**Draft outline for the content of regional and sub-regional training workshops on the detection and identification of LMOs.**

**1. Introduction**

**Overview of the CPB**

* What is Biosafety?
* What are living modified organisms?
* of CPB
* Objective and scope of the Protocol
* LMOs for intentional introduction into the environment - Advance Informed Agreement (AIA)
* LMOs for direct use as food, feed, or for processing
* Competent National Authorities
* Detection and identification as it relates to various articles of the Protocol
* Biosafety-clearing House and links to detection methods

**2. Why the need to detect LMOs?**

* Working within a national regulatory context
* Other international agreements (SPS agreement, etc)

**3. Brief introduction to biotechnology**

* Genetic Engineering for development of LMOs
* Global scenario of approval of LMOs for commercilaization
* **4. Techniques for detection and identification**

Goal: To strengthen participants’ understanding of the technologies, methodologies and platforms appropriate to the work being conducted in LMO detection and identification as they relate to DNA and/or protein based analysis. (Assumption: Participants have a working knowledge of the fundamental scientific basis of molecular biology.)

* Sampling Strategies in reference to Cartagena Protocol on Biosafety
* Experimental design and selection of methods in practice according to the purpose of the analysis
* Sample handling and preparation

*4.1 Protein-based methods*

* Overview of different methods, including their advantages and disadvantages
* Lateral Flow Strip: Sample preparation, analysis of results (practical exercise)
* ELISA: Protein extraction, reaction
* Analysis of results
* *4.2 DNA-based methods* PCR and gel electrophoresis (practical exercise)
* Real-time PCR qualitative and quantificative (practical exercise)Measurement of Certainty
* Analysis of results (use of matrices, statistics, etc)
* User friendly methods to be used on-site or port of entry e.g. LAMP assays
* Cost efficient decision support systems e.g. GMO Matrix
* Other Novel Technologies/strategies for LMO Detection

**5. Introduction to the quality assurance/quality control standards**

Goal: Participants are to be aware of best practices for QA/QC as they apply to LMO detection and identification and have an understanding of certification/ accreditation procedures. Participants can design appropriate workspace with laboratory provided and documentation procedures.

* Lab set-up requirements and lab environment
* Documentation requirements and drafting Scope
* Certified Reference Materials
* Handling of samples and DNA extraction
* Qualitative and Quantitative DNAbased methods
* ings
* Internal Auditing
* Non-conformances and Corrective Actions

**6. Reporting**

Goal: To provide instruction to participants on reporting analytical results or issuing written notifications according to the laboratory's policy.

* Laboratory policy on sample file content (not Clear)
* Report writing, sections and contents
* Technical and Administrative Review
* Report issuance/ Confidentiality/disclosure of information as per laboratory policy