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Report Highlights:

There are no significant developments to convey since the previous report from November 2018. Currently, Myanmar is drafting a national biosafety framework, regulations, and guidelines supported by the U.S. Department of Agriculture; however BT cotton has been approved for planting under the National Seed Policy.

EXECUTIVE SUMMARY

Myanmar does not have a comprehensive biosafety legislation. While there are existing laws such as the [Pesticide Law](#), the [Plant Pest Quarantine Law](#), [New Plant Variety Protection Law](#), [Seed Law](#), [National Seed Policy](#) and the Animal Health and Development Law that home some relation to biosafety issues, there are no comprehensive guidelines or regulations that govern plant or animal genetic engineering (GE).

BT cotton has been approved for planting for many years under the National Seed Policy. All imported seed except cotton, for both trials and commercial distribution, are required to be accompanied by a non-GE certificate. Myanmar similarly does not have clear legislation governing imports of GE food or animal products, nor any process for requesting approvals.

Myanmar regulators have drafted a Biosafety Law, but it has yet to be adopted. FAS support will facilitate the Biosafety Policy Framework, technically advised by contractors International Service for the Acquisition of Agri-biotech Applications (ISAAA) and Rautaki Solutions. A final version awaits approval from the Ministry of Agriculture Livestock and Irrigation (MOALI). Myanmar's new Plant Variety Protection (PVP) Law following Union for the Protection of New Varieties of Plants (UPOV) standards was approved on September 17, 2019. The PVP law will be presented to the International Union for the Protection of New Varieties of Plants (UPOV) Council on October 28 in Switzerland as they continue to pursue membership of UPOV. Myanmar is also amending the Animal Health and Development Law and submitted it to the Amyotha Hluttaw and Bill Committee in August 2019.

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CHAPTER 1: PLANT BIOTECHNOLOGY

PART A: PRODUCTION AND TRADE

a) **PRODUCT DEVELOPMENT:** Myanmar has many scientists with advanced degrees in biotechnology at Myanmar universities, both private and public sectors, and even has a Plant Biotechnology Center under the Ministry of Agriculture, Livestock and Irrigation (MAOLI). However, there is currently no domestic research producing new GE crops, most likely due to uncertainty surrounding the legality of such research. Clear biosafety laws and regulations surrounding research and field trials are needed in order to create an environment for domestic research and development in this area.

b) **COMMERCIAL PRODUCTION:** Myanmar produces the long staple bollworm resistant Bt cotton variety “Ngwe Chi 6” (Silver-6). The average yield for Ngwe Chi 6 cotton is about two metric tons per hectare (MT/Ha). An estimated 75 percent of Myanmar’s cotton farmers planted Bt cotton in 2017/18 including the Ngwe Chi 6 cotton variety. However, the newly developed Bt cotton varieties such as Ngwe Chi 9 and Shwe Taung 8 are likely to replace the local long staple cotton varieties.

Myanmar commercially produces lint consisting of Ngwe Chi 6, Ngwe Chi 9, and Shwe Taung 8. Production of Bt cotton is estimated at 380,000 metric tons (MT) in 2017/18.

c) **EXPORTS:** Myanmar does not export a significant quantity of commodities derived from agricultural biotechnology. All cotton grown in Myanmar is consumed domestically, although a small amount may be exported to China informally over the border.

d) **IMPORTS:** According to the National Seed Policy, only some non-food GE crops will be accepted. However, Myanmar recently allowed the import of Bt cotton seed.

e) **FOOD AID:** Myanmar receives food aid from the World Food Program (WFP) primarily for internally displaced persons (IDP) in the form of rice, pulses, oil, and salt. It also distributes high-energy biscuits for its school feeding programs. There are no issues related to biotechnology that impede the importation of these products. It is the WFP’s policy that all donated food meets the food safety standards of the donor and recipient countries and all applicable international standards, guidelines and recommendations.

f) **TRADE BARRIERS:** Lack of awareness and knowledge hampers the adoption and use of biotechnology in Myanmar. Trade sources indicate that Myanmar consumers may be receiving negative information from anti-biotech groups. Myanmar amended its Seed Law in 2015 and published rules and seed regulations in February 2016 and National Seed Policy in

August 2016. The National Seed Committee (NSC) requires imported seeds, both for trial and commercial distribution, to have a non-GE certificate from the country of origin.

PART B: POLICY

REGULATORY FRAMEWORK: Myanmar does not regulate agricultural biotechnology, except through the National Seed Policy, which restricts the import and planting of all GE seeds except for non-food crops such as Bt cotton. According to National Seed Policy, only non-food GMO crops will be partially accepted.

Some officials have stated that GE food is not permitted; however, that is not written in any legislation and so the legal status is unclear. Myanmar regulators drafted a National Biosafety Framework, which has not yet been adopted, and was last updated in 2009. At present, the government is in the process of updating the draft guidelines to account for changes since 2009. Relevant stakeholders see the potential benefits of agricultural biotechnology use in Myanmar in both crops and animal sectors, and FAS has been helping Myanmar regulators to update the current draft legislations.

The primary department responsible for agricultural biosafety policy is the Department of Planning at MOALI.

Members involved in the development of biosafety policies to provide technical inputs include:

1. The Ministry of Education;
2. The Ministry of Natural Resources and Environmental Conversation;
3. The Ministry of Commerce;
4. The Ministry of Planning and Finance;
5. The Union Attorney-General's Office (UAGO); and
6. The Ministry of Health and Sports.

Other Members include:

1. Biosafety Committee/ Authority: The National Biosafety Drafting Committee was organized in March 2018. The role of this committee is to amend the current Biosafety Framework in accordance with transformed policies and to obtain the comments, inputs and suggestions from the other Ministries and the Union Attorney-General's Office.

Myanmar National Biosafety Drafting Committee			
Approved on March 15, 2018			
1	Mr. Kyaw Swe Lin	Chairman	
	Deputy Director General		
	Department of Planning		
2	Mr Sein Tun Lin	member	
	Deputy Director General		
	Department of environmental Conservation		
3	Mr. Win Naing Thaw	member	
	Director		
	Department of Forestry		
4	Dr. Kyaw Naing Oo	member	
	Director		
	Livestock Breeding Veterinary Department		
5	Dr. Than Myint Tun	member	
	Deputy Director		
	Yezin Agricultural University		
6	Dr Tun Thein	member	
	Deputy Director		
	Department of Fisheries		
7	Dr. Thant Nyi Lin	member	
	Lecturer		
	University of Veterinary Science		
8	Mr. Kyaw Lwin	secretary	
	Director		
	Department of Planning		
9	Dr. Pa Pa Aung (She retired and may be replaced with Dr. Aye Min)	Joint secretary -1	
	Deputy Director		
	Department of Agriculture		
10	Dr. Min San Thein	Joint secretary -2	
	Researcher		
	Department of Agricultural Research		

2. Biosafety Framework and Policy Writing and Cooperation Committee: This Committee was organized on July 13, 2018 and is chaired by the Director General for the Department of Planning, and members from the Director General and Deputy Director General of other Departments, as well as one representative from the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI). The committee is responsible for establishing safety policies for the management of GE products, to supervise the Biosafety Framework and Policy that will ensure harmonization with the existing policies from the related departments, seek local and international support for the implementation of the Biosafety Framework and Policy, and supervise and manage the enacting of the Biosafety Framework and Policy.

Biosafety Framework and Policy Writing and Cooperation Committee		
1	Mr. Kyaw Min Oo Director General Department of Planning	Chairman
2	Dr. Ye Tint Tun Director General Department of Agriculture	Member
3	Mr. Naing Kyi Win Director General Department of Agricultural Research	Member
4	Dr. Ye Tun Win Director General Livestock Breeding and Veterinary Department	Member
5	Mr. Khin Maung Maw Director General Department of Fisheries	Member
6	Mr. Ye Myint Maung Central Executive Committee UMFCCI	Member
7	Mr. Kyaw Swe Linn Deputy Director General Department of Planning	Secretary

3. Constructive Committee for Biosafety Framework and Policy: This Committee was organized in December 2018 by technicians and related staff officers from the Department of Agriculture to provide technical inputs for the Biosafety Framework, and to provide advice for drafting biosafety guidelines in conducting researches and developments.

a) APPROVALS: Myanmar does not have a biosafety law nor approval mechanisms in place.

b) STACKED EVENT APPROVALS: Not applicable.

c) FIELD TESTING: Myanmar does not have a biosafety law governing the field testing of GE plants; therefore, no testing is currently conducted.

d) INNOVATIVE BIOTECHNOLOGIES: Myanmar does not have a biosafety legislation, nor any policies regarding innovative technologies such as gene editing. There are numerous ongoing biotechnology activities at the different departments under MOALI. Some research activities on biotechnology are listed in Table 1.

Table 1. Examples of Biotech Activities Undertaken by the Ministry of Agriculture, Livestock and Irrigation

	Departments	Activities
1.	Department of Agricultural Research	<p><i>Tissue culture</i></p> <ul style="list-style-type: none"> - Identification of the anther culture response of Indica rice genotypes. - <i>In vitro</i> nuclear technique for rice and banana improvement - Somatic embryogenesis in mango and coffee - Mass Propagation of Banana, Sugarcane and - Medicinal Orchid - <i>In vitro</i> germplasm conservation of indigenous banana, potato, sweet potato and some tuber crops <p><i>Molecular Biology</i></p> <ul style="list-style-type: none"> - Gene identification and genetic purification of hybrid rice - Investigation Opaque-2 gene of

		<p>promising maize varieties</p> <ul style="list-style-type: none"> - Identification of Xa genes in rice germplasm - Genetic diversification of maize, sugarcane and rice germplasm - Marker Assisted Breeding Programs on Rice and Tomato - Screening of molecular markers linked to Yellow Mosaic Virus (YMV) resistant genes in black gram - Screening of Myanmar rice germplasm carrying salt tolerant gene by using SSR markers
2.	Plant Biotechnology Centre	<p><i>Molecular Biology</i></p> <ul style="list-style-type: none"> - Assessment of genetic diversity and population structure (DNA finger printing of mango, and determining genetic Diversity and Specific Grain qualities of Pawsan rice) - Crop improvement to a climate resilient agriculture through molecular breeding (stress tolerance) (Submergence and BB resistant gene pyramiding, Salinity and Heat tolerance rice variety, short duration rice variety for post flooded) - Varietal Improvement for the quality and nutritious crop (high aromatic rice by pyramid on aromatic genes, high amylose rice, Pawsan mutant backcross lines, brown color HYV rice, brown color HYV glutinous/sticky rice) <p><i>Tissue Culture</i></p> <ul style="list-style-type: none"> - Banana, Orchids and medical Orchids, Strawberry, Potato, Lily and Carnation, Eucalyptus <p><i>Service</i></p> <ul style="list-style-type: none"> - Providing non-GMO certificate

3.	Perennial Crops Research and Development Center	<p><i>Tissue Culture</i></p> <ul style="list-style-type: none"> - Embryo culture and Leaflet culture on oil palm
4.	Cotton and Allied Fiber Crop Division (Shwe Daung Cotton Research and Technology Development Farm)	<p><i>Molecular Biology</i></p> <ul style="list-style-type: none"> - Developing cotton bollworm resistant varieties by using Marker Assisted Selection - Detection of bollworm resistant gene from Bt cotton (Ngwechi 6) by PCR based detection and developing bollworm resistant cotton variety by backcrossing

- e) COEXISTENCE: Myanmar has no policy on coexistence.
- f) LABELING AND TRACEABILITY: There are no requirements for labelling GE products.
- g) MONITORING AND TESTING: There is no policy regarding testing imported or exported products for GE content, although some government agencies might be conducting random testing and general surveys.
- h) LOW LEVEL PRESENCE (LLP) POLICY: There is no LLP policy.
- i) ADDITIONAL REGULATORY REQUIREMENTS: Not applicable.
- j) INTELLECTUAL PROPERTY RIGHTS (IPR): A new Plant Varieties Protection Law was approved on September 17, 2019. The Myanmar Plant Varieties Protection Law will be presented to the International Union for the Protection of New Varieties of Plants (UPOV) Council on October 28, 2019 in Switzerland. Myanmar will continue to pursue membership of UPOV.
- k) CARTAGENA PROTOCOL RATIFICATION: In May 2001, the Myanmar Ambassador to the United Nations signed the Cartagena Protocol on Biosafety (CPB). Myanmar also recognizes the Association of Southeast Asian Nations (ASEAN) Guidelines on Risk Assessment of Agriculture-Related GE.
- l) INTERNATIONAL TREATIES and FORUMS: Myanmar signed the United Nations

Environment Programme and the Global Environment Facility (UNEP-GEF) Agreement to facilitate the development of a national biosafety framework in July 2003. Myanmar has also participated as official observers at the Asia-Pacific Economic Cooperation (APEC) High Level Policy Dialogues on Agricultural Biotechnology.

m) RELATED ISSUES: None.

PART C: MARKETING

a) PUBLIC/PRIVATE OPINIONS: Knowledge about GE technology in Myanmar is low; thus, there is an opportunity to educate the general public about the benefits of biotechnology to farmers, the environment, and the impact on world food security.

b) MARKET ACCEPTANCE/STUDIES: There are no known publicly available studies on public acceptance of biotechnology in Myanmar.

CHAPTER 2: ANIMAL BIOTECHNOLOGY

PART D: PRODUCTION AND TRADE

a) PRODUCT DEVELOPMENT: Myanmar researchers are not producing and experimenting with GE animals.

b) COMMERCIAL PRODUCTION: Myanmar does not produce any livestock clones, GE animals, or products derived from animal biotechnologies, and there are no related regulations on this technology.

c) EXPORTS: Not applicable. There are no GE animals or animal products in the market.

d) IMPORTS: Myanmar does not import GE animals, although there is no legislation regarding this sector.

e) TRADE BARRIERS: There are currently no known trade barriers for the import of GE-derived animals other than the lack of related regulations.

PART E: POLICY

a) REGULATORY FRAMEWORK: There is no regulatory framework or regulation governing the production of GE animals. Myanmar regulators updated a National Biosafety Framework in 2009 that includes the animal sector; however, the framework has yet to be adopted.

- b) APPROVALS: None.
- c) INNOVATIVE BIOTECHNOLOGIES: Not applicable.
- d) LABELLING AND TRACEABILITY: Not applicable.
- e) INTELLECTUAL PROPERTY RIGHTS (IPR): Myanmar follows the World Organization for Animal Health (OIE) guidelines in general.
- f) INTERNATIONAL TREATIES AND FORUMS: Myanmar has been a member of the OIE since August 1989.
- g) RELATED ISSUES: None.

PART F: MARKETING

- a) PUBLIC/PRIVATE OPINIONS: Knowledge about GE products in Myanmar is low, thus, there is an opportunity to educate the general public about the benefits of biotech products.
- b) MARKET ACCEPTANCE/STUDIES: None.

Attachments:

No Attachments