

South Asia Biosafety Program

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BANGLADESH

Recognizing the Contributions of Professor Imdadul Hoque

Andrew Roberts, ILSI Research Foundation

The South Asia Biosafety Program (SABP) wants to express its deep gratitude for more than a decade of exceptional service from Professor M. Imdadul Hoque. Imdadul began as the SABP Country Manager for Bangladesh in 2005, at the inception of the program, and has provided able leadership in cooperation with the Government of Bangladesh in the development and implementation of Bangladesh's biosafety regulatory system. This includes the preparation of standard operating procedures, the development of guidelines for food safety and environmental risk assessment of genetically engineered plants, and

the conduct of numerous workshops and conferences. His contributions will have a lasting impact on biosafety in Bangladesh, just as his kindness and friendship will have a lasting impact on all those who meet him.

Citing his demanding schedule at the University of Dhaka, as well as other commitments, Professor Hoque has chosen not to continue in the official role of Senior Scientific Advisor to SABP. However, he remains interested in the realm of biosafety and will continue to contribute to SABP programs.

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Prof. Dr. M. Imdadul Hoque at the 3rd Annual South Asia Biosafety Conference (September 2015).



Prof. Dr. M. Imdadul Hoque at the 6th Annual South Asia Biosafety Conference (September 2018).

"Prof. Hoque is a familiar face in the biosafety arena of Bangladesh. We have been working together on biosafety issues since 2004. We have organized several events together on biosafety. Prof. Hoque has played a great role in developing various biosafety regulatory documents. His friendship and network with the peers working in the field of biotechnology has given us a positive thrust to succeed in our endeavors. We duly acknowledge his contribution to the cause of development of biosafety system in Bangladesh."

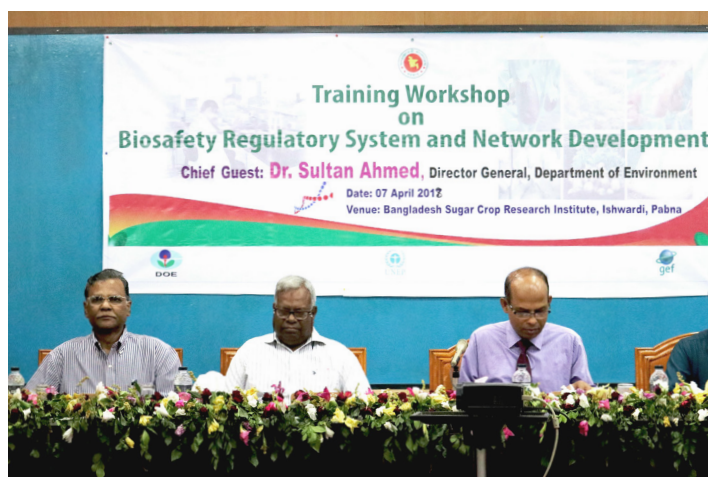
Mr. M. Solaiman Haider
Director
Department of Environment
People's Republic of Bangladesh

"Professor Imdadul Hoque is one of the pioneers in initiating the biosafety programs in Bangladesh. He has played a leading role in developing and strengthening various aspects of biosafety in Bangladesh. He is involved in creating awareness about biosafety among the policymakers, academics, and researchers of Bangladesh through several programs of SABP. Professor Hoque has been very successful in institutionalizing biosafety in Bangladesh, as well as in South Asian countries."

Prof. Dr. Rakha Hari Sarker
Professor of Botany
University of Dhaka

"Prof. Dr. M. Imdadul Hoque is the pioneer of biosafety for the regulation and promotion of modern biotechnology in Bangladesh. He is a dynamic leader among biotechnologists in Bangladesh and has made a great contribution in the development of biotechnology and biosafety in Bangladesh. To my judgment, his dedication and untiring activities in the promotion of biotechnology and establishment of biosafety regimes have made it possible to release genetically modified Bt brinjal in Bangladesh. He is respected and loved by all concerned people due to his inherent amicable behavior, politeness, and friendly attitude."

Prof. Dr. Md. Shahidul Haque
Ex-Head of Department of Biotechnology
Ex-National Consultant for the Development of Biosafety Framework in Bangladesh
Ex-Biosafety Officer of Bangladesh Agricultural University



Prof. Dr. M. Imdadul Hoque at the Training Workshop on Biosafety Regulatory System and Network Development (April 2018).



Prof. Dr. M. Imdadul Hoque at the Training Workshop on Genetically Modified Organism Detection and Good Laboratory Practices (February 2018).



Prof. Dr. M. Imdadul Hoque at the Seminar on Proteomic Approaches for Identification and Quantification of Plant Food Allergens (March 2017).



Prof. Dr. M. Imdadul Hoque at the Workshop on the Safety Assessment of Foods Derived from Genetically Engineered Plants (September 2016).

The 2nd Asia Forum: Genome Editing

Vibha Ahuja, Biotech Consortium India Limited
Morven McLean, ILSI Research Foundation

The Asia Forum is a unique platform initiated by the Korea Biosafety Clearing House for sharing experiences about gene technologies in the Asia region. Launched in 2017, the first forum focused on issues related to the environmental release of living modified organisms prior to their commercialization. The 2nd Asia Forum: Genome Editing was held November 1-3, 2018 in Gangneung, Republic of Korea, and focused on topics arising with the application of gene editing techniques to improve plant breeding innovations. The Forum provided an excellent platform for exchange of information and in-depth discussions covering topics that ranged from high fidelity editing through to regulatory, social and trade considerations.

Participating countries included Australia, Cambodia, Germany, India, Japan, Malaysia, the Philippines, Republic of Korea, USA and Vietnam. The technical sessions focused on advances in genome editing research and product development in Forum countries, and the status of consultations, guidance or policy discussions about the potential regulation of certain categories of gene-edited plants. In addition to regulators and technical experts from the countries mentioned above, there were participants from government, private sector and civil society organizations in Korea. In the opening ceremony, Dr. Seung-Jun Kim, Vice President, Korea Research Institute of Bioscience and Biotechnology and Mr. Han-Geun Kim, Mayor of Gangneung City welcomed the Forum participants. Dr. Ho-Min Jang, Chairperson of Asia Forum, briefed the participants about the objectives of the 2nd Asia Forum and Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited, presented a recap of the 1st Asia Forum. The keynote presentation, delivered by Dr. Jae-Yean Kim, Basic Research Lab for Crop Genome Editing, Gyeongsang National

Participating countries included Australia, Cambodia, Germany, India, Japan, Malaysia, the Philippines, Republic of Korea, USA and Vietnam.

University, provided a state of the science overview of genome editing, including work from Dr. Kim's own lab.

Dr. Morven McLean, Executive Director, International Life Sciences Institute Research Foundation, chaired the first technical session on "Advances in Genome Editing and Related Regulation with Recent GMO Safety Issues in the USA, EU, and Germany". Mr. Ibrahim Shaqir, USDA APHIS Biotechnology Regulatory Services, shared USDA's current approach to determining if a gene edited plant is a regulated article, the Department's March 2018 Statement on Plant Breeding Innovation, and proposed updates to USDA APHIS regulations. Mr. Jens Kahrmann, Federal Office of Consumer Protection and Food Safety, Department of Genetic Engineering, gave a highly informative presentation about the regulation of genetically modified organisms in the European Union, including the "mutagenesis exemption", and the potential implications of the July 25, 2018 ruling by the Court of Justice of the European Union on how gene edited organisms may be regulated. Subsequently, regulators and scientists from Australia, Cambodia, Japan, Korea, Malaysia, the Philippines and Vietnam, presented on the status of regulation of genome edited products in their respective countries. From India, Dr. Ponnuswami Balasubramanian, Member, Genetic Engineering Appraisal Committee spoke from his experience as a public-sector product developer of genetically engineered plants, and Dr. Vibha Ahuja provided insights about the current regulatory framework for products of biotechnology in India, and how gene-edited plants may be considered as these products approach potential commercialization. Question and answer sessions were highly participatory, with significant audience engagement around topics like consumer perceptions of genome editing.



Dr. Ponnuswami Balasubramanian, Dr. Vibha Ahuja, Dr. Heidi Mitchell, Dr. Ho-Min Jang, and Dr. Morven McLean at the 2nd Forum: Genome Editing.

Scientific Session on Advances in Molecular Biology as Relevant to Food Technology at IUFoST

Lalitha R. Gowda, CSIR-Central Food Technological Research Institute (Former Chief Scientist) and Genetic Engineering Appraisal Committee

The 19th World Congress on Food Science and Technology (IUFoST 2018) was held for the first time in India from October 23-27, 2018 in Mumbai. The focal theme of the Congress was "25 Billion Meals a Day by 2025 with healthy, nutritious, safe and diverse foods." The event had a distinguished roster of plenary lectures and several parallel sessions, in addition to a Food EXPO. There were 66 scientific sessions with over 270 invited talks from leading experts globally and nearly 1000 abstracts. The event attracted participants from more than 70 countries.

A session on "Advances in Molecular Biology as Relevant to Food Technology" was organized on October 26, 2018 under the chairmanship of Dr. Michael S. Knowles, Food Science Consultant, UK and Dr. Andrew F. Roberts, Deputy Executive Director, ILSI Research Foundation (ILSI RF), USA. The session was supported by the ILSI Research Foundation.

The session's three speakers, Dr. Andrew F. Roberts, Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited, India, and Dr. Lalitha R. Gowda, Former Chief Scientist, CSIR-Central Food Technological Research Institute and Member, Genetic Engineering Appraisal Committee, India gave enlightening talks on the subject. The session was well received and was followed by an interesting discussion with the participants.

IUFoST is a prestigious event that brings together researchers, academics, professionals, policymakers, and food scientists to cover the latest advances in the understanding of food in all its manifestations, such as food safety, food security, regulations, innovations in food processing, hygienic design and engineering, frontier areas in food science and technology, novel food products, markets and consumer preferences, and the latest cutting edge technologies in each sector.

Dr. Roberts provided a historical account of food safety assessment of foods derived from genetically engineered (GE) plants. He articulated the paradigm shift from risk assessment of foods for the presence of chemical and microbial contaminants to assessing whole GE foods. Upon the development of novel GE foods in the late 1980s and early 1990s, regulators for the first time developed a process for the evaluation of safety of whole foods as part of premarket safety assessment. Dr. Roberts deliberated on key considerations outlined

in the *Codex Alimentarius Guidelines for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Plants* (CAC/GL45-2003), which have been adopted by many countries for safety assessment of foods derived from genetically engineered plants.

Dr. Vibha Ahuja detailed the guidelines for food safety assessment of genetically engineered plants in South Asian countries. She focused particularly on developments in India and Bangladesh and shared information on initiatives undertaken under the South Asia Biosafety Program (SABP), a USAID-supported capacity building project. She emphasized the need for regional harmonization and elaborated the steps taken toward achieving the same under the aegis of SABP.

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Dr. Micheal S. Knowles, Dr. Andrew R. Roberts, Dr. Vibha Ahuja, and Dr. Lalitha R. Gowda at the 19th World Congress of Food Science and Technology (IUFoST 2018)



Dr. Andrew F. Roberts delivering his presentation at the Scientific Session on Advances in Molecular Biology as Relevant to Food Technology.

Dr. Lalitha R. Gowda delivered a presentation on the molecular techniques that are currently employed for identification of altered gene(s) or their proteins product(s) and form the foundation for GMO detection in foods. The potential and practicality of these methods for GM material detection were discussed in light of actual legislation



Dr. Aparna Islam, Dr. Lalitha R. Gowda, Dr. Vibha Ahuja, Ms. Kristin DiNicolantonio, and Dr. Stephane Vidry at IUFoST 2018.

and the constraints imposed by food manufacturing and processing techniques. Current developments in India with respect to strengthening of detection capacities in four laboratories notified by the Government of India were shared.

INDIA
Seminar on Gene Editing in Plants at the National Research Center on Plant Biotechnology (NRCPB), New Delhi

Vibha Ahuja, Biotech Consortium India Limited

A seminar on Gene Editing in Plants was organized at the National Research Center on Plant Biotechnology (NRCPB), New Delhi on October 25, 2018 with the objective of sharing the latest developments in this emerging area with scientists and students. Dr. N. K. Singh, NRCPB Director, welcomed the participants and informed them about potential applications of gene editing in plants for crop improvement. Dr. A. K. Singh, Deputy Director General, Indian Council of Agricultural Research (ICAR) and Dr. P. K. Chakrabarty, Assistant Director General (Plant Protection and Biosafety), ICAR talked about the advancements in gene editing and emphasized the need for research initiatives on the application of the technology in plants.

Dr. Andrew F. Roberts, Deputy Executive Director, ILSI Research Foundation, delivered a comprehensive presentation on "Potential, Biosafety Risk Assessment and Regulation of Gene Edited Plants." Introducing the topic, Dr. Roberts informed the group that there is no single, internationally agreed upon definition of "gene editing" and

Dr. Andrew F. Roberts, Deputy Executive Director, ILSI Research Foundation, delivered a comprehensive presentation on "Potential, Biosafety Risk Assessment and Regulation of Gene Edited Plants."

the term has been used interchangeably with several other terms like "genome editing" and "precision breeding." He underscored the importance of the definition because it may potentially have a huge impact on legal and regulatory interpretations. He also discussed popular gene editing techniques such as Zinc Finger nucleases, TALENS, and CRISPR-Cas9. He mentioned that there is a lot of interest in gene editing and several crops/traits are being developed using these technologies. The prospect of using existing risk/safety assessment frameworks to evaluate the products of gene editing and different approaches being followed in various countries for regulating gene editing were also discussed.

The presentations were very well received, and they were followed by a Q&A session with the participants. Dr. N. K. Singh thanked Dr. Roberts for sharing an updated status of gene editing, particularly safety assessment and regulatory issues.



Dr. Andrew Roberts delivering his presentation at the Seminar on Gene Editing in Plants at the National Research Centre on Plant Biotechnology (NRCPB), New Delhi.



Attendees at the Seminar on Gene Editing in Plants at the National Research Center on Plant Biotechnology (NRCPB), New Delhi.

Workshop on Detection of Genetically Modified Crops at the 6th Annual South Asia Biosafety Conference

Shanaka Gunawardena, Food and Agriculture Organization of the United Nations, Sri Lanka

As the project manager of the Biosafety Project in Sri Lanka, I took part in the 6th Annual South Asia Biosafety Conference (SABC 2018), which took place on September 15-17 in Dhaka, Bangladesh. My participation in this event was timely because it not only allowed me to share the progress of the ongoing biosafety project in Sri Lanka, but it also provided an opportunity for me to learn more about the developments in the field of biotechnology and biosafety in South Asia.

During this three-day conference, I was exposed to the latest information regarding the advancement of biotechnology in South Asia, with a focus on India and Bangladesh. It is very useful to know in advance about living modified organisms (LMOs) and the traits that may be released in the future. The scientists' presentations indicated how they have incorporated biosafety into their research work.

This workshop, which included a tour inside the LMO detection lab at the Department of Environment in Bangladesh, allowed me to understand the type of testing that is most suitable.

On the second day of the conference, I took part in *Workshop II: Detection of Genetically Modified Crops and Tour of Diagnostic Lab*. This was very useful since LMO detection is the third component in the biosafety project. This workshop, which included a tour inside the LMO detection lab at the Department of Environment in Bangladesh, allowed me to understand the type of testing that is most suitable at the Customs and Plant Quarantine Office for LMO detection in Sri Lanka.

During this conference, I presented the progress of my project, in which the government of Sri Lanka is partnering with the Food and Agriculture Organization of the United Nations and the Global Environment Facility for capacity building of biosafety in Sri Lanka.

Overall, my participation at the SABC 2018 was relevant towards the Biosafety Project in Sri Lanka, and it opened the door to many experts in South Asia who are conversant in this highly technical subject.



Dr. Lalitha Gowda at the workshop on Detection of Genetically Modified Crops.



Dr. Lalitha Gowda demonstrating the workshop's practical exercise.



Tour of the Diagnostic Lab at the Department of Environment, Bangladesh.



Workshop participants at the Diagnostic Lab.



Presentation during the tour of the Diagnostic Lab.



Dr. Lalitha Gowda and workshop participants at the Department of Environment.

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA			
Awareness Workshop on Understanding the Biological Diversity Act, 2002, and Its Legal Provisions	Bangalore Bioinnovation Center, Karnataka Biodiversity Board	November 16, 2018, Bengaluru	
Symposium on Agri Biotechnology	Federation of Asian Biotech Association	November 20, 2018, Hyderabad	https://www.biofaba.com/
2 nd National Biotechnology Conclave	Confederation of Indian Industry	November 22, 2018, New Delhi	http://www.cii.in/Events.aspx
Second International Conference on Nanobiotechnology for Agriculture	The Energy and Resources Institute	December 13 - 14, 2018, New Delhi	http://www.teriin.org/event/second-international-conference-nanobiotechnology-agriculture
13 th International Conference on Dryland Development "Converting Dryland Areas from Grey into Green"	International Dryland Development Commission, Arid Zone Research Association of India, Central Arid Zone Research Institute	February 11 - 14, 2019, Jodhpur	http://www.13icdd.com/
International Conference on Trends in Plant Sciences and Agrobiotechnology 2019	Department of Biosciences & Bioengineering and Center for Rural Technology, IIT Guwahati, Plant Tissue Culture Association - India	February 14 - 16, 2019, Guwahati	https://ictpa2019.in/
XIV Agricultural Science Congress – Innovations for Agricultural Transformation	National Academy of Agricultural Sciences, Indian Council of Agricultural Research, Indian Agricultural Research Institute	February 20 - 23, 2019, New Delhi	http://14agricongress2019.in/index.php and http://www.iari.res.in/files/Latest-News/14ASCFirstCircular_19042018.pdf
INTERNATIONAL			
Ninth Meeting of the Conference of the Parties Serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (CP COP-MOP-9)	Convention on Biological Diversity	November 17 - 29, 2018, Sharm El-Sheikh, Egypt	http://bch.cbd.int/protocol/meetings/
15 th ISBR Symposium	International Society for Biosafety Research (ISBR)	April 1 - 4, 2019, Tarragona, Spain	http://www.isbr2019.com/



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.



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To receive an electronic copy of this newsletter, send your name, institutional information, and e-mail address to: vibhaahuja.bcil@nic.in



Call for Abstracts

The **International Society for Biosafety Research (ISBR)** will be hosting the *15th Annual ISBR Symposium* on April 1-4, 2019 in Tarragona, Spain. Previously known as ISBGM0, the symposium will build on the outcomes and successes of the symposia previously hosted in Germany, Canada, China, France, Korea, New Zealand, Argentina, USA, South Africa, and Mexico. It promises to be an outstanding and timely occasion for sharing and advancing understanding of contemporary applications of biotechnology to today's agriculture and food production problems.

SUBMIT AN ABSTRACT FOR AN ORAL PRESENTATION OR POSTER TODAY!

The theme of 2019's ISBR Symposium is *New Horizons in Biotechnology: Risk Analysis for a Sustainable Future*. Those accepted for an oral or poster presentation will have a unique opportunity to share the latest information on biotechnology advances in the context of sustainable applications for agriculture and food production. By providing access to an audience of academics, technology developers, industry, regulatory authorities, non-government organizations, and other stakeholders, the symposium offers a platform for sharing experiences and engaging in discussion about all aspects of the use of biotechnology in agriculture and food production, including their risk analysis and regulation.

Submission Deadline: January 21, 2019

For more information about abstract submission guidelines, visit:

www.isbr2019.com