

# South Asia Biosafety Program

NEWSLETTER FOR PRIVATE CIRCULATION ONLY – NOT FOR SALE



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## BANGLADESH

### South Asia Biosafety Program: Year in Review (2022)

Mr. Sium Ahmed, Biosafety Officer, South Asia Biosafety Program

2022 ushered in a new era of optimism and opportunity as global limitations due to the COVID-19 pandemic were lifted. People could breathe freely and re-engage in regular activities like socializing, traveling overseas, and having large gatherings. It positively impacted the technical training workshops and other activities conducted under the South Asia Biosafety Program (SABP). As a result, SABP had yet another productive year. In the eighteenth year of its existence, SABP invigorated itself and the stakeholders and communities engaged in biosafety and biotechnology. While stepping into the new year with new plans and expectations, we would like to wrap up our previous year with a glimpse of what we did.

To facilitate the implementation of an effective and responsive regulatory system, SABP focuses on building the capacity of both regulators and researchers. The Institutional Biosafety Officer (IBO) Training Program is one of the capacity-building initiatives SABP designed to train the IBOs to ensure that biosafety-related activities at their home institutions are successfully implemented in accordance with government-mandated regulations and guidance. SABP, in collaboration with the Ministry of Agriculture, Government of the People's Republic of Bangladesh, conducted a comprehensive workshop series that began in December 2021, followed by four more training sessions throughout 2022. The technical training activities covered:

- research and development of genetically engineered crops in the laboratory, greenhouses/screen houses, and confined facilities;
- documentation and recording formats;
- preparation of crop-specific SOPs;
- compliance with regulatory requirements;
- regulatory submissions;
- dossier preparation; and
- data requirements.

This training program accommodated 20 participants, nominated from 10 different institutes and universities under the National Agriculture Research System (NARS).

SABP has been instrumental in conducting capacity-building programs in the area of safety assessment of foods derived from genetically engineered crops. In earlier years, several training programs and workshops took place to educate regulators and researchers to make them better understand the science and basics of food safety assessment. The Bangladesh Food Safety Authority (BFSA) has been identified in the Food Safety Act as the responsible body for ensuring that foods derived from genetically engineered plants that enter Bangladesh are safe. SABP organized a series of workshops with BFSA to ensure that it has the operational capacity to implement safety assessments for



Summary of the South Asia Biosafety Program's activities in Bangladesh in 2022.

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foods derived from genetically engineered plants in accordance with the guidelines. The introductory event was attended by BFSa staff, committee members, and other relevant stakeholders to improve understanding of the global status of genetically modified food in Bangladesh and the safety assessment paradigm for whole foods. The second event in this series was an in-person workshop covering topics related to technical concepts in the safety assessment of foods derived from genetically engineered plants.

SABP convened a gathering of researchers, academics, government officials, the private sector, and other interested parties with the aim of information exchange in biotechnology research and development. This "Biotechnology Outreach Conference," held in June 2022, comprised discussions on various aspects of contemporary and advanced biotechnology, including the most recent data on research and development in Bangladesh, the status of regulation and trading in products derived from modern biotechnology, and science communication related to biotechnology. This event served as a forum to better understand how research is being conducted in Bangladesh in compliance with environmental and human health protection goals, while providing a pathway for safe technologies to receive authorization so that the benefits of biotechnology can be realized.

Genome editing technology is an innovation that already shows great promise and potential for agriculture. Recognizing the enormous potential of genome editing innovation for plant improvement, several institutions in Bangladesh have initiated research projects. In cooperation with the Bangladesh Academy of Sciences (BAS), SABP started activities focused on sharing knowledge about genome editing technologies and forging a pathway for enabling policies in Bangladesh to make use of this new technology to meet the urgent need for improved crops. The discussions were initiated in 2021, with the arrangement of an introductory webinar, and SABP followed this effort with both a webinar and an international conference in 2022. The webinars focused on the status of activities involving gene editing in plants in Bangladesh at research institutions and how these improved plants can be made easily available to farmers, enabling them and consumers to put the benefits of genome-edited plants to use. In response to the discussions that emerged from the first two webinars, SABP led the initiative to convene an outstanding conference that provided a platform for discussion amongst stakeholders, including international experts and domestic scientists from the public sector, academia, and the private sector, to inform enabling policies on handling the products of genome editing in Bangladesh.

Seven research projects were awarded as part of the Biosafety Research in Bangladesh Grants Program (BRBGP). Three of the projects have been completed, and the rest are ongoing. In October 2022, SABP convened a meeting that brought together all seven awardees to share the progress, challenges, and way forward for the research activities funded by this program. The awardees also had the opportunity to discuss how their projects contributed to or may contribute to the broader effort to support science-based decision-making and policy

development in Bangladesh. As part of this training grant, the awardees will share their research findings at the 16<sup>th</sup> ISBR Symposium (ISBR2023), held in St. Louis, Missouri, USA, from April 30 to May 4, 2023.

Part of the program's communication efforts, the SABP Newsletter contains monthly updates on the team's work, along with available resources, events, and developments related to biotechnology and biosafety. 212 issues have been published as of December 2022, reaching approximately 1500 national and 25000 international subscribers. SABP manages the Bangladesh Biosafety Portal (<https://bangladeshbiosafety.org>), a website that serves as a consolidated repository of regulatory documents and a resource to strengthen compliance with the regulatory framework and effectively facilitate research and development of agricultural biotechnology activities in Bangladesh.

In 2022, in addition to the regular activities, SABP has also been involved in building and maintaining its cooperative engagements with the government, public and private institutes, and universities. By holding regular meetings with government officials, visiting institutes, and providing technical and scientific assistance, SABP continued its effort to strengthen the institutional governance of biotechnology. Despite challenges, SABP remains a successful program with its diverse and dynamic range of activities. The SABP team would like to take the privilege of thanking all its collaborators, funders, and stakeholders for their immense support towards the effective implementation of this program. In 2023, we look forward to working with more enthusiasm on all our activities as we continue to support government efforts to implement functional and scientifically sound regulatory processes for agricultural biotechnology in Bangladesh.

**The SABP team would like to take the privilege of thanking all its collaborators, funders, and stakeholders for their immense support towards the effective implementation of this program. In 2023, we look forward to working with more enthusiasm on all our activities.**

LINK

**More details about the South Asia Biosafety Program's activities and events are available at:**  
**[foodsystems.org/sabp](https://foodsystems.org/sabp)**



Dr. Bhavneet Bajaj, Dr. Rakha Hari Sarker, Dr. Andrew Roberts, Dr. Vibha Ahuja, Mr. Sium Ahmed, and Dr. Aparna Islam at the 4<sup>th</sup> Workshop of the IBO Training Program.



## Highlights from the Statement on Various Issues of GM Mustard by Dr. Himanshu Pathak, Secretary, Department of Agricultural Research and Education (DARE) and Director General, Indian Council of Agricultural Research (ICAR)

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited (BCIL)



Yellow mustard field © Jajaladdawan | Dreamstime.com

In light of the approval of GM mustard by the Government of India and the attention of the press and public, Dr. Himanshu Pathak, Secretary, Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers' Welfare and Director General, Indian Council of Agricultural Research (ICAR), issued a detailed statement on various issues of GM mustard on December 22, 2022. The statement included information on GM mustard and initiatives by ICAR on GM crops. Highlights from the statement are as follows:

- "GM technology is a disruptive technology capable of bringing any targeted change with in the crop variety to overcome a problem that is difficult or impossible to achieve that are also safe to humans, animals and environment. Thus, the GM technology has imminent potential for the much-needed revolution in Indian agriculture. It is important to look at the current scenario particularly in relation to domestic production, requirement and import of edible oils in the country."
- "Rapeseed-mustard is an important oilseed crop in India grown on 9.17 million ha with total production of 11.75 million tons (2021-22). However, this crop suffers from low productivity (1281 Kg/ha) compared to global average (2000 kg/ha). Disruptive technological breakthrough is needed for enhancing productivity of oilseed crops in general and Indian mustard in particular in the country."
- "The genetically engineered (GE) barnase/barstar system provides an efficient and robust alternative method for hybrid seed production in mustard and it has been successfully deployed in countries like Canada, Australia and America for many decades. In India, the Centre for Genetic Manipulation of Crop Plants (CGMCP), University of Delhi South Campus, New Delhi has made a successful attempt with some alterations in the barnase/barstar system which culminated in the development of GM mustard hybrid DMH-11 which has undergone the required regulatory testing processes during 2008-2016."

**"The genetically engineered (GE) barnase/barstar system provides an efficient and robust alternative method for hybrid seed production in mustard and it has been successfully deployed in countries like Canada, Australia and America for many decades."**

- "DMH-11 has been tested for three years against national check Varuna in confined field trials at multiple locations in India. The field trials were conducted to assess the impact on human health and the environment according to the stipulated guidelines and applicable rules. DMH-11 showed approximately 28 percent more yield than the national check."
- "After experts' opinion, biosafety data examinations and long scientific deliberations, during the 147<sup>th</sup> meeting of Genetic Engineering Appraisal Committee, the environmental release has been given to DMH 11 and its parental lines."
  - "Extensive studies carried out on toxicity, allergenicity, compositional analysis, field trials, and environmental safety studies of GM mustard lines vs. their non-transgenic comparators have provided evidence that they are safe for cultivation and for food and feed use. Visitation of bees to the transgenic lines is similar to the non-transgenic counterparts as per the data recorded during the trials."
- "The current approval has been given based on the international status on growth in honey production and number of bee colonies, particularly in Canada, which has 95 per cent of rapeseed area under Barnase/Barstar based hybrids. However, as a precautionary principle, the GEAC has directed the developers to generate data on effect of GM mustard on honeybees and pollinators during first two years of release."
- "GEAC has given approval for herbicide use for hybrid seed production only that too after getting expansion of label claim as per extant rules, this has been specially mentioned in the approval."

LINK

**For further details, please visit:**  
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1886080>



## National Genome Editing & Training Centre at NABI, Mohali, Punjab

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited (BCIL)

Union Minister of State (Independent Charge) Science & Technology, Minister of State (Independent Charge) Earth Sciences, and MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr. Jitendra Singh inaugurated the National Genome Editing & Training Centre at the National Agri-food Biotechnology Institute (NABI), Mohali, Punjab on 5 January 2023. NGETC is a one-roof state-of-the-art facility that will serve as a national platform to cater to the regional needs to adapt different genome editing methods, including CRISPR-Cas mediated genome modification. It will also empower young researchers by providing them with training and guidance about its know-how and application in crops. In the current climatic scenario, improving crops for better nutrition and tolerance to changing environmental conditions is a significant challenge. Genome editing could be

a promising technology that Indian research could adapt to offer the desired tailor-made traits in crops.

NABI, under the Department of Biotechnology, is a national institute with a mandate focusing on research activities at the interface of agriculture, food, and nutritional biotechnology. Genome editing is a crucial

tool for site-specific gene mutations/changes so that important crop traits can be developed. These mutations have the potential to mimic nature-like mutations and could be target-specific in the genome. In the current climatic scenario, improving crops for better nutrition

and tolerance to changing environmental conditions is a significant challenge. NABI has shown the ability to utilize genome editing tools and can expand their application to several crops, including banana, rice, wheat, tomato, and millet.

**NGETC is a one-roof state-of-the-art facility that will serve as a national platform to cater to the regional needs to adapt different genome editing methods, including CRISPR-Cas mediated genome modification.**



(From left to right) (1) Dr. Jitendra Singh, Union Minister, (2) Dr. Rajesh Gokhale, Secretary, DBT (virtual), (3) Prof. Ramesh V. Sonti, Director, ICGEB, (4) Prof. Ashwani Pareek, Executive Director, NABI, and (5) Dr. A.K. Shasany, Director, NIPB.

## Seeking Public Comments on Form 1A, Form 1B, and Form II Referred in the Draft Food Safety and Standards (Genetically Modified Foods) Regulations, 2022

The Food Safety and Standards Act (FSSA), 2006 provides the Food Safety and Standards Authority of India (FSSAI) with the authority to regulate GM foods through the inclusion of "genetically modified or engineered food or food containing such ingredients" within the definition of food.

The FSSAI draft notification dated 15 November 2021 on draft Food Safety & Standards (Genetically Modified or Genetically Engineered Foods) Regulations, 2021 was placed on the FSSAI website on 17 November 2021 for public comments within 60 days. Comments so received were considered by the Scientific Panel on Genetically Modified Organisms and Foods. Accordingly, after due approval from the Scientific Committee and Food Authority, the revised draft of the Food Safety and Standards (Genetically Modified Foods) Regulations, 2022 dated 18 November 2022 has been re-notified and placed on the FSSAI website on 21 November 2022, seeking public comments again within 60 days.

Since Form 1A, Form 1B, and Form II referred in the draft Food Safety and Standards (Genetically Modified Foods) Regulations, 2022 were not included as part of the regulation, they have been uploaded on 4 January 2023 to FSSAI's website vide the notice dated 2 January 2023 as drafts for public comments within 30 days. As per the notice, the comments may be submitted to [sp-gmof@fssai.gov.in](mailto:sp-gmof@fssai.gov.in). Formats for comments have also been provided.

**For further information, please visit**

**<https://www.fssai.gov.in/notifications.php?notification=notice-for-comments>**

## CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
<b>INDIA</b>			
International Seminar and Workshop on CRISPR/Cas-Based Plant Functional Genomics and Computational Modeling (ISWCPC-2023)	CSIR-North East Institute of Science and Technology (NEIST)	January 18-21, 2023 Jorhat (in-person and online)	<a href="https://neist.res.in/iswcpc">https://neist.res.in/iswcpc</a>
ICAR-Sponsored Winter School on Development, Evaluation, and Biosafety Assessment of Genome Edited Crops: Hands-On Training	ICAR-Indian Institute of Rice Research (IIRR) and Agri Biotech Foundation (ABF)	January 20-February 9, 2023 Hyderabad	<a href="https://www.icar-iirr.org/index.php/en/">https://www.icar-iirr.org/index.php/en/</a>
International Conference on Pulses: Smart Crops for agricultural Sustainability and Nutritional Security	Indian Society of Pulses Research and Development (ISPRD), ICAR-Indian Institute of Pulses Research (IIPR), and Indian Council of Agricultural Research (ICAR)	February 10-12, 2023 New Delhi	<a href="https://icpulses2023.org.in">https://icpulses2023.org.in</a>
2 <sup>nd</sup> Indian Rice Congress: Transforming Rice Research - Learning from Recent Scientific Developments and Global Food Crisis	Association of Rice Research Workers (ARRW), ICAR-National Rice Research Institute (NRRI)	February 11-14, 2023 Cuttack	<a href="https://icar-nrri.in">https://icar-nrri.in</a>
NAU-IES-IUFRO Conference: Tree Based Diversified Land-Use System - Augmenting Livelihood Security and Industrial Growth	Navsari Agricultural University, Indian Ecological Society at Punjab Agricultural University, in association with the International Union for Forest Research Organization, Austria	February 15-17, 2023 Navsari	<a href="https://nau.in/index">https://nau.in/index</a>
Indian Seed Congress 2023	National Seed Association of India	March 2-4, 2023 New Delhi	<a href="https://isc.nsai.co.in">https://isc.nsai.co.in</a>
Training Programme on Recent Technological Advancements in Horticulture and Forest Crops	Department of Biotechnology, College of Horticulture, Dr. Yashwant Singh Parmar University of Horticulture and Forestry	December 23-30, 2023 Solan	<a href="https://www.yspuniversity.ac.in">https://www.yspuniversity.ac.in</a>
<b>INTERNATIONAL</b>			
16 <sup>th</sup> ISBR Symposium	International Society for Biosafety Research	April 30-May 4, 2023 St Louis, Missouri, USA	<a href="https://isbr.info/symposium">https://isbr.info/symposium</a>



**SOUTH ASIA**  
BIOSAFETY PROGRAM

The South Asia Biosafety Program (SABP) is an international development program implemented in India and Bangladesh with support from the United States Agency for International Development (USAID). SABP aims to work with national government 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.



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