This research program addresses two major elements, one being plant improvement and the other process development in starch production. For plant improvement, molecular biology tools are used to achieve higher yield and starch properties suitable for other high-value industrial applications. A database of cassava Express Sequenced Tag (EST) is currently being developed and employed in the study of starch biosynthesis. There are also on-going comprehensive studies of cassava starch structure and properties.
- **BioSafety Program.** This Program aims to build up the nation's capability to better assess the safety of Genetically Modified Food.
- **Food Research and Innovation Promotion Program.** The Program supports basic research towards product development, nutraceuticals and functional food, food standards and food safety.

The program of environmental biotechnology addresses the development of technologies for enhanced protection of the environment such as the development of biodegradable plastics, waste treatment and utilization and bioremediation.

Bioresources management and utilization program supports research projects and capacity building in biodiversity studies, as well as assessing the potential use of bioresources for pharmacological, agricultural and industrial products. The program also establishes and supports infrastructure essential for such studies, such as the Thailand Network on Culture Collections, Bioassay Research Facility and the development of Microbial Information Management System (MIMS) software.

Medical Biotechnology program is aimed at addressing local health problems through research and development on diagnostic kits, vaccines and new medicines, as well as harnessing the promise of advanced technology such as using stem cells for disease treatment. Emphasis is placed on tropical diseases, genetic diseases and emerging infectious diseases.

Genomics and bioinformatics program supports research, development and capacity building ranging from comparative genomics, molecular modeling and metabolomics. The program serves as a platform technology for studying and improving strategic commodities including rice, shrimp and medical products, as well as microorganisms

In addition, Chulalongkorn University and Suranaree University are pioneers in adopting animal cloning technology in Thailand. Trade sources reported about 200-300 cloned animals, mainly beef cattle, have been raised on commercial farms in recent years.

SECTION V: MARKETING ISSUES

Thai producers, retailers, and consumers remain misinformed about the safety and human health and the environmental benefits of transgenic plants or foods. Anti-biotechnology groups, such as Green Peace Thailand and Organization of the Poor, strongly oppose field-testing or introduction of transgenic crops. Mass media in Thailand, including newspapers and television, usually

provide largely unbalanced reporting by enlarging the negative views while minimizing the positive views about modern biotechnology.

The latest survey conducted by THAI TOPIC in 2003 had consumers rank a series of food characteristics by order of priority. Consumers ranked "free of chemical residue" first while "non-GM" came in second to last. Although "non-GM" was lower in priority, 80 percent of consumers surveyed wanted food products containing biotech ingredients to be labeled accordingly. Much like producers, Thai consumers are highly uneducated about the safety and benefits if GM crops. A 2005 survey by the Agricultural Economics Office showed more than 90 percent of Thai consumers felt they had no access to information on the costs and benefits of biotech crops, and consequently were skeptical of any health benefits derived from biotech food products. Further impeding their ability to obtain information is the Thai media, whom often portray biotechnology negatively. Only 10 percent of journalists surveyed reported they had researched reference material on biotechnology.

Despite the pessimistic outlook, government and private sector scientists agree that biotech outreach activities educating the public should be continued. Both government and private sector stakeholders stated that successful risk communication will be an integral part in moving biotechnology forward.

The Biotechnology Alliance Association (BAA), a Thai biotechnology advocacy group, presented their Study of Agricultural Biotechnology Benefits in Thailand in early 2007. The report reviewed the socioeconomic impact of the technology and estimates Thailand's loss if Thailand does not adopt this technology. It contains the latest information about successful adoption of biotech crops around the world, including case studies on cotton and papaya. Biotechnology offers alternatives to conventional breeding to improve plant characteristics so that productivity increases and inputs, such as fertilizers and pesticides, are decreased. The report also indicated that genetically enhanced varieties of cotton and papaya - both important crops in Thailand - were successfully grown in other countries and were available for adoption here after passing through a biosafety regulatory process. Insect pests and viral diseases have devastated most of the country's traditional production of both these crops. During the 1980s, Thailand's area planted in cotton peaked at more than 150,000 hectares and production at more than 65,000 metric tons. Recently, that area has fallen to less than 11,200 hectares. It is estimated that Thailand loses potential economic benefits of US $3.0-7.0 million per year from not allowing GM papaya to be grown in the country (based on GM papaya's average yields of 74 tons/hectares against the current 18 tons/hectare derived from non-GM papaya varieties). See also TH7015.

SECTION VI: CAPACITY BUILDING AND OUTREACH

In recent years, the U.S. Government (USG) has conducted several capacity building and outreach activities in Thailand in the biotechnology area. These activities were funded by USDA, State Department, and other entities. The activities in 2007 and 2008 include:

- Annual biotechnology training program at Michigan State University under the Cochran Fellowship Program.
- USDA sponsored Thai participants to the Asian Pacific Economic Cooperation (APEC) dialogue on biotechnology in Australia in January 2007 and in Peru in early 2008.

- Dr. Subhash Gupta, USDA Senior Biotechnologist, shared the U.S. experience with implementing biotechnology and biosafety regulations at an international forum organized by the Asian Development Bank (ADB) in Bangkok in June 2007.
- FAS sponsored GM papaya producer from the U.S. shared experiences in growing papaya with a group of Thai farmers and academic groups throughout Thailand in July 2007.
- An FAS/Washington Specialist visited Thailand during May 29 – June 1, 2008 to explore biotech outreach opportunities with relevant Thai stakeholders.

In 2007 and 2008, Dr. Clive James, Chairman, ISAAA, presented his update on the Global Status of Commercial Biotech/GM Crops to Thai audiences, including the biotechnology community and media.

Country-specific needs or strategies that would be useful in raising the capacity of Thailand to apply transparent, science-based regulations to agricultural biotechnology should include:

- Thailand is in the process of developing a National Biosafety Framework. Biosafety issues are new to many relevant government officials and scientists. As a result, short course training in the areas of risk assessment and of various policy and legal aspects should be continued for both local scientists and policy makers;
- Although public education has been conducted frequently, it has been very difficult to change misperceptions about modern biotechnology. As a result, new strategies to better educate or understand this technology are needed, along with more frequent, sustained efforts to do so;
- The various biotech-related agencies (including Office of Natural Resources and Environmental Policy and Planning, Department of Agriculture, BIOTEC, and Food and Drug Administration) are developing a biosafety database for Thailand and could benefit from training or capacity building in this task.

SECTION VII: REFERENCE MATERIAL

Websites:

- Ministry of Science and Technology: http://www.most.go.th/
- National Center for Genetic Engineering and Agricultural Biotechnology (BIOTEC): http://policy.biotec.or.th/
- Thailand Biosafety Information Network: http://biosafety.biotec.or.th/
- Office of Environmental Policy and Planning, Ministry of Natural Resources and Environment: http://www.onep.go.th/
- Department of Agriculture, Ministry of Agriculture and Cooperatives: http://www.doa.go.th/th/
- CropLife Asia: http://www.croplifeasia.org
- International Service for the Acquisition of Agri-Biotect Applications: http://www.isaaa.org
- Biothai (An NGO in Thailand which is against GM crop introduction): http://www.biothai.org/
- Greenpeace South East Asia: http://www.greenpeace.org/seasia/en/

Publications:

Biotechnology Alliance Association (BAA), The Study of Agricultural Biotechnology Benefits in Thailand, March 2007.

National Center for Genetic Engineering and Agricultural Biotechnology (BIOTEC), National Biotechnology Policy Framework 2004-2009 (in Thai), National Science and Technology Development Agency (NSTDA), 2004.

Napompeth Banpot. GMOs and GMO Derivatives under Trials in Containment and/or Small Scale Field Trials in Thailand: 1991-2003, National Biosafety Committee, BIOTEC, 2003.

Foreign Agricultural Service, U.S. Department of Agriculture, Ag Counselor reports on biotechnology issues in 2007 include: 1) The Benefit of Adopting GM Crops in Thailand (TH7015); 2) Public Perceptions of Biotechnology (TH7016); 3) Move to Revoke Ban on Biotech Field Trials (TH7056); 4) GMS Countries Meet to Discuss Biosafety Regulations (TH7086); Biotechnology Annual (TH7090); Reaching Out to Thai Papaya Producers (TH7097); CSSF Activity Evaluation: Biotech Outreach in Thailand (TH7170); Cabinet to Allow Biotech Field Trails with Restrictive Measures (TH8003); Biotech Field Trails: Efforts to Clarify Cabinet Guidelines (TH8014); and Thai Stakeholder Insights (TH8096).

End of Report.