

# South Asia Biosafety Program

**NEWSLETTER** for private circulation only – not for sale



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## GET THE FACTS ON THE SOUTH ASIA BIOSAFETY CONFERENCE

136 people attended the two day conference in Dhaka, Bangladesh.

The conference served as a forum for exposing participants to the latest developments in biosafety in South Asia. Sessions were organized in response to interests identified in a stakeholder survey. This year's program highlighted opportunities for regional harmonization in order to strengthen biosafety risk assessment and regulation in South Asia, as well as improving the capacity of countries to take advantage of agricultural biotechnology.

Participants came from eleven countries, including India, Bangladesh, Pakistan, Sri Lanka, Bhutan, Cambodia, Vietnam, the Philippines, Kenya, France and the United States.

In addition to the seminar sessions, participants were encouraged to share their work with colleagues by preparing posters. For the first time at the conference, a poster competition was conducted. Posters were judged based on quality of abstract, scientific content and display.

Participants were surveyed after the conference to evaluate the impact. 90% of responders would recommend this conference to others.

When asked for additional feedback on the conference, participants shared:

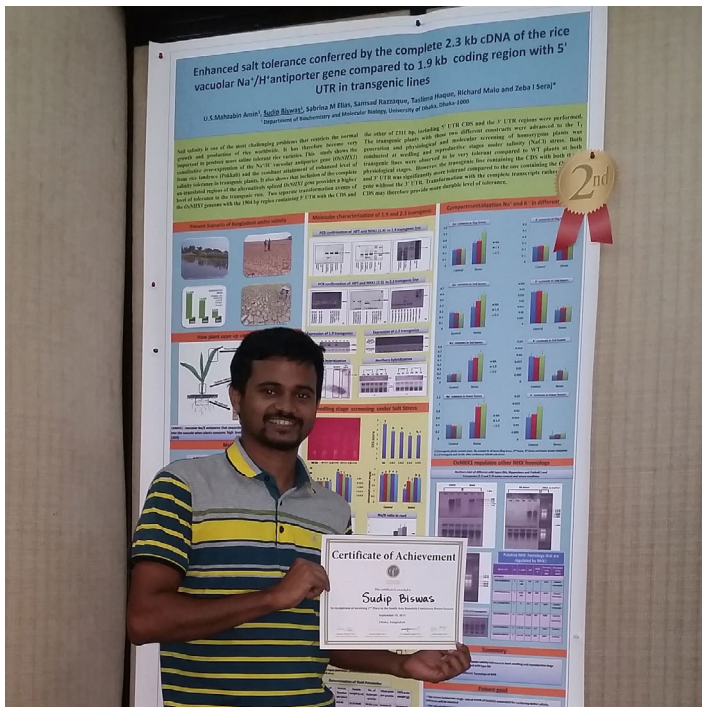
- "It was a great platform to know about the current situation of GM crops and biotechnological research going on in the South Asian countries."
- "This [conference] was really excellent. If the South Asian countries harmonize and trust each other in the area of transgenic research, a lot of time and resources could be saved."
- "To me the most important aspect [of the conference] was harmonization. If countries in the region develop harmony and trust amongst themselves, it will save time and resources and speed up the whole program of biotechnology and the fruits will reach the people."
- "Got an insight into what is going on in neighboring countries."
- "Preparing a regulatory dossier is quite complex and it requires multi-disciplinary training for the writers. The discussions brought out issues succinctly."
- "[This conference] brings together all biotech and biosafety related people in one place."
- "The South Asia Biosafety Conference was most valuable because of knowledge sharing, getting new information, and good interaction."

**Presentations from the  
3<sup>rd</sup> Annual  
South Asia Biosafety  
Conference which was  
convened in Bangladesh  
on September 19-20, 2015  
are now available on the  
CERA website.**

**Please visit:**

**[www.cera-gmc.org/ERA\\_  
Conference\\_Dhaka2015](http://www.cera-gmc.org/ERA_Conference_Dhaka2015)**

## Spotlight on the 2<sup>nd</sup> Place Winner of the South Asia Biosafety Conference Poster Session



**2<sup>nd</sup> PLACE POSTER WINNER:** Sudip Biswas

**POSTER CO-ORGANIZERS:** U.S. Mahzabin Amin, Sabrina M. Elias, Samsad Razzaque, Taslima Haque, Richard Malo and Zeba I. Seraj

**POSTER TITLE:** *Enhanced Salt Tolerance Conferred by the Complete 2.3 KB CDNA of the Rice Vacuolar NA<sup>+</sup>/H<sup>+</sup> Antiporter Gene Compared to 1.9 KB Coding Region with 5' UTR in Transgenic Lines*

**POSTER ABSTRACT:** Soil salinity is one of the most challenging problems that restricts the normal growth and production of rice worldwide. It has therefore become very important to produce more saline tolerant rice varieties. This study shows the constitutive over-expression of the Na<sup>+</sup>/H<sup>+</sup> vacuolar antiporter gene (OsNHX1) from rice landrace (Pokkali) and the resultant attainment of enhanced levels of salinity tolerance in transgenic plants. It also shows that inclusion of the complete un-translated regions of the alternatively spliced OsNHX1 gene provides a higher level of tolerance to the transgenic rice. Two separate transformation events of the OsNHX1 gene, one with the 1904 bp region containing 5' UTR with the CDS and the other of 2311 bp, including 5' UTR, CDS and the 3' UTR regions, were performed. The transgenic plants with these two different constructs were advanced to the T<sub>3</sub> generation. Physiological and molecular screening of homozygous plants was conducted at seedling and reproductive stages under salinity (NaCl) stress. Both transgenic lines were observed to be very tolerant compared to WT plants at both physiological stages. However, the transgenic line containing the CDS with both the 5' and 3' UTR was significantly more tolerant compared to the one containing the OsNHX1 gene without the 3' UTR. Transformation with the complete transcripts rather than the CDS may therefore provide a more durable level of tolerance.

The South Asia Biosafety Program (SABP) is pleased to announce its inaugural Poster Competition took place during the South Asia Biosafety Conference in September. All posters were eligible for the competition, and two prizes were awarded. First prize consisted of a two year membership for the International Society of Biosafety Research, a USD \$100 cash prize, and an award certificate. Second prize consisted of a two year membership for the International Society of Biosafety Research, a USD \$50 cash prize, and an award certificate.

The posters were judged on clarity and correlation of the abstract to the poster; scientific content and quality of the research; and display, organization and effective use of space. Congratulations to Sudip Biswas and his team for winning 2<sup>nd</sup> place for the poster on Enhanced Salt Tolerance Conferred by the Complete 2.3 KB CDNA of the Rice Vacuolar NA<sup>+</sup>/H<sup>+</sup> Antiporter Gene Compared to 1.9 KB Coding Region with 5' UTR in Transgenic Lines.

**STAY TUNED FOR THE NOVEMBER SABP NEWSLETTER**

**TO LEARN ABOUT THE 1<sup>ST</sup> PLACE WINNER!**

### BANGLADESH

## Perspective on the South Asia Biosafety Conference

As part of the ongoing South Asia Biosafety Program (SABP), the 3<sup>rd</sup> Annual South Asia Biosafety Conference was held on September 19-20, 2015. This two-day conference in Bangladesh was co-sponsored by SABP, and the Bangladesh Academy of Sciences (BAS) and organized in conjunction with Biotech Consortium India Limited (BCIL), the Bangladesh Agricultural Research Council (BARC), the Department of Energy of Bangladesh (DoE) and the National Academy of Agricultural Sciences of India (NAAS).

Over 136 participants were able to use this conference as an opportunity to hear from leading scientists representing regulatory agencies, public sector research institutions, and the private sector and to meet with regional and international colleagues to discuss the challenges and opportunities of working collaboratively across the region. Regional speakers from Bangladesh, India, Pakistan, Sri Lanka and Bhutan were joined by international experts from France, the Philippines, The United States and Vietnam in six seminar sessions.

Dr. Kamal Uddin Ahmed, Ministry of Environment and Forests (MOEF), Chief Guest of the inaugural ceremony and Mr. Md. Raisul Alam Mondal,

DoE, gave an overview on the development of biosafety regimes in Bangladesh. They shared that through the technical assistance of SABP, MOEF has been able to develop various biosafety regulatory documents, including the Biosafety Rules of Bangladesh, Guidelines for the Safety Assessment of Foods Derived from GE Crops, and Environmental Risk Assessment (ERA) Guidelines. They also thanked UNEP for supporting the Implementation of the National Biosafety Framework Project in Bangladesh.

Dr. Abul Kalam Azad, Bangladesh Agricultural Research Council (BARC), described the development of agricultural biotechnology in the country. He mentioned that insect resistant *Bt* brinjal has already been released in a limited scale and some other crops like late blight resistant potato and golden rice are under trial at confined field levels.

Lively discussions took place after all of the sessions. During the close of the conference, it was shared that the next conference is expected to be held in India in 2016.

## A Step Forward for Biotech Networking in South Asia

MR. MD. AKHTERUZZAMAN, ADDITIONAL DIRECTOR, COTTON DEVELOPMENT BOARD, DHAKA



It was such an honor and privilege for me to attend the South Asia Biosafety Conference as a government category fellow. This was the first time I have attended a biosafety regional conference. I have never walked out of a conference feeling so full of energy after receiving new information and ideas.

The inaugural ceremony had addresses from dignitaries of different organizations. Among them, Dr. Andrew Roberts, Center for Environmental Risk Assessment, excellently highlighted the conference objectives. The Chief Guest, Dr. Kamal Uddin Ahmed, Ministry of Environment and Forestry, Government of the People's Republic of Bangladesh, mentioned that the Government of Bangladesh, including the Honorable Prime Minister of Bangladesh, H.E. Ms. Sheikh Hasina, and the Honorable Agriculture Minister, Begum Matia Chowdhury, are playing a supportive role with environmental friendly biotechnological solutions in order to address the growing population with the challenge of shrinking crop land and climate change. In recognition of Bangladesh's far-reaching initiatives to address climate change, the Honorable Prime Minister of Bangladesh has been announced as one of the winners of the United Nation's highest environmental accolades, the Champions of the Earth Award.

There were two plenary and four parallel sessions in the two-day conference. The technical sessions were started with the first plenary session focusing on regulation of biotechnology in South Asia. The session was chaired by Mr. Shri Hem Kumar Pande, Ministry of Environment, Forest and Climate Change, Government of India. In his concluding remarks, Mr. Pande quoted the proverb, "If you want to go fast, go alone. If you want to go far, go together."

After lunch, technical sessions started with two parallel sessions, specifically "Nutritionally Enhanced Crops and Their Safety Assessments" and "Biotechnology Research and Development in South Asia". I preferred to attend the session on biotechnology research because of my special interest with the latest biotechnological development in South Asian countries. There was a nice interaction during the question and answer

session. During his concluding remarks as chairperson, Dr. M. Shamsher Ali emphasized the need for more biotechnological knowledge sharing among the scientists of the region to address common challenges. He also mentioned that biotechnology can meet climate change and food security issues of the region. It was a great opportunity for me to get informed by attending this important session. The session was followed by a panel discussion and an informative poster session, where young scientists from different universities excellently presented their ongoing research work.

During the tea breaks, lunches and dinner, everyone engaged with delegates from different countries. It was really amazing that everyone showed interest in communicating with each other within the short period of time.

The second day of the conference had two parallel sessions, specifically "Preparing a Regulatory Dossier" and "What Happens After Release: Stewardship and Monitoring". I attended the session on stewardship, which was chaired by Dr. Alex Owusu-Biney, UNEP, and Mr. M. Solaiman Haider, Department of Environment, Bangladesh. This session was packed with different biotech research findings of South Asian countries and some expert presentations on stewardship. I found there were many interesting interactions on each of the topics during this vibrant session. After lunch, I attended the second plenary session focusing on considerations for international and regional harmonization. Each of the presentations emphasized harmonization through information exchange. There was a consensus that harmonization needs to take place by using various international and regional platforms, including the South Asia Biosafety Program.

I would like to take the opportunity to pay my gratitude to the sponsors and organizers, including a special thanks to Prof. Dr. Imdadul Haque, University of Dhaka, Dr. Vibha Ahuja, Biotech Consortium India Limited, Dr. Andrew Roberts and Mrs. Libby Williams, Center for Environmental Risk Assessment (CERA), who played a vital role to make the conference a successful one.

**"I have never walked out of a conference feeling so full of energy after receiving new information and ideas."**

## Lessons Learned from Regional Counterparts During the 3<sup>rd</sup> Annual Conference

DR. PRASANTA K GHOSH, MANAGING PARTNER, M/S SOMPRADIP PUBLISHERS AND CONSULTANTS, NEW DELHI

We had a very successful and memorable meeting at the 3<sup>rd</sup> Annual South Asia Biosafety Conference. My specific interest was to ascertain how Bangladesh was tackling the issues of labeling and identity preservation of genetically modified (GM) *Bt* brinjal, which was released by the country on October 30, 2013 for limited commercial cultivation and use.

The presentation made by Dr. G.P. Das of the Agricultural Biotechnology Support Project II (ASBP II) and the discussions on the floor after the presentation revealed that *Bt* brinjal performed well in field conditions with zero to negligible infestation by brinjal fruit and shoot borer. It requires very little use of chemical pesticides in certain circumstances. The yields of *Bt* brinjal were significantly higher than the non-*Bt* counterparts, thus providing more profits to the growers. There were no reported cases of adverse food safety issues. There were, however, some issues of maintaining the identity preservation of the fruits in the

market place. When the produce was sold in the bazar markets, it was often mixed up with non-*Bt* brinjal and sold out. This situation deters the legal requirement of 'right to choose' by the consumers.

Besides the presentations on *Bt* brinjal, I enjoyed several other scientific and regulatory issues relating to the introduction of GM crops in commercial agriculture. The need for harmonization of regularity procedures for assessing the GM crops in various countries was also discussed. Overall, the conference was very successful and productive in my eyes.



## Balanced and Holistic Views on Biosafety in South Asia

MS. AKANKSHA NAGPAL, CONSULTANT SCIENCE ASSOCIATE AND MS. KRITIKA KHANNA, PROJECT DEVELOPMENT SUPPORT OFFICER, CABI, NEW DELHI



We had the opportunity to participate in the annual conference under the South Asia Biosafety Program held in September in Dhaka, Bangladesh. The conference was attended by many eminent scientists and regulators across the globe working on various thematic areas within modern biotechnology. What made this conference distinct was the fact that while it remained focused on the strategic topics, it still provided a balanced and holistic view of biosafety in South Asia. The discussion topics were very diverse and catered to several pertinent and emerging areas like regulations, bio-fortification, stewardship and harmonization.

It was also very heartening as well as informative to see the posters depicting the latest research being carried out by institutes and young scholars. The ongoing research on salt tolerant varieties in rice was particularly important as it has the potential to address various challenges associated with land use and climate change. The session on nutritionally enhanced crops adequately highlighted the role that biotechnology can play in addressing some of the most pressing needs of the world including malnutrition and food security. A lot of the data



presented is still at the research stage and hence is not readily available on the internet thus making the session very valuable for us.

The session on regulations was particularly useful since it provided researchers an opportunity to get a wider picture of regulatory procedures, particularly on the safety assessment of crops. It was also very enlightening for the researchers working in the core field to align their research with the needs of the regulators and understand the rationale behind the procedures for putting together a dossier.

As emphasized by Dr. Andrew Roberts, CERA, harmonization is indeed a crucial step forward for the benefits of the technology to reach those for whom it is ultimately aimed at. This set the stage for the next sessions on the ongoing efforts for harmonization so that the audience can appreciate and understand its importance.

This has been a very memorable experience to exchange ideas with the participants of other South Asian countries and was indeed magnified by the warm hospitality offered by the organizers.

## Phase II of the Capacity Building Project on Biosafety in India Continues

DR. MICHAEL WACH, SENIOR SCIENTIFIC PROGRAM MANAGER, CENTER FOR ENVIRONMENTAL RISK ASSESSMENT, ILSI RESEARCH FOUNDATION



As part of the UNEP/GEF-supported Phase II Capacity Building Project on Biosafety, India's Ministry of Environment, Forests & Climate Change held a workshop entitled "Training Workshop on Environmental Risk Assessment (ERA) of GE Plants." The workshop was held in New Delhi, September 15-17 and was conducted by Dr. Michael Wach, CERA, assisted by Dr. Florida Cariño, University of the Philippines. It was attended by 35 participants from both the regulatory and public sector research communities. The workshop provided an opportunity for the participants to not only learn about the ERA of GE plants but also to engage in lively discussion and information sharing.

During the two and half day workshop, participants were introduced to the basic concepts of risk assessment and how to use problem formulation and the pathway to harm analysis to identify science-based risk hypothesis and perform data-driven risk assessments for the commercial release of GE plants. The workshop included two special topic discussions on the assessment of risks to non-target organisms and risks of GE plants becoming weedy



or invasive. Numerous small-group exercises allowed participant to interact and practice what they had learned. Participants also learned how to use a variety of internet resources that provide information of use in the risk assessment process. The workshop culminated in a group exercise where participants worked together to develop risk assessment plans appropriate to analyze non-target effects posed by several GE crop plant case studies.

The workshop also provided an opportunity for the participants to hear about the newly drafted "Guidelines for the Environmental Risk Assessment of Genetically Engineered Plants." The Guidelines were prepared with UNEP/GEF support to provide a description of India's approach to ERA and to provide guidance to researchers who are developing new GE crop plants. The Guidelines not only discuss the ERA process, but also list the types of data regulators typically need to complete the assessment process. Knowing in advance what data will be needed by the regulators will help researchers better plan their confined field trials and better determine the experimental data that will be collected during each trial.

## Highlights from the Second Training Workshop for ICAR Institutional Biosafety Officers

DR. MICHAEL WACH, SENIOR SCIENTIFIC PROGRAM MANAGER, CENTER FOR ENVIRONMENTAL RISK ASSESSMENT, ILSI RESEARCH FOUNDATION



The June 2015 edition of the SABP Newsletter introduced the ICAR Biosafety Project—a pilot study to train institutional biosafety officers in ten ICAR research facilities, with the intention of expanding the program to all 99 facilities. On September 23, the second ICAR IBO working session was held in New Delhi to continue the training of the IBOs and the development of resource materials, such as standard operating procedures (SOPs) and biosafety auditing tools. The working session also included a discussion of the six-month plan of activities for the project.

SOPs for laboratory activities with GE plant materials were developed at the last working session, and this time, the focus was on identifying auditable aspects of the SOPs, i.e., things that the IBOs would see in

the laboratory, such as warning signs and labeled wasted containers, as well as laboratory practices that should be adopted by staff, such as the correct way to transport tissue cultures containing GE plant cells or appropriate ways to devitalize GE plant materials. The goal of this exercise was to develop a form and checklist that would be used by the IBOs to conduct routine lab audits for SOP compliance. The participants then worked to finalize SOPs for work with GE plants in a greenhouse. The next step is to develop appropriate greenhouse audit tools.

The six-month plan will include the finalization of biosafety SOPs for confined field trials of GE plants, including practices for specific crops and reproductive isolation methods. These procedures will be especially helpful for researchers undertaking their first confined field trial, to ensure that appropriate and effective biosafety measures are in place. Once audit tools have been developed for field trials, the pilot study will move back to the 10 ICAR institutes and begin the process of engaging the entire staff in the implementation of the biosafety program. This will involve staff training and mock lab audits to bring attention to safety conditions that need to be remedied. A very encouraging sign was that three of the working session participants reported to the group that they had already conducted staff biosafety trainings in their respective institutions. The material developed for the trainings will be shared with their colleagues for possible inclusion in the training materials.

**To view the article on the first ICAR IBO training workshop, please visit: <http://bit.ly/SABPJune2015>**

EVENT	ORGANIZED BY	DATE	WEBSITE
<b>INDIA</b>			
Training Workshops on Risk Communication	Ministry of Environment, Forest and Climate Change (MoEF&CC) and Biotech Consortium India Limited (BCIL)	October 29-31, 2015 Hyderabad  November 2-4, 2015 New Delhi	<a href="http://www.bcil.nic.in">www.bcil.nic.in</a>
Winter School on Novel Genomics Tools, Modern Genetics and Breeding Approaches for Vegetable Crops Improvement	Indian Institute of Vegetable Research	November 7-27, 2015 Varanasi	<a href="http://www.bit.ly/1Pg6plZ">www.bit.ly/1Pg6plZ</a>
International Rice Symposium: Rice Science for Global Food and Nutritional Security	Indian Institute of Rice Research, Central Rice Research Institute, International Rice Research Institute, PJ Telangana Agricultural University, ANGR Agricultural University and the Society for Advancement of Rice Research	November 18-20, 2015 Hyderabad	<a href="http://www.irs2015.in">www.irs2015.in</a>
National Seminar on Plant Genomics and Biotechnology Challenges and Opportunities in 21 <sup>st</sup> Century	Department of Agricultural Biotechnology, College of Agriculture, and Orissa University of Agriculture & Technology	January 23-24, 2016 Bhubaneswar	<a href="http://www.ouat.ac.in/ForthEvents.aspx">www.ouat.ac.in/ForthEvents.aspx</a>
<b>INTERNATIONAL</b>			
Biosafety Workshop 2015: Scientific and Technical Approaches in GMO Decision-Making	International Centre for Genetic Engineering and Biotechnology (ICGEB) Biosafety Unit	October 19-23, 2015 Trieste, Italy	<a href="http://www.icgeb.org/trieste-biosafety-workshop-2015.html">www.icgeb.org/trieste-biosafety-workshop-2015.html</a>
3 <sup>rd</sup> International Conference on Agriculture and Biotechnology (ICABT 2015)	Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEEES)	November 9-10, 2015 Jinju, South Korea	<a href="http://www.icabt.org">www.icabt.org</a>

## Interested in contributing to the SABP Newsletter?

The SABP Newsletter, published monthly, is distributed to over 10,000 regulators, scientists, policy makers and other stakeholders interested in agricultural biotechnology in South Asia. Each edition includes editorials, information about biosafety regulation and policy developments in India, Bangladesh and Pakistan, SABP and other capacity building activities in the region, and related science or news stories. All contributions to the newsletter should have a clear connection to the mission of SABP, relate to South Asia and cannot be promotional. For more information or for your article to be considered, please email Libby Williams at [lwilliams@ilsa.org](mailto:lwilliams@ilsa.org).



**SOUTH ASIA**  
BIOSAFETY PROGRAM

**The South Asia Biosafety Program (SABP)** is an international developmental program implemented in India, Bangladesh and Pakistan 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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