



South Asia Biosafety Program

NEWSLETTER for private circulation only – not for sale

**Biosafety Capacity Building
Workshop at Assam Agricultural
University, Jorhat**

PAGE 3

**Report of the Committee for
Doubling Farmers' Income**

PAGE 5

**National Missions on Genomics
and Agriculture Proposed in the
Economic Survey 2018**

PAGE 5

**Calendar of Regional and
International Biosafety Events**

PAGE 6

BANGLADESH

Highlights from the 7th International Botanical Conference

Prof. Dr. M. Imdadul Hoque, Department of Botany, University of Dhaka



The audience at the inaugural ceremony of the 7th International Botanical Conference.

The 7th International Botanical Conference took place on February 3-4, 2018 at the Department of Botany, University of Dhaka. The conference was organized by the Bangladesh Botanical Society, in collaboration with the University of Dhaka, National Museum of Science & Technology, South Asia Biosafety Program (SABP), and Hamdard Laboratories (Waqf) Bangladesh Ltd., with many other national organizations acting as sponsors and co-sponsors. About 300 participants from Bangladesh and abroad, representing policymakers, universities, public and private colleges, national agricultural research institutes, private laboratories, and non-governmental organizations

attended this conference. International participants traveled from the USA, India, and Nepal.

The conference's theme was "Plant Diversity - Food Security and Environmental Management." It included a poster session and scientific sessions covering various aspects of plant sciences, including:

- Environmental Management and Conservation Biology
- Restoration of Plant Diversity, Food Security, and Global Climate Change
- Microbes and Plant Diseases
- Genetics, Biotechnology, and Biosafety Regulations in Genetically Engineered Crops
- Taxonomy and Ethnobotany
- Plant Physiology, Nutrition, and Horticulture.

The "Genetics, Biotechnology, and Biosafety Regulations in Genetically Engineered Crops" session was sponsored by the South Asia Biosafety Program.

**View Presentations from SABP's Scientific Session on
Genetics, Biotechnology, and Biosafety Regulations in
Genetically Engineered Crops at**

<http://ilsirf.org/event/botanical-dhaka-2017/>

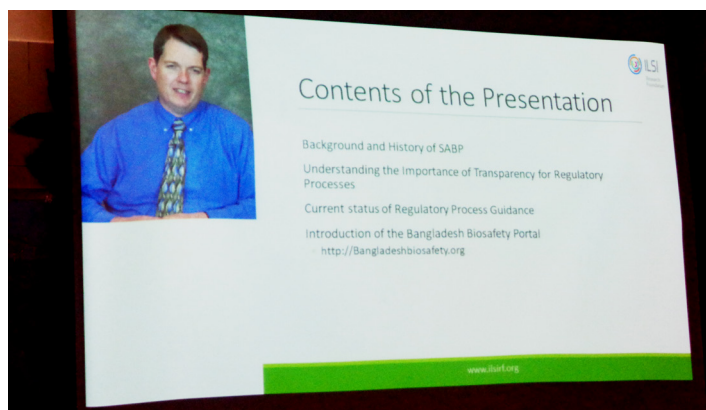
Continued on page 2



Prof. Dr. Syed Hadiuzzaman, delivering the welcome address.



Dr. Donald J. MacKenzie, delivering his presentation.



Dr. Andrew Roberts, delivering his presentation.



Mr. Mohammed Solaiman Haider, delivering his presentation.

The Chief Guest, Prof. Dr. Nasreen Ahmad, Pro-Vice Chancellor (Academic), University of Dhaka, inaugurated the ceremony at the Nabab Nawab Ali Chowdhury Senate Bhaban of the University of Dhaka. Mrs. Meher Afroze Chumki, MP, Honorable Minister, Ministry of Women, and Prof. Dr. Kamal Uddin, Treasurer, University of Dhaka, were present as special guests. The inaugural ceremony was chaired by Prof. Dr. Syed Hadiuzzaman, President, Bangladesh Botanical Society and Chairman of the conference's Organizing Committee.

The inaugural ceremony began with a welcome address by Prof. Dr. Syed Hadiuzzaman, followed by two plenary lectures. The first was by Dr. Saleemul Huq, Senior Fellow, Climate Change, International Institute for Environment and Development, United Kingdom. Dr. Saleemul Huq highlighted the consequences of climate change on the environment and plant diversity of most developing countries, and especially Bangladesh. He also pointed out the tasks needed to mitigate the aftereffects of climate change. The second plenary lecture was delivered by Prof. Dr. M. Imdadul Hoque, Dean, Faculty of Biological Sciences, University of Dhaka, who discussed agricultural crop production in Bangladesh and the need for developing stress tolerant crop plants using modern biotechnology, thus combating the country's food insecurity. He also highlighted the global status of agricultural biotechnology, as well as the need for biosafety regulations for the crops developed through modern biotechnology. The inaugural ceremony ended with a Vote of Thanks from Professor Ashfaque Ahmed, Secretary, Organizing Committee.

During the two-day conference, about 57 presentations were delivered across six scientific sessions. In addition, there were seven poster presentations, made mostly by young plant scientists. A total of 17 papers were presented in the SABP-sponsored session on "Genetics, Biotechnology and Biosafety Regulations in Genetically Engineered Crops". Among the invited speakers was Mr. Solaiman Haider, Director (NRM), Department of Environment (DoE) and Member Secretary,

Dr. Ahuja highlighted the status of Biosafety Regulations in India, the South Asia Biosafety Program's key contributions, as well as updates on the ICAR Biosafety Awareness and Compliance Readiness Project.

Biosafety Core Committee (BCC), who gave a presentation highlighting the development and status of biosafety regulatory regimes in Bangladesh. Dr. Andrew Roberts, Deputy Executive Director, ILSI Research Foundation, gave a presentation on Regulatory Transparency, Information Dissemination and Biosafety Information Resources for Bangladesh via videoconference, during which he highlighted the *User's Guide to Biosafety Regulatory Process for GE Plants in Bangladesh* and the Bangladesh Biosafety Portal, a web-based resource for biosafety information.

Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited (BCIL), gave a presentation on Strengthening Biosafety Compliance among Public Sector Institutions in India: A SABP Initiative. In her presentation, Dr. Ahuja highlighted the status of Biosafety Regulations in India, the South Asia Biosafety Program's key contributions, as well as updates on the ICAR Biosafety Awareness and Compliance Readiness Project. Dr. Donald J. MacKenzie, Regulatory Affairs & Stewardship Leader, Golden Rice, International Rice Research Institute (IRRI), gave a presentation on The Golden Rice Story: Realizing the Promise of Public Sector Based Biotech Product Delivery. In his presentation, Dr. MacKenzie highlighted the importance of golden rice in emerging economies, as well as the developmental process for this important biotech product, which took place with the involvement of the public sector. He also described the biosafety regulatory steps that were followed during the development of golden rice.

Other scientific papers presented in this session covered various aspects of plant biotechnology, ranging from simple tissue culture to plant genetic transformation and molecular cytogenetics.

Access the *User's Guide to Biosafety Regulatory Process for GE Plants in Bangladesh* on the Bangladesh Biosafety Portal at <http://www.bangladeshbiosafety.org/>

Biosafety Capacity Building Workshop at Assam Agricultural University, Jorhat

Dr. Bidyut K. Sarmah, Director, DBT-AAU Centre, Assam Agricultural University, Jorhat

Assam Agricultural University (AAU), Jorhat, in collaboration with Biotech Consortium India Limited (BCIL), organized a State Level Biosafety Capacity Building Workshop at the AAU campus on February 10, 2018, with help from the United Nations Environment Program Global Environment Facility (UNEP-GEF) Phase II Capacity Building Project on Biosafety, which is being implemented by the Ministry of Environment, Forest & Climate Change (MoEFCC), Government of India.

Approximately 125 participants attended the one-day workshop, including university faculty and students, officials from the State of Assam Department of Agriculture, the Directorate of Extension Education, and Krishi Vigyan Kendras (KVKs), as well as tea growers and farmers. Technical Session 1 focused on topics related to introducing genetically engineered (GE) plants, biosafety regulations, safety aspects, and detection of living modified organisms (LMOs), whereas Technical Session 2 covered key research initiatives underway in Assam related to agricultural biotechnology.

During the opening ceremony, Dr. Bidyut K. Sarmah, ICAR National Professor and Director of the DBT-AAU Center, gave the welcome address, during which he thanked MoEFCC for supporting the workshop. He emphasized the necessity of extensive biosafety awareness programs for key stakeholders, as several genetically modified (GM) crops under development at universities and research institutions in India are at various stages of the research and commercialization pipeline. He asserted that agricultural biotechnology has the potential to help reduce the importation of pulses and oil seeds, among others, and would contribute toward food security in the country. He advised participants to address their doubts related to the use of GM crops during the event, as they would later share their findings to others and help contribute to the awareness about GM crops.

Dr. Vibha Ahuja, Chief General Manager of BCIL, stated that the workshop is aimed at disseminating project outcomes developed under the Phase II Capacity Building Project on Biosafety. Several resources and outreach materials have been developed under the project, some of which have also been translated into local languages. All participants were provided with copies of the Biosafety Resource Kit, and other resources were displayed at the event.

Dr. D.K. Borah, Dean of the Faculty of Agriculture at AAU, complimented the efforts made by MoEFCC in organizing this state level capacity building workshop to generate awareness about biosafety issues related to GM crops. He stated that there are several concerns among the public regarding the acceptance of GM crops for human consumption, and initiatives such as this workshop help provide information to clarify these concerns.

In his keynote address, Dr. B. Sesikeran, Chairman of the Review Committee on Genetic Manipulation (RCGM) and Former Director of the National Institute of Nutrition (NIN), emphasized the need for scientists to communicate their research, thus creating awareness and facilitating acceptance of GM crops in the country. He observed that the safety of all genetically modified organisms (GMOs) is ensured through vigorous testing and safety assessment processes prior to their approval, and India has a robust regulatory framework for doing so. Products derived from GE crops have been widely consumed all over the world for more than 20 years, without any reported adverse effects.

The workshop was inaugurated by Dr. K.M. Bujarbaruah, Vice Chancellor of AAU. He observed that modern biotechnology has immense importance not just in the agricultural sector, but also in various other fields. Research and development initiatives in agricultural biotechnology need to be continued, with safety ensured at every stage in accordance to regulatory requirements for societal acceptance.

“... the safety of all genetically modified organisms (GMOs) is ensured through vigorous testing and safety assessment processes prior to their approval, and India has a robust regulatory framework for doing so.”

Continued on page 4



Opening ceremony of the Biosafety Capacity Building Workshop at Assam Agricultural University, Jorhat.



Participants at the Biosafety Capacity Building Workshop.

He emphasized the need for continuous capacity building initiatives aimed at scientists to help them adhere to the regulatory framework for commercialization of biotech products. He also briefly spoke about initiatives to harmonize regulations under the Convention on Biological Diversity (CBD) and Organization for Economic Cooperation and Development (OCED) guidelines, as well as the agricultural biotechnology research underway at AAU.

Speakers for Technical Session 1 included Dr. B. Sesikeran, Dr. Vibha Ahuja, Dr. Celia Chalam, Principal Scientist at the National Bureau of Plant Genetic Resources (NBPGR), and Ms. Sonia Kaushik, Assistant



Participants at the Biosafety Capacity Building Workshop.

Manager at BCIL. Speakers for Technical Session 2 included Dr. Bidyut K. Sarmah, Dr. Sampa Das, INSA Senior Scientist at Bose Institute, Dr. Salvinder Singh and Dr. Sumita Acharjee, Professor and Assistant Professor from the Department of Agricultural Biotechnology at AAU, and Mr. Prabin Kumar Sharma from the Department of Biosciences and Bioengineering, India Institute of Technology (IIT), Guwahati. During these sessions, interaction between the participants and faculty helped clarify several issues with respect to the regulatory framework, biosafety concerns, and regulation of upcoming technologies, such as genome editing.

The DBT-AAU Centre at Jorhat

The DBT-AAU Centre for Agricultural Biotechnology was established with a vision to pre-position Assam Agricultural University and the whole North-Eastern region with quality human resources possessing needed scientific acumen in the field of Agricultural Biotechnology, as well as to develop and provide gene based solutions utilizing conventional and unconventional bio-resources of the region, for treating various biotic and abiotic ailments restricting productivity increases in various crops locally, regionally, nationally, and internationally. The center is led by Dr. Bidyut Sarmah, who has scientists and students working on diverse organisms and plants using molecular biology, genetic engineering, and genome editing. The center has collaborated with research institutions both in India and abroad and has taken up several futuristic research programs, such as attempting gene-based solutions for insect pest problems in grain legumes, addressing soil acidity problems through microbial genomics, targeting drought-tolerant genes in rice bio-resources of the region, and enhancing organic agriculture through large scale production and generation of modern bio-inputs. The center transferred technology for transgenic chickpea for development of breeding lines and conduct of confined field trials and biosafety evaluation to both the public and private sectors, as per regional requirements.



Report of the Committee for Doubling Farmers' Income

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

The Government of India has set a goal to double the incomes of farmers by 2022 and several initiatives are underway. The Ministry of Agriculture and Farmers Welfare constituted a committee on Doubling Farmers' Income under the chairmanship of Dr. Ashok Dalwai. The Committee released different volumes of its report in installments, so as to enable stakeholders and interested parties from across the country to study and absorb the analysis and recommendations.

Proposed solutions can be categorized into four broad areas: land, access to markets, increasing productivity, and diversification toward high yield crops and non-farming activities. Volume VIII of the report, focusing on Production Enhancement through Productivity Gains, suggested measures for increasing productivity and recommended hi-tech horticulture and precision farming. Precision farming calls for efficient resource use through location-specific interventions that

encompass micro irrigation, fertigation, protected and greenhouse cultivation, soil and leaf nutrient based fertilizer management, mulching for *in situ* moisture conservation, micro propagation, biotechnology for germplasm, genetically modified crops, use of bio-fertilizers, vermiculture, high-density planting, hi-tech mechanization, green food, soil-less culture, biological control, etc.

While the full report's preparation is still in progress, the Committee has invited suggestions on various volumes.

Download the Cited Volumes at
<http://agricoop.nic.in/doubling-farmers>

Send Responses to
dfi-agri@gov.in



Farmers loading corn stover on a truck in the countryside around Chittorgarh. © Christophe Cappelli

National Missions on Genomics and Agriculture Proposed in the Economic Survey 2018

The Government of India recently released the Economic Survey 2018, which called for more investment in science and technology research and development (R&D). India spends only 0.6% of its gross domestic product (GDP) on science and technology—well below the spending allocated by other countries, such as the US (2.8), China (2.1), Israel (4.3), and Korea (4.2). Doubling R&D spending is necessary, and much of the increase should come from the private sector and universities. The survey suggested a mission-driven approach that could have a huge impact on Indian society and growth. Six key areas that could be taken up as national missions to promote India's R&D capabilities were identified, including cyber physical systems, dark matter, genomics, energy storage systems, mathematics, and agriculture.

Genomic research lies at the heart of the future of life sciences, and India already has a strong foundation of research institutes. As part of the "National Mission on Genomics," significant contributions can be made. The "National Mission on Agriculture" focuses on improving Indian agricultural productivity, which still lags behind other countries such as China. It also emphasizes building resilience in the face of looming challenges, including rising temperatures, variable precipitation, water scarcity, as well as the increase in pests and crop diseases. Doing so would require a major push in agricultural science and technology, and a national mission could help overcome the weaknesses of existing institutions in these areas.

According to the Economic Survey, the spirit of innovation needed to propel India into a global science and technology leader needs recapturing. The country should invest in educating its youth in science and mathematics, reform the way R&D is conducted, as well as engage the private sector and Indian diaspora. Vigorous efforts to improve the "ease of doing business" need to be matched by similar efforts to boost the "ease of doing science".

Learn more: http://mofapp.nic.in:8080/economicsurvey/pdf/119-130_Chapter_08_ENGLISH_Vol_01_2017-18.pdf

CALENDAR OF EVENTS

EVENT	ORGANIZED BY	DATE	WEBSITE
INDIA & BANGLADESH			
Winter School (2017-18): Molecular Breeding for Higher Productivity, Quality, Food Colorants, Nutraceutical, and Bioactive Health Compounds in Vegetable Crops	Division of Vegetable Science, Indian Agricultural Research Institute	February 13 – March 5, 2018 New Delhi	http://bit.ly/2ADZrUH
State-Level Biosafety Capacity Building Workshop (Punjab), supported by the Phase II Capacity Building Project on Biosafety	Punjab Agricultural University and BCIL	February 16, 2018 Ludhiana	http://bcil.nic.in/
State-Level Biosafety Capacity Building Workshop (Dharwad), supported by the Phase II Capacity Building Project on Biosafety	University of Agricultural Sciences, Dharwad and BCIL	February 23, 2018 Dharwad	http://bcil.nic.in/
BioAsia 2018	Genome Valley, Govt. of Telangana Federation of Asian Biotech Associations, and the Pharmaceutical Export Promotion Council	February 22 – 24, 2018 Hyderabad	http://2018.bioasia.in/
Workshop on Bioentrepreneurship Development	Department of Biotechnology, Government of India and BCIL	February 27, 2018 New Delhi	http://bcil.nic.in/
Training Program on Management of Plant Genetic Resources	ICAR-National Bureau of Plant Genetic Resources	March 6 – 19, 2018 New Delhi	http://bit.ly/2H0ouno
Workshop: Smart Metabolic Engineering of Plants for Drug Biosynthesis	International Centre for Genetic Engineering & Biotechnology (ICGEB)	March 16 – 17, 2018 New Delhi	https://www.icgeb.org/meetings-2018.html
International Conference on Agriculture and Allied Sciences: The Productivity, Food Security and Ecology	Bidhan Chandra Krishi Viswavidyalaya	April 13 – 14, 2018 Mohapur	http://bit.ly/2Bi2l3l
INTERNATIONAL			
ICGEB-NASSL "South Asian Biotechnology Conference 2018 - SABC 2018"	National Academy of Sciences of Sri Lanka (NASSL), ICGEB, and the South Asian University (SAU)	March 28 – 30, 2018 Colombo, Sri Lanka	https://www.icgeb.org/meetings-2018.html
2 nd World Congress & Expo on Biotechnology and Bioengineering	Biocore Conferences	June 25 – 27, 2018 Dubai, UAE	https://biocoreconferences.com/biotechnology2018/



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.



CONTACT SABP

BANGLADESH

Prof. Dr. M. Imdadul Hoque
Department of Botany
University of Dhaka
Dhaka - 1000
Bangladesh
Email: mimdadul07@yahoo.com

UNITED STATES

Ms. Layla Tarar
Communications Associate
ILSI Research Foundation
740 Fifteenth Street NW, Suite 600
Washington, D.C. 20005 USA
Email: ltarar@ilsif.org
Twitter: @ILSIRF

INDIA

Dr. Vibha Ahuja
Chief General Manager
Biotech Consortium India Limited
Anuvrat Bhawan, 5th Floor
210, Deendayal Upadhyaya Marg
New Delhi 110 002 India
Email: vibhaahuja.bcil@nic.in

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