



सत्यमेव जयते

# Biosafety Capacity Building Workshops at State Agricultural Universities

An initiative for sharing information and  
enhancing public awareness

Phase II Capacity Building Project on Biosafety



Ministry of Environment Forest  
and Climate Change

Ministry of Environment, Forest and Climate Change

Government of India

In association with



BCIL

Biotech Consortium India Limited

New Delhi





# Background

- Ministry of Environment, Forest and Climate Change (MoEFCC) is implementing the UNEP/GEF supported Phase II Capacity Building Project on Biosafety with an objective to strengthen the biosafety management system in India.
- Enhancing public awareness and capacity building for better understanding of biosafety regulatory framework is one of the key thrust areas of the project. Several useful outputs have been produced for creating awareness and these have also been translated in local languages.
- Under the project, MoEFCC has supported a series of fifteen "State Level Biosafety Capacity Building Workshops", jointly with the State Agriculture Universities (SAUs) and Biotech Consortium India Limited (BCIL) for creating awareness about the project outputs and related issues at State level among scientists/researchers/students of universities, research institutions and State Agriculture Departments.

## Partnering State Agriculture Universities

| State            | Partnering SAUs  | Place   | Date              |
|------------------|--|---|-------------------|
| Gujarat          | Anand Agricultural University                            | Anand   | July 13, 2017     |
| Assam            | Assam Agricultural University                            | Jorhat  | February 10, 2018 |
| Punjab           | Punjab Agricultural University                           | Ludhiana  | February 16, 2018 |
| Karnataka        | University of Agricultural Sciences                      | Dharwad   | February 23, 2018 |
| Himachal Pradesh | Dr Y S Parmar University of Horticulture and Forestry    | Solan   | March 6, 2018     |
| Haryana          | Chaudhary Charan Singh Haryana Agricultural University   | Hisar   | March 14, 2018    |
| Orissa           | Orissa University of Agriculture and Technology          | Bhubaneswar                                     | March 19, 2018    |
| Tamil Nadu       | Tamil Nadu Agriculture University                        | Coimbatore                                      | March 23, 2018    |
| Chhattisgarh     | Indira Gandhi Krishi Vishwavidyalaya                     | Raipur  | March 28, 2018    |
| West Bengal      | Bidhan Chandra Krishi Vishwavidyalaya                    | Kalyani   | April 3, 2018     |
| Uttar Pradesh    | Narendra Dev University of Agriculture and Technology    | Faizabad  | April 10, 2018    |
| Maharashtra      | Mahatma Phule Krishi Vidyapeeth                          | Rahuri  | April 13, 2018    |
| Madhya Pradesh   | Jawaharlal Nehru Krishi Vishwavidyalaya                  | Jabalpur  | April 17, 2018    |
| Andhra Pradesh   | Acharya N G Ranga Agricultural University                | Regional Agriculture Research Station, Tirupati | April 23, 2018    |
| Rajasthan        | Maharana Pratap University of Agriculture and Technology | Udaipur   | April 27, 2018    |





# Resource Documents for Participants

- All participants were provided with the Biosafety Resource Kit and the Biosafety Resource Catalogue including a CD on genetically modified (GM) crops prepared under the Phase II Capacity Building Project on Biosafety.
- These resource documents were circulated to participants in English and regional languages such as Hindi, Bengali, Punjabi, Gujarati, Marathi, Telugu, Tamil and Kannada.

- **Biosafety Resource Kit** comprising of five brochures on :
  - ❖ Cartagena Protocol on Biosafety: An Overview
  - ❖ Regulatory Framework for Genetically Engineered (GE) Plants in India
  - ❖ Frequently Asked Questions about GE Plants
  - ❖ Confined Field Trials of GE Plants
  - ❖ Useful Resources for Safety Assessment of GE Plants
- **Biosafety Resource Catalogue** comprising of following brochures:
  - ❖ GM crops: An overview
  - ❖ GM Crops: Adoption & Impact
  - ❖ Biotechnology & Biosafety Glossary of Terms



- ❖ Role of Customs in Transboundary movement of Plant Material including GMOs
- ❖ Procedure of Import and Export of GM plant and planting material
- ❖ GM Crops: A Revolution on Agriculture



- Project publications including the environmental risk assessment guidance documents, pipeline survey results, eight crops biology documents, Monitoring Manual and Tools for Trainers of the confined field trials of regulated GE plants were displayed at the workshops and provided for use in the library. Copies of the same have been provided to interested participants.
- Participants were informed about the websites, where all the electronic copies of the project outputs are available ([geacindia.gov.in](http://geacindia.gov.in)).





# Workshop Program



- The State Level Biosafety Capacity Building Workshop program included an inaugural session followed by two technical sessions. The technical session I focused on the "Biosafety Regulatory Framework and Capacity Building Initiatives", and technical session II focused on "Sharing of the research activities in the area of agriculture biotechnology at the State Level".
- A live demonstration of the use of lateral flow strips for detection was also a part of the workshop program.



## Topics Covered

- Development of GM Crops: Global and Indian Status
- Biosafety Regulations in India: An Overview
- Science and Safety Aspects of GM crops
- Conduct of Confined Field Trials : Protocols to Ensure Effective Management and Monitoring
- Detection of LMOs and Demonstration of the use of lateral flow strips
- Strengthening Biosafety Management In India: Sharing project outcomes under Phase II Capacity Building Project on Biosafety
- Research Initiatives in the area of Agriculture Biotechnology in respective States



## Resource Persons for Technical Session-I

- The resource persons and experts made presentations at the fifteen workshops based on their area of expertise and shared experiences with the participants. These included:
  - i. Chair and Members of regulatory bodies: Genetic Engineering Appraisal Committee (GEAC) and Review Committee on Genetic Manipulation (RCGM) including the former members also, including Central Compliance Committee members
  - ii. Senior scientists from public research institutions engaged in research and developmental activities in the area of agriculture biotechnology such as Indian Council of Agriculture Research and National Institute of Nutrition (NIN), Hyderabad
  - iii. Scientists/Principal Investigators from the respective organizing SAUs who have been engaged in the area of agricultural biotechnology and/or have been trained as part of the UNPE/GEF supported Phase II Capacity Building Project on Biosafety
  - iv. Representatives from the four notified national referral laboratories for GM detection viz., National Bureau of Plant Genetic Resources



(NBPGRI), Delhi; Punjab Biotechnology Incubator, Mohali; DNA Fingerprinting & Transgenic Crops Monitoring Laboratory (DFTCML), Hyderabad and Export Inspection Agency (EIA) - Kochi

- v. Officers from BCIL (Project Coordination Unit) of the Phase II Capacity Building Project on Biosafety.

## In addition to the partnering SAUs, representatives from various other universities and institutions made presentations in the Technical Session II.

- Bharti University, Coimbatore
- Bose Institute, Kolkata
- Central Salt & Marine Chemicals Research Institute, Bhavnagar
- Central Potato Research Institute, Shimla
- CSK Himachal Pradesh Agri. University, Palampur
- Directorate of Groundnut Research, Junagadh
- Directorate of Weed Science Research, Jabalpur
- Dr. B.S. Konkan Krishi Vidyapeeth, Dapoli
- Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola
- Guru Nanak Dev University, Amritsar
- Junagadh Agricultural University
- Institute of Forest Genetics and Tree Breeding, Coimbatore
- Indian Institute of Sugarcane Research, Lucknow
- Indian Institute of Pulses Research, Lucknow



- Indian Institute of Vegetable Research, Varanasi
- Indian Institute of Wheat and Barley Research, Karnal
- Indian Institute of Soybean Research, Indore
- Indian Institute of Technology, Guwahati
- Indian Institute of Rice Research, Hyderabad
- Indira Gandhi Krishi Vishwavidyalaya, Raipur
- National Research Institute, Cuttack
- National Research Centre for Banana, Trichy
- National Botanical Research Institute, Lucknow
- National Agri-Food Biotechnology Institute, Mohali
- Rasi Seeds (Pvt.) Ltd, Coimbatore
- Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalya, Indore
- Sugarcane Breeding Institute, Coimbatore



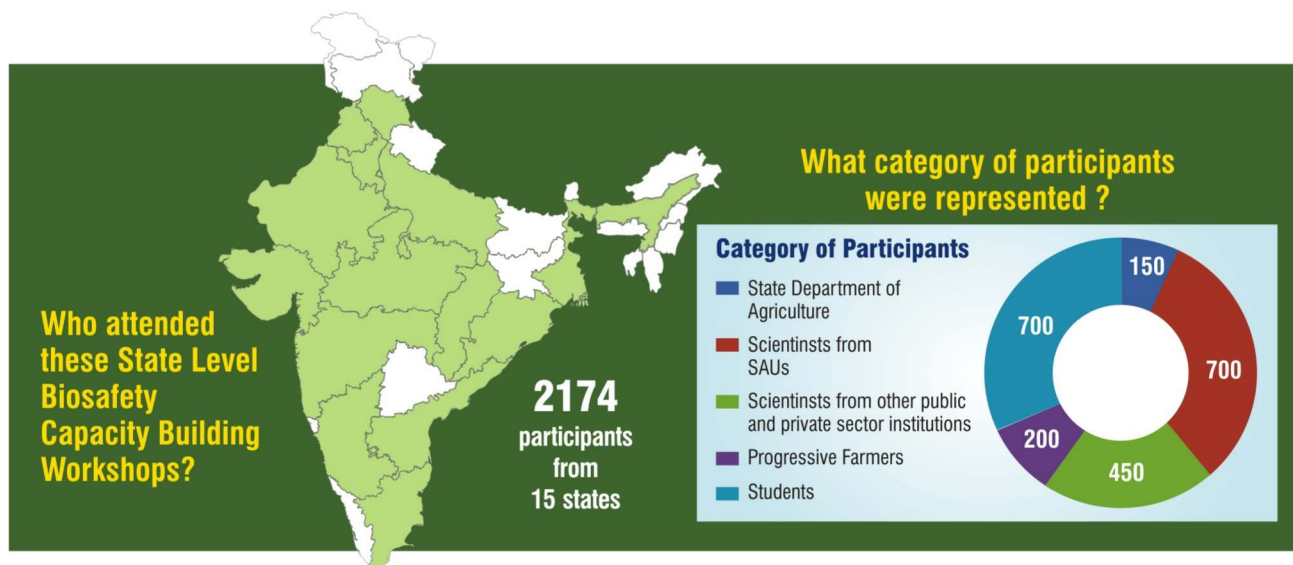




## Participants

**More than 2100 participants attended the fifteen State level biosafety capacity building workshops across the country**

- Officials from the State Department of Agriculture
- Deans, Directors, Head of Departments of SAUs
- Faculty members and scientists from the relevant colleges & departments including biotechnology genetics, plant breeding, seed science etc of the SAUs
- Scientists/Representatives from the Agricultural Research Stations of the SAUs
- Scientists/Representatives from Krishi Vigyan Kendras (KVKs)
- Scientists from other state universities/ institutions
- Representatives from industry
- Progressive farmers from various districts of the respective States
- Researchers and Students





# Feedback / Recommendations



## Scientists from State Agriculture Universities

- Information about streamlined process in place for confined field trials using regulatory guidance and manuals very useful
- Data generation requirement for regulatory approval is quite informative
- Booklet on pipeline survey results of GE plants underway research and developmental activities is useful for referring
- Process of doing research to commercial release flow chart was useful for planning

## State Agriculture Departments

- Science and safety aspects related to GM crops interesting
- Updated information regarding biosafety of GMO and different legal procedure to handle these crops.
- Regulatory procedures and committees for GM in place was useful information
- Detection of GMOs and demonstration in fields through strip test seems very useful

## Scientists from Research Institutes

- Information about outreach materials and various guidelines can be used as the most useful elements from the workshops to be referred
- Key issues and tests undertaken for safety assessment of GM food and GM Crops helpful for regulatory processing
- Streamlined process for confined field trials using regulatory guidance and manuals seem very useful
- Seed testing presentation and various kinds of diagnostic kits was very useful

## Farmers

- Information about global GM crops status very useful as I thought only cotton and brinjal are GM.
- Testing for GM seed through flow strip very useful information
- Interaction after presentation very useful
- Presentation in local language was helpful

## Students

- Clarifications regarding safety, toxicity and allergenicity of GM crops
- Information about various regulatory committees in place for safety assessment of GM crops
- The most useful elements of the workshop is the regulatory framework for GE plants in India.





## KEY CONTACTS

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### **Dr. Sujata Arora**

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