

BIO SAFETY



A Quarterly
Newsletter

Newsletter

In this Issue

- 15th Anniversary of The entry into Force of The Cartagena Protocol on Biosafety
- National Referral Laboratory for GM Detection at ICAR-NBPGRI is now ISO:IEC Accredited
- OECD Conference on Genome Editing: Applications in Agriculture, Implications for Health, Environment and Regulation
- Participation in the 25th Meeting of the National Project Coordinators at Dushanbe, Tajikistan
- Participation of GEAC Members in the Sixth Annual South Asia Biosafety Conference at Dhaka
- Global Status of Commercialized Biotech/GM Crops in 2017: ISAAA Brief 53
- Upcoming Events

From the Desk of Editor

September 11, 2018 marked the 15th anniversary of the entry into force of the Cartagena Protocol on Biosafety (CPB). India signed the CPB in 2003. Over the last 15 years, several initiatives have been taken to ensure its implementation in India. Two capacity building projects supported by GEF have been implemented, in addition to activities undertaken through national resources. India is committed to ensure safe use and transboundary movement of Living Modified Organism (LMOs) and has a robust safety assessment framework in place.



The next conference of Parties serving as meeting of Parties to review the implementation of the CPB (COP-MOP-9) is scheduled to be held in November 2018 concurrently with COP-14 to the Convention on Biological Diversity (CBD) and COP-MOP-3 to Nagoya Protocol on Access and Benefit Sharing. It is proposed to organize a side event to showcase the outcomes of UNEP-GEF Phase II Capacity Building Project on Biosafety at the COP-MOP-9.

MoEFCC continues to support participation of regulators and experts in various national and international forums, some of which have been shared in this issue of the newsletter. We will continue to strengthen the capacity of concerned stakeholders for effective implementation of CPB in India on a regular basis.

Arun Kumar Mehta
Additional Secretary

Ministry of Environment, Forest and Climate Change

UN Biodiversity Conference, 2018: Agenda and Documents

The UN Biodiversity Conference, 2018 under the theme "Investing in Biodiversity for People and Planet", will be held from November 17-29, 2018 at Sharm El Sheikh, Egypt. The UN Biodiversity Conference is the governing body of the Convention on Biological Diversity (CBD), and advances implementation of the Convention through the decisions it takes at its periodic meetings. A High level segment precedes on November 14-15, 2018 with an objective to adopt a political declaration on mainstreaming biodiversity in the sectors of energy and mining, infrastructure, manufacturing and processing and health.



The agenda and documents for the three parallel meetings in the UN Biodiversity Conference, 2018 viz., fourteenth meeting of the Conference of Parties (COP 14) to the CBD, ninth meeting of the COP serving as the meeting of Parties (MOP) to the Cartagena Protocol on Biosafety (CPB) and the third meeting of COP-MOP to the Nagoya Protocol on Access to Genetic Resources can be accessed at <https://www.cbd.int/conferences/2018>. Stakeholders can view the documents and follow proceedings through the website.

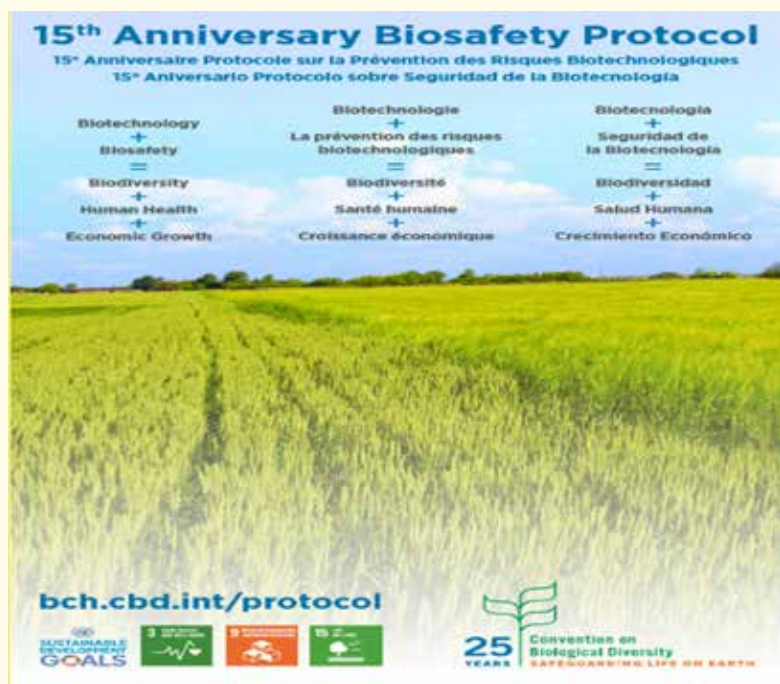
15th Anniversary of the Entry into Force of the Cartagena Protocol on Biosafety

September 11th, 2018 marked the 15th anniversary of the entry into force of the Cartagena Protocol on Biosafety (CPB).

Ms. Cristiana Pasca Palmer, Executive Secretary of the Convention on Biological Diversity issued a statement highlighting the success achieved under the CPB. These included a fully operational Biosafety Clearing-House (BCH) as well as regional and numerous national BCH websites through which Parties to the CPB and other stakeholders exchange a wealth of information on biosafety. The recent entry into force of the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress was also noted as a significant milestone. Progress achieved towards biosafety regulatory frameworks, experiences in conducting risk assessments etc. were also appreciated.

A webinar was also organized with an objective to increase the visibility of the CPB at an international level among stakeholders that are not familiar with its elements.

Several infographics that include messages for the 15th anniversary of the CPB, prepared as part of the online discussions held on program of work on public



awareness, education and participation from March 15, to April 5, 2018 have also now been made available at <https://bch.cbd.int/protocol/15thAnniversary.shtml>

National Referral Laboratory for GM Detection at ICAR-NBPGR is now ISO:IEC Accredited

One of the National Referral Laboratory for GM detection at the National Bureau of Plant Genetic Resources (NBPGR) is now International Organization for Standardization (ISO): International

Electrotechnical Commission (IEC) 17025:2005 accredited by the National Accreditation Board for Testing & Calibration Laboratories. ISO:IEC is the single most important standard for calibration and testing laboratories that demonstrates technical competence to produce precise and accurate test results/data.



The GM detection laboratory at NBPGR has been strengthened under the UNEP/GEF supported Phase II Capacity Building Project on Biosafety, implemented by the Ministry of Environment, Forest and Climate Change (MoEFCC) for the period 2012-2017 along with three other laboratories viz., Punjab Biotechnology Incubator, Mohali, Export Inspection Agency, Kochi and DNA Fingerprinting and Transgenic Crops Monitoring Laboratory, Amravati. The four laboratories have also been notified as the National Referral Laboratory for GM detection under the Section 4 of the Seeds Act, 1966 of the Ministry of Agriculture & Farmers Welfare dated 15 November 2017.



OECD Conference on Genome Editing: Applications in Agriculture, Implications for Health, Environment and Regulation

A Conference on Genome Editing: Applications in Agriculture-Implications for Health, Environment and Regulation was organised by the Organization for Economic Cooperation and Development (OECD) under the auspices of the OECD Global Forum on Biotechnology on June 28-29, 2018 at Paris. The conference aimed at exploring safety and regulatory considerations being raised by genome edited products to favour a coherent policy approach to facilitate innovation involving genome editing.

Genome editing is a set of techniques in which specialised enzymes have been modified (inserted, replaced or removed DNA from a genome), with a high degree of specificity. Genome editing and one of its most discussed techniques viz., CRISPR/Cas9 system provides a tool at relatively low cost for innovation in biomedicine, agriculture, industrial biotechnology and other sectors relating to the bioeconomy. The rapidly growing use of genome editing has policy implications, as well as human health and environmental safety considerations. The conference facilitated to bring together policy makers, academia, innovators and other stakeholders from various countries to discuss these issues and achieve the objective of the conference.

The conference program included an introductory



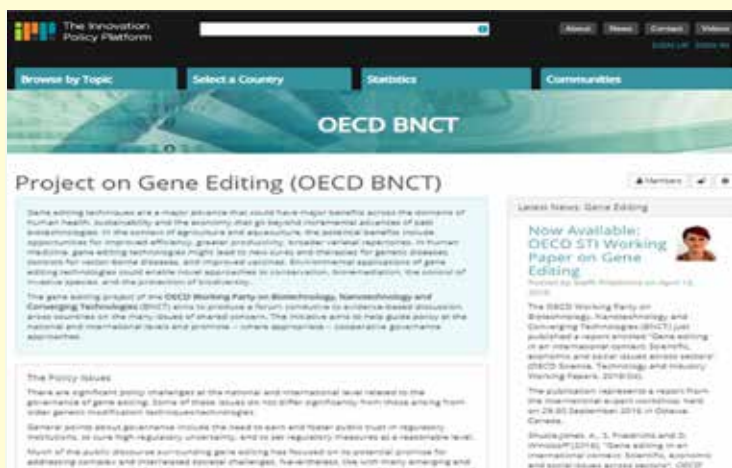
session focusing on genome editing techniques in the broader context and related OECD activities, followed by three technical sessions. The themes of the three technical sessions focused on:

- a. Applications of genome editing in agriculture** wherein case studies and examples were presented, particularly for plant varieties and farm animals that are under research and development and close to market/commercialization.
- b. Risk and safety considerations**, wherein the evolution of food & feed safety assessment and environmental safety assessment of products of modern biotechnology were presented. How genome editing techniques are applied, the nature and specificity of the genetic changes they create, including specificity of targeted changes and evidence about the nature of any off-target changes were also considered.
- c. Regulatory aspects session** addressed the questions associated with genome editing applications in agriculture and approaches being followed by regulatory agencies in Argentina, Canada, European Union, India, New Zealand and USA.

The OECD Genome Editing Hub

As part of the project on Genome Editing being implemented by the OECD Working Party on Biotechnology, Nanotechnology and Converging Technologies (BNCT), an OECD Genome Editing Hub has been established online. It provides easy access to background information about gene editing, latest news, meeting documents etc.

It can be accessed at <https://www.innovationpolicyplatform.org/project-gene-editing-oecd-bnct>.



Dr Murali Krishna, Chimata, Joint Director, MoEFCC and Member Secretary, Genetic Engineering Appraisal Committee (GEAC), participated in the two day conference and made a presentation on the existing biosafety regulatory framework of India, status of GM crops and about India's regulatory approach to deal with new gene technologies.

The copy of the conference document, speaker profiles, presentations and abstracts can be accessed at <http://www.oecd.org/environment/genome-editing-agriculture/>

Participation in the 25th Meeting of the National Project Coordinators at Dushanbe, Tajikistan

The 25th Meeting of National Project Coordinator's (NPC) for the Asia Region" organized by UNEP in association with Environment Department of Tajikistan was held from September 17-21, 2018 at Dushanbe. The NPC meeting was organized to share the experience and review the progress of the UNEP/GEF supported projects on biosafety that are being implemented in the Asian region. In addition to the



discussions about projects, the agenda of the meeting also included preparations for the forthcoming COP-MOP9 to be held from November 17-29, 2018 at Sharm El-Sheikh, Egypt and discussions on preparing new project proposals under GEF7 replenishment cycle. The meeting was led by Dr. Alex-Owusu Biney, Portfolio Manager (Biosafety), GEF Coordination, Division of



Environmental Policy Implementation, United Nations Environment Programme (UNEP). Project Coordinators and associated personnel from six countries viz. Bangladesh, India, Iran, Jordan, Tajikistan and Turkey participated in the meeting.

Mr. Kunal Singh, Assistant Section Officer, Ministry of Environment, Forest and Climate Change (MoEFCC) and Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited (BCIL) participated in the meeting, on behalf of India and shared the project outcomes and experiences regarding project closure of the Phase II Building Project on BioSafety.

Discussions were also held on the possibility of regional and thematic harmonization projects under GEF cycle.





Participation of GEAC Members in the Sixth Annual South Asia Biosafety Conference at Dhaka

The sixth Annual South Asia Biosafety Conference (SABC-2018) was held from September 15-17, 2018 at The Hotel Westin Dhaka, Bangladesh. The conference was organized by South Asia Biosafety Programme (SABP), ILSI Research Foundation, USA and Biotech Consortium India Limited (BCIL). The event was also supported by International Society for Biosafety Research (ISBR) along with other regional partners including science academies and regulatory agencies. The Ministry of Environment, Forest and Climate Change, Government of India had also supported the event, as in the past.



The conference was inaugurated by Mr. Md. Abdullah Al Mohsin Chowdhury, Secretary, Ministry of Environment, Forest and Climate Change, Government of Bangladesh. The inaugural session was chaired by Dr. Sultan Ahmed, Director General, Department of Environment, Government of Bangladesh. Other speakers in the inaugural session included Mr. David Westerling, Deputy Director, Economic Growth Office, United States Agency for International Development, Bangladesh, Dr. Md. Kabir Ikramul Haque, Director General, Bangladesh Agricultural Research Council (BARC), Bangladesh and Dr. M. Imdadul Hoque, Professor, University of Dhaka, Bangladesh.

Dr. Sujata Arora, Adviser, Ministry of Environment, Forest and Climate Change, Government of India delivered



Organizers and Supporting Organizations

- South Asia Biosafety Program (SABP)
- ILSI Research Foundation
- Biotech Consortium India Limited
- Asia Pacific Association of Agricultural Research Institutions (APAARI)
- Asia Pacific Consortium on Agricultural Biotechnology and Bioresources (APCoAB)
- Bangladesh Academy of Sciences
- Bangladesh Association for Plant Tissue Culture & Biotechnology (BAPTC&B),
- Bhutan Agriculture and Food Regulatory Authority (BAFRA).
- Department of Environment, Govt. of Bangladesh
- Institute for International Crop Improvement - Donald Danforth Plant Science Center
- International Society for Biosafety Research (ISBR)
- Ministry of Environment, Forest and Climate Change, Govt. of India
- National Academy of Agricultural Sciences, India

the special address emphasizing the importance of sharing the experience at the regional level. Regional cooperation has been one of the key components of UNEP/GEF supported Phase II Capacity Building Project on Biosafety, implemented by MoEFCC. Dr. Arora shared various initiatives undertaken as part of the project and also following the project, wherein a group of scientists from Bangladesh were trained on detection of living modified organisms (LMOs) in one of the labs strengthened under the project.

All other speakers also indicated that this annual conference provides a common platform for sharing of experiences at regional level and exploring harmonization opportunities in the area of biosafety regulations among the South Asian countries. Dr. Vibha Ahuja, Chief General Manager, Biotech Consortium India Limited also gave a thematic presentation on “Regional Harmonization: Contribution by the South Asia Biosafety Program”.

The conference was attended by 168 participants from 10 countries including India, Bangladesh, Bhutan, Sri Lanka, Philippines, Malaysia, USA etc. The agenda for SABC-2018 included plenary sessions, parallel workshops, lightning round and poster session. Presentations were made by leading international and

regional experts from regulatory agencies, scientific academies, universities and the private sector. The conference was in general rated as excellent. The coverage of topics, presentations and discussions were highly appreciated.

Some members of Indian regulatory committees viz. Genetic Engineering Appraisal Committee (GEAC) and



Review Committee on Genetic Manipulation (RCGM) participated in the conference. Dr. Lalitha Gowda, Former Chief Scientist, CSIR-CFTRI and Member, GEAC made a presentation on “Regulations for Food Derived from Genetically Modified Organisms in India” in the Plenary Session-I on Biosafety Regulation and Capacity Building Initiatives in South Asia. Dr. B Venkateswarlu, Former Vice Chancellor, Vasantnao Naik Marathwada Krishi Vidyapeeth, Parbani and Member, GEAC chaired the Plenary Session-III on Research Advances in the Development of Transgenic and Gene Edited Products in South Asia and Dr. B. Sesikeran, Chairperson, RCGM and Former Director, National Institute of Nutrition chaired the Plenary Session-VI on Biosafety Risk Assessment and Regulation of Gene Edited Plants.

There was a Lightning Round which gave a unique opportunity for students and early career researchers to share their research in an oral presentation format. The presentations were scored by the session’s Chair and Co-Chair, and prizes were awarded to the top two participants. There was also a poster session so that as many participants as possible can share their research with colleagues. 40 posters were presented in the conference. Participation of four Indian students for presentation in the lightning round and poster session was supported by Reliance Industries Limited, Mumbai and Alliance for Agri Innovation, New Delhi.

Three parallel workshops held on extremely relevant topics viz. science communication, detection of GMOs and synthetic biology were highly appreciated.

Plenary Sessions

- Biosafety Regulation and Capacity Building Initiatives in South Asia
- Crop Biotechnology and Biosafety in South Asia
- Engineering Plant Tolerance to Abiotic and Biotic Stressors
- Research Advances in the Development of Transgenic and Gene Edited Products in South Asia
- Animal, Arthropod and Aquatic Biotechnology: Biosafety Research, Risk Assessment and Regulation
- The Theory and Practice of Effective Science Communication
- Biosafety Risk Assessment and Regulation of Gene Edited Plants

Parallel Workshops

- Science Communication - The Importance of Audience Engagement
- Detection of Genetically Modified Crops and Tour of Diagnostic Lab
- Synthetic Biology and Digital Sequence Information under the Convention on Biological Diversity



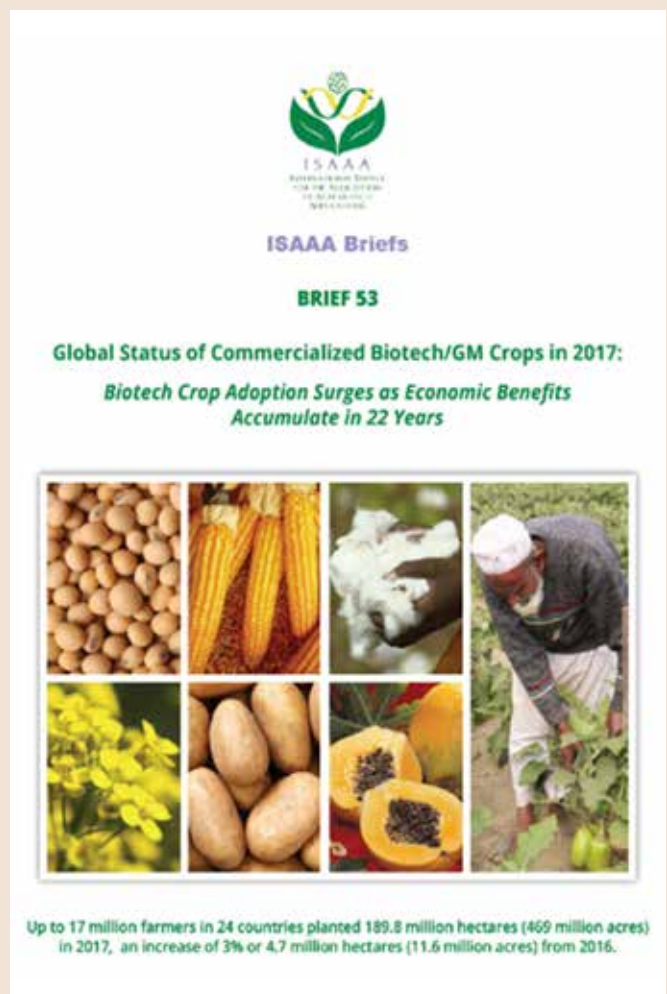
Global Status of Commercialized Biotech/GM Crops in 2017: ISAAA Brief 53

The International Service for the Acquisition of Agri-biotech Applications (ISAAA) has released a report on "Global Status of Commercialized Biotech/GM Crops in 2017: Biotech Crop Adoption Surges as Economic Benefits Accumulate in 22 Years". The report (Brief 53) is a part of the annual series of Global Status of Commercialized Biotech/GM crops that ISAAA has been publishing since 1996.

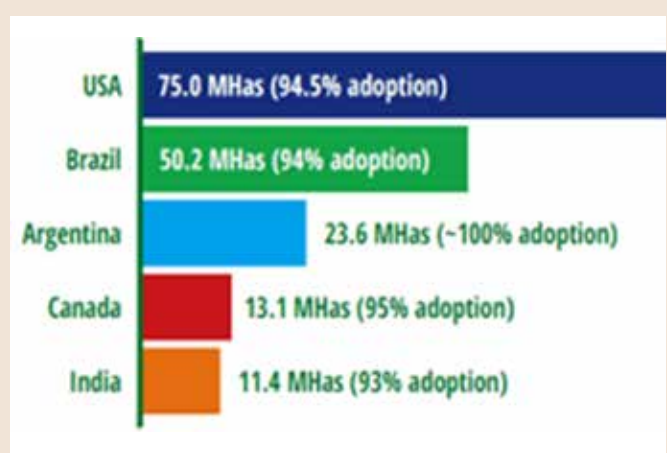
The Brief 53 presents the global database on adoption and distribution of GM crops in 2017 with a continued widespread adoption with up to 17 million farmers in 24 countries having planted 189.8 million hectares of GM crops in 2017 i.e., 3% increase from 2016, equivalent to 4.7 million hectares. An accumulative data on GM crops adoption since 1996, country wise situation, trends in approval of GM crops and future prospects of the technology in GM crop growing and importing countries is also presented in the report.

The report highlights the increase of biotech crop in the top five biotech crop growing countries viz., USA (94.5%), Brazil (94%), Argentina (-100%), Canada (95%) and India (93%) which is attributed to the commercialization of new biotech crops and traits that target problems related to climate change and emergence of new pest and diseases. With India leading as the biggest area of GM crops at 11.4 million hectares of cotton, Pakistan, China, Australia, Philippines, Myanmar, Vietnam and Bangladesh are the other leading biotech growing countries in the Asia and Pacific region.

The report also highlights the issue of delayed approvals for public sector biotech crops, including Golden Rice, Bt eggplant, virus resistant bean and water efficient



Up to 17 million farmers in 24 countries planted 189.8 million hectares (469 million acres) in 2017, an increase of 3% or 4.7 million hectares (11.6 million acres) from 2016.



maize that would have benefitted the farmers and consumers.

The ISAAA, 2017 report also includes a detailed discussion on how biotechnology addresses global food insecurity in the face of high population growth, declining food production as a consequence of the effects of climate change in agriculture. It also discusses about the current high adoption rate of biotech crops and the benefits that the global population can derive such as the increased productivity, conservation of biodiversity and land savings, reduction of environmental footprint and in mitigation of harmful effects of climate change to the environment.

The ISAAA Brief 53 can be accessed at <https://www.isaaa.org/resources/publications/briefs/53/download/isaaa-brief-53-2017.pdf>

Upcoming Events

Title	Organized/ hosted by	Date and Venue	Website
National			
13th Asian Maize Conference and Expert Consultation on "Maize for Food, Feed, Nutrition and Environmental Security"	Indian Council of Agricultural Research	October 8-10, 2018, Ludhiana	https://www.icar.org.in/sites/default/files/SECOND%20CIRCULAR%20--%2013th%20Asian%20Maize%20Conference%20%28Oct%208-10%2C%202018%29.pdf
9th Conference of the Indian Science Congress Association (Haridwar Chapter) on "Future India: Science and Technology"	G.B. Pant University of Agriculture & Technology, Pantnagar,	October 13-14, 2018, Pantnagar	http://www.gbpuat.ac.in/trainings_conferences/30.07.2018_brochure_final.pdf
8th Indian Horticulture Congress – 2018	Indira Gandhi Krishi Vishwavidyalaya	Oct. 29 – Nov. 2, 2018, Raipur	http://igau.edu.in/pdf/event/event_ihc2018.pdf
National Seminar on "Abiotic Stress management : Challenges and Opportunities"	Tamil Nadu Agricultural University	October 25-26, 2018, Coimbatore	http://www.tnau.ac.in/events.html
2nd National Biotechnology Conclave	Confederation of Indian Industry (CII)	November 30, 2018, New Delhi	http://www.cii.in/Events.aspx
XIV Agricultural Science Congress – Innovation for Agricultural Transformation	National Academy of Agricultural Sciences and ICAR-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			
The 3rd International Agriculture Innovation Conference (IAIC 2018)	International Association for Agricultural Sustainability	October 12-13, 2018, Beijing, China	http://iaic2018.iaas.org.sg/
5th International Rice Congress	International Rice Research Institute	October 14-17, 2018, Singapore	http://ricecongress2018.irri.org/
2nd Asia Forum on Genome Editing	Korea Biosafety Clearing House	November 1-2, 2018, Gangneung, Korea	
International Conference on Biotechnology & Industrial Revolution	Science Access	November 12-14, Dubai, UAE	http://biotechnology.congressseries.com/home
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/
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
13th International Conference on Dryland Development "Converting Dryland Areas from Grey into Green"	International Dryland Development Commission (IDDC) Arid Zone Research of India, Jodhpur and Central Arid Zone Research Institute	February 11-14, 2019, Jodhpur	http://www.13icdd.com/
15th ISBR Symposium	International Society for Biosafety Research (ISBR)	April 1-4, 2019, Tarragona, Spain	http://www.isbr2019.com/

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Disclaimer: The information in this newsletter has been compiled from various sources and does not necessarily depict views of the Ministry of Environment, Forest and Climate Change, Government of India.