

Understanding legal and government rules
related to our Arsenic testing mobile laboratory.

Cartagena Protocol on Biosafety

- The objective of this Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on trans-boundary movements.

<http://bch.cbd.int/protocol/text/>

Department of Biotechnology (DBT) Committees

To understand functions of various Committees

GENETIC ENGINEERING APPROVAL COMMITTEE (GEAC)

- To permit the use of GMOs and products thereof for commercial applications.
- To adopt producers for restriction or prohibition, production, sale, import & use of GMOs both for research and applications under EPA(Environmental Protection Act [1986]).
- To authorize large scale production and release of GMOs and products thereof into the environment.
- To authorize agencies or persons to have powers to take punitive actions under the EPA.

Recombinant DNA Advisory Committee (RDAC)

- Review developments in Biotechnology at National and International level.
- Recommend suitable and appropriate safety regulations for India in r-DNA research, use and applications.

Review Committee on Genetic Manipulation (RCGM)

- As per the Rules for the manufacture, use, import, export & storage of hazardous microorganisms, genetically engineered organisms or cells, 1989 notified under the Environment (Protection) Act, 1986 and as amended from time to time, the Review Committee on Genetic Manipulation (RCGM) shall function in the Department of Biotechnology (DBT) .
- RCGM shall monitor the safety related aspects in respect of ongoing recombinant DNA (r-DNA) projects and activities involving Genetically Engineered (GE) organisms/ hazardous microorganisms. All ongoing projects including high risk category and confined field experiments shall be reviewed by RCGM to ensure that adequate precautions and containment conditions are complied with as per the Guidelines and Standard Operating Procedures (SOPs) issued by DBT from time to time.
- The RCGM shall lay down procedures restricting or prohibiting production, sale, importation and use of such GE organisms or products thereof for research and applications as mentioned in the schedule of Rules, 1989.
- RCGM shall bring out manuals and guidelines specifying procedure for regulatory processes with respect to activities involving GE organisms in research, use and application including industry with a view to ensure safety to human, animal and environment health.

- The RCGM would issue the clearance letters/permits for import or exchange of genes, DNA fragments, vectors, plasmids, cosmids, etiologic agents and transgenic organisms or germplasm(s) including transformed calli, seeds, plants and plant parts for research use only. It will also take note of all such commercially available agents which are acquired from commercial sources through Institutional Biosafety Committee (IBSC).
- The RCGM, on case-by-case basis, can authorize applicants to use bioreactors to produce sufficient material/end-products of GE organisms required for conducting pre-clinical studies and other relevant data generation including the use of capacity over and above as specified by Recombinant DNA Safety Guidelines, 1990. It will authorize to produce sufficient quantities of GE organism/plant product(s) for generating safety data in appropriate animals as per National and International Guidelines, as appropriate on case-by-case basis.
- The RCGM, if required, call generate, examine or invite the research projects, proposals for capacity building and training courses in biosafety, creation of information systems/data banks in electronic media, websites etc. for financial support and recommend the same to DBT for furthering the cause of generating specific biosafety data related to use of GMOs and strengthening infrastructure facilities & dissemination of information on biosafety rules, regulations and guidelines in the country.

Institutional Biosafety Committee (IBSC)

- To note, examine and approve proposals involving r-DNA work; to ensure adherence of r-DNA Safety Guidelines- 1990 of Government; inspection of containment facilities at R&D and production units and to inform the RCGM about the facilities;
- To prepare emergency plan according to guidelines;
- To approve experiments utilizing the organisms and genetic elements from Risk Group-I and II organisms up to laboratory fermentation 20 ltrs capacity with intimation to RCGM; for using organisms falling in Risk Group III & above, recommend to RCGM for approval to conduct laboratory studies;
- To recommend for import/ exchange of GMOs/LMOs/Transgenic seeds, vectors, gene constructs, plasmids, etc., for research purposes;
- To inform DLC and SBCC as well as GEAC about the experiments where ever needed; to act as a nodal point for interaction with statutory bodies; to ensure experimentation at designated location taking into account of approved protocols etc.

- To examine the description of the target gene and source; nucleotide sequence and amino acid sequence of target gene and the target protein; the composition of the vector used; schematic diagram of the expression cassette; restriction map of vector indicating the location of the target gene; cloning strategy; description of the host cell line including genera and species; risks involved in handling of cell line; methods of maintenance of cell line; classification of the host cell line as per the guidelines;
- To approve category I & II experiments, as per the Guidelines 1998 of DBT, up to green house level with intimation to RCGM in category III & above experiments, RCGM to approve conduct lab & green house studies. To recommend all open field experiments in any of the category, for any purpose (biosafety studies, seed increase experiments, agronomic studies, etc) for the approval of RCGM.
- To examine protocols for toxicity/allergenicity studies as per national and international guidelines and their recommendations to RCGM

State Biotechnology Co-Ordination Committee (SBCC)

- Powers to inspect, investigate and to take punitive action in case of violations of statutory provisions through the State Pollution Control Board or the Directorate of Health etc.
- To review periodically the safety and control measures in various institutions handling GMOs.
- To act as nodal agency at State level to assess the damage, if any, due to release of GMOs and to take on site control measures.

District Level Committee (DLC)

- To monitor the safety regulations in installations.
- Have powers to inspect, investigate and report to the SBCC or the GEAC about compliance or non compliance of r-DNA guidelines or violations under EPA.
- To act as nodal agency at District level to assess the damage, if any, due to release of GMOs and to take on site control measures.

Other Organizations

- Arghyam is an Indian public charitable foundation setup with an endowment from Rohini Nilekani, working in the water and sanitation sector since 2005. Our vision is “Safe, sustainable water for all”. Arghyam works primarily through partnerships – with Government, NGOs and various types of institutions – for impact and scale.
- The emphasis, of all they do is on equity and sustainability. Addressing the issues of the poor and the vulnerable in accessing water for their basic daily needs is a priority. Addressing these issues in a manner that is environmentally sustainable is important if the outcome is to be effective over time. Specifically, Arghyam projects strive to understand and address issues of quantity, quality and access to domestic water in communities across the country.
- Some of the key principles include the recognition of lifeline water as a basic need and right, decentralization, community participation and ownership, an integrated approach to managing water from source to sink, an emphasis on subsidiarity (which means managing water locally) and the effective use of technology as enabler.
- They work through a combination of project grants to grass roots organizations, knowledge building and sharing through the India Water Portal, promoting new models of water science, technology and system design, participatory action research and advocacy.

Environmental Protection Agency (EPA)

Environmental Cooperation with India

- **Water Quality Management**
- **Drinking Water Laboratory Strengthening**
- EPA has been working with Indian partners and WHO India to strengthen capacity of drinking water quality laboratories for effective monitoring and surveillance. Key elements of the project including production of Indian drinking water laboratory operations and methods manual, and training on lab management and chemical and microbiological test methods.
- **Water Safety Plan Training and Demonstration**
- This project will include cooperative work with Central, State, and municipal government, and with WHO in India, to demonstrate use of Water Safety Plans, a comprehensive risk assessment and management tool to enhance drinking water safety. The project seeks to address highest vulnerabilities in the drinking water system, and reduce water-borne disease through source water protection, improved operations at drinking water utilities, and improved distribution systems.

National Environmental Engineering Research Institute (NEERI)

Nagpur

- Assessment of groundwater contamination from anthropogenic stresses
- Development of technique and methodology for exploration, assessment and management of ground water in hard rock areas
- Surveillance of drinking water quality
- Performance evaluation of water treatment facilities
- Technology development for improvement of water quality
- Development of analytical techniques for water quality assessment