

# South Asia Biosafety Program

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## BANGLADESH

### Training on Biotech & Biosafety Policy in Bangladesh

Prof. Abu Noman Faruq Ahmmed, Sher-e-Bangla Agricultural University

Participants at the training on Biotech & Biosafety Policy in Bangladesh (November 19, 2020)

SAU Science Youth Alliance and Farming Future Bangladesh jointly organized the month-long *Agri Science Leadership Skill Development Training* program for a selection of forty students from Sher-e-Bangla Agricultural University, Dhaka, Bangladesh. The training was conducted online using the Zoom platform due to the COVID-19 pandemic. In the second week of the program, the first session was about “Biotech Policy: Biosafety,” which was conducted on November 19, 2020 by Prof. Dr. Aparna Islam, who is currently working as the Country Manager at the South Asia Biosafety Program (SABP). The session covered discussion on biotech policy, i.e., biosafety issues of Bangladesh and its application. The training session was coordinated by Prof. Abu Noman Faruq Ahmmed, Sher-e-Bangla Agricultural University.

The three-hour training session began with greetings from SAU Science Youth Alliance Leader, Ahmed Imran Halimi. Then, Prof. Noman Faruq welcomed and introduced the trainer, Prof. Dr. Aparna Islam, by presenting her short biography to the participants. Dr. Islam gave her presentation on the historical background of biosafety concept development, biosafety at each step of biotech research, and currently available research regulatory documents like biosafety rules and guidelines. She discussed the origin and importance of biotech policy, the international treaty on biosafety protocol, biosafety regulation in Bangladesh and its application, and the development of GM crops and their approval procedures. She also discussed the history of

biotechnology, the activities of GM crops, how transgenic plants are made, what safety guidelines need to be maintained for GM crops, biodiversity conservation, the biotechnology history of Bangladesh, and the current situation in detail.

Participants were divided into four groups for the breakout sessions in the midst of the training session. Dr. Islam assigned topics for each group of participants for problem formulation on the concept of risk that she discussed earlier in the training session. After the completion of group work, they came back to the main meeting room and leaders

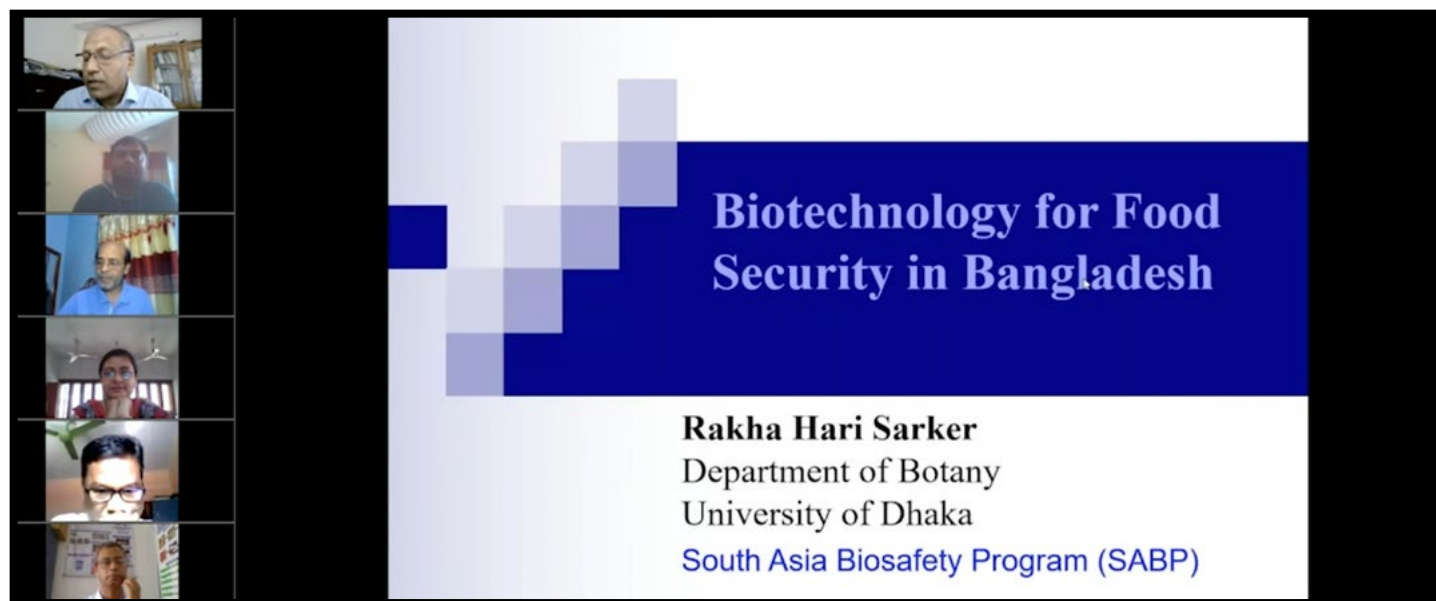
**Dr. Islam gave her presentation on the historical background of biosafety concept development, biosafety at each step of biotech research, and currently available research regulatory documents like biosafety rules and guidelines.**

of each group presented their thoughts on the topics. Dr. Islam listened to their ideas and delivered her feedback sequentially. Dr. Islam continued her presentation after this breakout room discussion session. She further discussed risk assessment for developing GM crops and risk assessment guidelines. In this part, she also showed the global scenario of biotech crops and gave a brief overview about SABP in her presentation.

At the end of the presentation, the students took a quiz. The session ended with a short announcement for future endeavours. As a participant, I found the session informative and helpful for improving my knowledge. Discussions continued with Dr. Islam after the session due to increased interest in the topics around biosafety, risk, and problem formulation.

## GM Crops: Food Security and Biosafety in Bangladesh Perspectives

Khaled Mahmud Sujon, Department of Genetic Engineering and Biotechnology, University of Rajshahi



Speakers at the webinar on GM Crops: Food Security and Biosafety in Bangladesh Perspectives (November 14, 2020),

In modern agriculture, Genetically Modified (GM) crops have been playing a significant role in ensuring increased production, added nutrients, and solving the economic crisis of the current global situation. GM crops have already been introduced in agricultural fields worldwide and also in Bangladesh. Before reaching farmers, GM crops are subjected to biosafety measures, which are mandatory. Therefore, it is important to know and understand the rules, regulations, and guidelines for better implementation of modern biotechnology research and developments. To facilitate better understanding of the biosafety system among students and early career researchers, the South Asia Biosafety Program (SABP) and the Department of Genetic Engineering and Biotechnology, University of Rajshahi organized the webinar *GM Crops: Food Security and Biosafety in Bangladesh Perspectives* on November 14, 2020. In the webinar, four key topics were discussed, including: GM Crops, Food Security, Biosafety, and finally, the Scenario in Bangladesh.

Prof. Dr. Md. Nazrul Islam, Dean, Faculty of Biological Sciences, University of Rajshahi graced the event as Chief Guest while Prof. Dr. Zennat Ferdousi, Chairman, Department of Genetic Engineering and Biotechnology, University of Rajshahi chaired the event. Prof. Dr. Md. Abu Reza was the moderator of the webinar. The webinar featured two keynote speeches from Prof. Dr. Rakha Hari Sarker, Chairman, Department of Botany, University of Dhaka and Prof. Dr. Aparna Islam, Country Manager, SABP.

Dr. Reza introduced the topic of the webinar to all the guests and audiences and invited the Chief Guest, Prof. Dr. Md. Nazrul Islam to present the Welcome Address. Dr. Islam remarked that GM crops hold promise for better food security, but there are also misconceptions around it. Dr. Islam hoped that, with the advent of good policy and regulatory aspects, the benefits can be equally shared. He expressed his belief that young researchers will lead the era of development, facing the dangers and overcoming the struggling period of biological science.

The keynote speaker, Prof. Dr. Rakha Hari Sarker, presented the role of biotechnology for food security in Bangladesh. He mentioned the global status, the Bangladesh panorama, and the significance of food security and the problems associated with it. Dr. Sarker highlighted that the lack of resources and other setbacks like natural disasters and also lack of knowledge was an issue that impedes modern biotechnology

developments. He pointed out what caused these problems and introduced the audience to the classical trilemma, which are increased population and hidden hunger, decreasing arable land, and increased agricultural productivity. He discussed GM crops, which are playing a crucial role in meeting nutritional needs and future anticipations. In the end, he discussed CRISPR technology and talked over whether CRISPR edited crops should be treated as GM crops or not.

In the second keynote speech, Prof. Dr. Aparna Islam talked about biosafety in GM crops and how the biosafety regimes are being developed. She discussed the biosafety measures in each stage of research and development, regulations in Bangladesh, the regulatory authorities, and the requirements for conducting GM crop research. She introduced the audience to biosafety regulatory guidelines and processes, also including application procedures, lab requirements for developing GM crops, and so on. Then, Dr. Islam explained the aims, objectives, and current works of SABP. Finally, she introduced the audience to open access online resources, such as the Bangladesh Biosafety Portal ([bangladeshbiosafety.org](http://bangladeshbiosafety.org)) and the eLearning courses available on the Agriculture & Food Systems Institute's website ([foodsystems.org/elearning](http://foodsystems.org/elearning)).

The next session was an open discussion moderated by Dr. Reza and the session was very engaging, with relevant questions put forth by the audience. The speakers, Dr. Sarker and Dr. Islam, answered questions on regulatory timeframe, regulatory processes in animal biotechnology, requirements of regulatory approvals while conducting laboratory research, Institutional Biosafety Committee (IBC), etc. The webinar concluded with the speech of the event Chair, Prof. Dr. Zennat Ferdousi. Dr. Ferdousi praised the initiative taken by SABP during this pandemic situation and expressed her interest in having more programs in future. After having a successful discussion, all the guests and participants expressed their hope to work along with SABP to form an IBC at the University of Rajshahi.

VIDEO

Watch the full recording at:

<https://foodsystems.org/event/sabp-webinar-2020-8/>

## Regulation of Gene Editing: Need for a Harmonized Regulatory Landscape

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The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), based in Hyderabad, India, along with other CGIAR institutions, organized the *One CGIAR Global Webinar Series on Genome Editing in Agriculture* on September 22 to October 20, 2020. The fourth and fifth webinar of the series were on "Regulations and Genome Edited Plants" and "Pathways to Commercialization," respectively. Speakers and panelists, including researchers and policy specialists from across the world, called for a uniform enabling regulation to use new breeding technologies (NBTs) effectively. Information about the status of regulations of gene editing in various countries, including USA, Canada, Argentina, India, Kenya, and the Philippines was discussed.

Initiating the deliberations, Dr. Donald Mackenzie, Executive Director at the Institute for International Crop Improvement of Donald Danforth Plant Science Center, said that all plant breeding methods can cause unintended effects, some with a higher likelihood than others, but there is no hazard that is unique to methods that move genes between unrelated organisms. He indicated that the assessment of risks should be based on the product and not the method by which it is produced. Dr. Hugo Campos, Research Director at the International Potato Centre (CIP), argued that gene-edited products produced by SDN 1 and SDN 2 edits should not require additional regulatory oversight compared to regular breeding lines, as the mutations in them are identical to either naturally occurring mutations or those that are produced by mutagenesis and are not novel genetic combinations. Only SDN 3 should be regulated as a genetically modified organism (GMO).

Dr. Trilochan Mohapatra, Director General of the Indian Council of Agricultural Research (ICAR), informed participants that the guidelines for gene editing are being finalized in India. In the context of public-private engagement, he said there is scope for public and private institutes, including small and medium enterprises, to collaborate in using new breeding technologies, as they have been doing thus far with existing technologies.

**Awareness of the regulatory landscape and how a product moves through commerce, including exports, is essential for practitioners and developers of gene-edited products.**

Dr. Vibha Ahuja, Senior Adviser, SABP delivered a presentation on regulations of gene editing in India as one of the case studies. It was emphasized by various speakers that strong enabling policies are needed for genome editing and other agricultural research and development. Dr. Mark Rosegrant, Research Fellow Emeritus, IFPRI, called for a policy environment that enables science and innovation through a legal framework for resource rights, regulations to encourage scientific inquiry and exchange, and markets and trade regimes that are open, transparent, and fair. Initiatives and deliberations under the aegis of the OECD and Cartagena Protocol on Biosafety were also discussed in detail.

Dr. Morven McLean, Former Chief Executive Officer, Agriculture & Food Systems Institute, emphasized that it is important to address regulatory asymmetries, as they would affect trade. She said harmonization can be aided by aligning definitions, standardizing information needed to decide if a gene-edited plant will be subject to additional regulation, timelines for making determinations, and recognizing decisions made by other countries. She further indicated that awareness of the regulatory landscape and how a product moves through commerce, including exports, is essential for practitioners and developers of gene-edited products.

Seed industry representatives advocated for a "technology-neutral" approach, keeping in view the needs of farmers, retailers, and consumers. It was also indicated that continued investments are important to improve seed systems, engagement, and capacity building to deliver seeds to smallholder farmers to utilize the potential of new breeding technologies.

For more information, please visit: <https://www.icrisat.org/a-harmonized-regulatory-landscape-for-new-breeding-technologies-need-of-the-hour/> or contact: **Dr. Pooja Bhatnagar-Mathur**, Theme Leader – Cell, Molecular Biology & Genetic Engineering, ICRISAT



Speakers at the One CGIAR Global Webinar Series on Genome Editing in Agriculture session on "Regulations and Genome Edited Plants" (September 22, 2020).

## CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
<b>INDIA</b>			
Biotechnology and Intellectual Property Law	Rajiv Gandhi School of Intellectual Property Law, IIT Kharagpur	December 13-19, 2020 Online	<a href="http://www.iitkgp.ac.in/events">http://www.iitkgp.ac.in/events</a>
International Conference on Emerging Trends in Biotechnology	Vellore Institute of Technology and Association of Biotechnology and Pharmacy	December 14-16, 2020 Online	<a href="https://vit.ac.in/school-bio-sciences-technology-sbst/first-announcement-international-conference-emerging-trends">https://vit.ac.in/school-bio-sciences-technology-sbst/first-announcement-international-conference-emerging-trends</a>
Webinar: Gene Editing for Agriculture, Society & Sustainable Development - Prospects and Perspectives	Tata Institute for Genetics & Society and Biotech Consortium India Limited	December 15, 2020 Online	<a href="https://us02web.zoom.us/join/joinMeeting?pwd=O24t5YoOQp68RwkVP6J1Mw">https://us02web.zoom.us/join/joinMeeting?pwd=O24t5YoOQp68RwkVP6J1Mw</a>
International Expert Workshop on Chickpea Diseases - Detection, Phenotyping and Management	International Crops Research Institute for the Semi-Arid Tropics	December 16-18, 2020 Online	<a href="https://www.icrisat.org/event/online-international-expert-workshop-on-chickpea-diseases-detection-phenotyping-and-management/">https://www.icrisat.org/event/online-international-expert-workshop-on-chickpea-diseases-detection-phenotyping-and-management/</a>
Indian Seed Congress 2021	National Seed Association of India	February 24-26, 2021 Bengaluru	<a href="https://isc2021.nsai.co.in/">https://isc2021.nsai.co.in/</a>
International Conference on Sugarcane Research	ICAR-Sugarcane Breeding Institute, Tamil Nadu Agricultural University, and Society for Sugarcane Research and Development	June 19-22, 2021 Coimbatore	<a href="https://sugarcane.icar.gov.in/index.php/en/canecon-2020">https://sugarcane.icar.gov.in/index.php/en/canecon-2020</a> <a href="https://tnau.ac.in/wp-content/uploads/2020/10/1601938688.pdf">https://tnau.ac.in/wp-content/uploads/2020/10/1601938688.pdf</a>
<b>INTERNATIONAL</b>			
24 <sup>th</sup> Meeting of the Subsidiary Body on Scientific, Technical, and Technological Advice	Secretariat of the Convention on Biological Diversity	January 2-7, 2021 Montreal, Canada	<a href="http://bch.cbd.int/protocol#tab=2">http://bch.cbd.int/protocol#tab=2</a>
3 <sup>rd</sup> Meeting of the Subsidiary Body on Implementation	Secretariat of the Convention on Biological Diversity	January 9-14, 2020 Montreal, Canada	<a href="http://bch.cbd.int/protocol#tab=2">http://bch.cbd.int/protocol#tab=2</a>
7 <sup>th</sup> Plant Genomics and Gene Editing Congress: Asia	Global Engage Ltd.	April 20-21, 2021 Online	<a href="http://www.global-engage.com/event/plant-genomics-asia/">http://www.global-engage.com/event/plant-genomics-asia/</a>
10 <sup>th</sup> Meeting of the Conference of the Parties Serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety	Secretariat of the Convention on Biological Diversity	May 3-15, 2021 Kunming, China	<a href="http://bch.cbd.int/protocol#tab=2">http://bch.cbd.int/protocol#tab=2</a>



**SOUTH ASIA**  
BIOSAFETY PROGRAM

The South Asia Biosafety Program (SABP) is an international developmental program implemented in India and Bangladesh with support from the United States Agency for International Development. SABP aims to work with national governmental agencies and other public sector partners to facilitate the implementation of transparent, efficient, and responsive regulatory frameworks for products of modern biotechnology that meet national goals as regards the safety of novel foods and feeds, and environmental protection.



Agriculture &  
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