

## International and National Regulations for Access to Plant Genetic Resources

Pratibha Brahma and Kavita Gupta

National Bureau of Plant Genetic Resources, New Delhi-110 012

**Key Words: Germplasm, Regulations, Access**

Developments in the international and national regulations over the past 15 years have changed the scenario of access to plant genetic resources (PGR). The genetic resources users and managers need to understand the legal and policy environment related to access to PGR, to be more effective and work towards sustainable utilization of these resources.

An attempt has been made in this analysis to guide the researchers through relevant international and national agreements, laws and policies relevant to access to PGR. The international legal instruments, their coverage and status have been summarized in Table 1. A summary of national legislation and their scope has been presented in Table 2.

**Table 1. International legal instruments and their scope and status**

| International Legal Instruments<br>(Relevant Indian Legislation)   | Scope /Applicability   | Status /Jurisdiction  |
|--|--|---|
| <ul style="list-style-type: none"> <li>● International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)</li> </ul>   | <ul style="list-style-type: none"> <li>● Covers all PGRFA (does not regulate non-food and non-agricultural uses) and addresses diverse topics, including conservation use, international cooperation, technical assistance and farmers' rights</li> <li>● Establishes multilateral system for selected crops (over 35 food crops/29 forages species)</li> <li>● Sets rules for access and benefit-sharing for these materials, both <i>ex situ</i> and <i>in situ</i>, while respecting property rights (except for CGIAR holdings of agreements)</li> </ul> | <ul style="list-style-type: none"> <li>● Adopted by FAO Conference in 2001</li> <li>● Entry into force after the 40<sup>th</sup> country ratified in November 2004</li> <li>● Legally binding for all countries that ratify and not applicable to those that do not</li> <li>● Countries that ratify will be required to bring national laws and regulations into conformity with the Treaty</li> <li>● CGIAR Centres are likely to sign agreements with the Treaty's Governing Body in order to adhere to the Treaty formally</li> </ul> |
| <ul style="list-style-type: none"> <li>● Convention on Biological Diversity (CBD)<br/>(<i>Biological Diversity Act 2002</i>)</li> </ul>  | <ul style="list-style-type: none"> <li>● Covers all biodiversity</li> <li>● Provides general principles for access and benefit-sharing concerning materials collected after the coming of CBD and not covered by the International Treaty on PGRFA</li> </ul>  | <ul style="list-style-type: none"> <li>● Legally binding for countries that have ratified (183 as on March 2002)</li> <li>● Ratifying countries must adopt appropriate legislation/regulations and/or bring existing ones into harmony with the Convention</li> </ul>   |
| <ul style="list-style-type: none"> <li>● International Plant Protection Convention<br/><i>Plant Quarantine (Regulation of Import into India) Order 2003 issued under the Destructive Insects and Pests (DIP) Act 1914</i></li> </ul> | <ul style="list-style-type: none"> <li>● An instrument and forum for harmonizing phytosanitary measures used in regulating international trade</li> <li>● Provides international regulatory framework for trade and protection of environment from adverse effects of products of modern biotechnology. (Gautam, 2000)</li> </ul>  | <ul style="list-style-type: none"> <li>● Established in 1952 (last revised in 1997)</li> <li>● Adopted in January 2000</li> </ul>   |
| <ul style="list-style-type: none"> <li>● CBD/ International Protocol on Biosafety (Cartagena Protocol)<br/>(<i>Guidelines for safety of Biotechnology by DBT, 2002 under the Environment Protection Act (EPA)1986</i>)</li> </ul>    | <ul style="list-style-type: none"> <li>● Members States must comply with minimum standards of protection of IP</li> </ul>  |   |
| <ul style="list-style-type: none"> <li>● WTO – TRIPS Agreement (Protection of Plant Varieties and Farmer Rights Act 2001 and Patent (Amendments) Act 2005)</li> </ul>  | <ul style="list-style-type: none"> <li>● Must ensure protection of microorganisms, non- biological and microbiological processes and plant varieties that meet protection criteria</li> </ul>  | <ul style="list-style-type: none"> <li>● Entered into force in January 1995 after the Marrakesh Ministerial Meeting in April 1994</li> <li>● Legally binding on all WTO Members</li> <li>● Has Possibility for trade sanctions for those found not in compliance</li> </ul>   |
| <ul style="list-style-type: none"> <li>● WTO/Agreement on Application of Sanitary and Phytosanitary Measures<br/>(<i>Plant Quarantine (Regulation of Import into India) Order 2003 issued under the DIP Act 1914</i>)</li> </ul>     | <ul style="list-style-type: none"> <li>● Covers measures adopted by countries to protect human or animal life from food-borne risks; animal or plant-carried diseases; plant pests and diseases to ensure food safety and prevent the spread of pests among animals and plants (Khetarpal and Gupta, 2002)</li> </ul>  | <ul style="list-style-type: none"> <li>● Adopted by 167 WTO members presently</li> </ul>  |

(Contd.)

Table 1. Contd.

| International Legal Instruments<br>(Relevant Indian Legislation)  | Scope /applicability  | Status /Jurisdiction  |
|---|---|---|
| <ul style="list-style-type: none"> <li>UPOV (Plant Breeders' Rights)</li> <li>(India is not a member of UPOV)</li> </ul>  | <ul style="list-style-type: none"> <li>UPOV aims to maximize plant breeding efforts by providing a model for securing protection under UPOV for plant breeders' rights for plant varieties.</li> </ul>  | <ul style="list-style-type: none"> <li>Four versions; only 1991 is still open for joining.</li> <li>Legally binding on 50 Parties to the Treaty.</li> </ul>   |
| <ul style="list-style-type: none"> <li>FAO Global Plan of Action</li> </ul>   | <ul style="list-style-type: none"> <li>Covers all PGRFA</li> <li>Contains specific "activities" on <i>in situ</i> conservation and development, <i>ex situ</i> conservation, utilization, and institutions and capacity building.</li> </ul>  | <ul style="list-style-type: none"> <li>Adopted in 1996 by the 4<sup>th</sup> Intl Technical Conference on PGRFA (150 countries)</li> <li>Legally non-binding</li> <li>Serves as a framework, guide and catalyst for PGRFA, and thus has a bearing on and a relation to a legally binding agreement.</li> </ul>                                  |
| <ul style="list-style-type: none"> <li>FAO Code of Conduct for Plant Germplasm Collecting and Transfer</li> </ul>   | <ul style="list-style-type: none"> <li>Deals with the etiquette of collecting and transfer of PGRFA</li> <li>Has a provision on collector's permits, responsibilities of collectors, sponsors, curators and users, as well as on reporting, monitoring and evaluating observance of the Code.</li> </ul>  | <ul style="list-style-type: none"> <li>Adopted by FAO Conference in 1993</li> <li>Not legally binding</li> </ul>  |
| <ul style="list-style-type: none"> <li>FAO-CGIAR Agreements Placing collections under the auspices of FAO</li> <li>Associated documents/ instruments include: a) 2 joint FAO-CGIAR statements on the Agreement;</li> <li>b) standard Material Transfer Agreement (MTA)</li> </ul> | <ul style="list-style-type: none"> <li>Agreements apply to the management, availability and transfer of specifically designated germplasm</li> <li>Joint statements address concern the practical implementation of the agreement; the agreed MTA (which has the force of a binding contract on recipients) is used in the transfer of designated germplasm.</li> </ul> | <ul style="list-style-type: none"> <li>11 Centres (those having <i>ex situ</i> collections) have signed binding agreements with FAO</li> <li>Agreements were foreseen as interim, pending the coming into force of the ITPGRFA. Treaty's Governing Body and Centres to develop new agreements in line with Article 15 of the Treaty.</li> </ul> |

(Adapted from S. Bragdon *et. al.*, 2004)

Table 2: National Legislations with implication on access to plant genetic resources

| Acts/Guidelines   | Objectives  | Scope  |
|---|---|--|
| <ul style="list-style-type: none"> <li>Protection of Plant Varieties and Farmer Rights (PPVFR Act, 2001)</li> <li>Effective from: January 2005</li> </ul> | <ul style="list-style-type: none"> <li>To provide for an effective system of protection of plant varieties; and rights of farmers and plant breeding; ensure availability of high quality seeds improved varieties to farmers.</li> </ul>   | <ul style="list-style-type: none"> <li>a) New varieties to be protected (registered) in the Act, should be novel, distinct, stable and uniform (NDUS), and shall be subjected to tests by the PPVFR Authority</li> <li>b) Application for new varieties should be accompanied with complete passport data of all the genetic resources used in the development of new material</li> <li>c) Proof of lawful acquisition of all materials used in development of new varieties to be furnished. (Brahmi <i>et. al.</i>, 2004 a)</li> </ul> |
| <ul style="list-style-type: none"> <li>Biological Diversity Act</li> <li>Effective from: April 2004</li> </ul>  | <ul style="list-style-type: none"> <li>Conservation and sustainable use of biological diversity; regulation of access to biological resources; secure sharing of benefits out of use of Indian biological resources /use of traditional knowledge</li> </ul>  | <ul style="list-style-type: none"> <li>a) The access to Indian biological resources by non-Indians shall be subject to the approval of National Biodiversity Authority. These conditions do not apply to transfer of genetic resources under any project approved by the Govt. of India, and also transfer of results under approved projects. (Brahmi <i>et. al.</i>, 2004 b)</li> </ul>  |
| <ul style="list-style-type: none"> <li>Patent (Amendments) Act 2005</li> <li>Effective from : January 2005</li> </ul>                                     | <ul style="list-style-type: none"> <li>New amendment include patenting on newly developed (GM) micro-organisms and micro biological process that conform to the criteria of novelty, inventive step and utility</li> </ul>  | <ul style="list-style-type: none"> <li>a) Source of biological resources used in the development of patents is to be acknowledged</li> <li>b) All biological resources used in development of patents to be deposited in the designated repositories before sealing of patents.</li> </ul>   |
| <ul style="list-style-type: none"> <li>Geographical Indications of Goods (Registration and Protection) Act 1999</li> </ul>                                | <ul style="list-style-type: none"> <li>Applicable to goods such as agricultural goods, natural goods or manufactured goods as originating and manufactured in a territory of a country Where the given quality/ reputation is essentially attributable its geographic region (Land races of crop plants specific to certain agro-climatic regions of the country).</li> </ul> |  |

(contd.)

Table 2 Contd.

| Acts/Guidelines   | Objectives  | Scope  |
|---|---|--|
| <ul style="list-style-type: none"> <li>● Plant Quarantine (Regulation of Import into India) Order 2003 under the DIP Act 1914<br/>Effective from : April, 2004</li> </ul> | <ul style="list-style-type: none"> <li>● Rules for Regulating the Import of Plants etc. into India, including import of germplasm/genetically modified organisms (GMOs)/transgenic planting material; live insects/ fungi including bio-control agents, soil, peat, and sphagnum moss, timber and wooden logs.</li> </ul> | <ul style="list-style-type: none"> <li>a) The Order includes prohibition on import of commodities with weed/alien species contamination and restriction on import of packaging material of plant origin unless treated.</li> <li>b) Additional Declarations to be given on phytosanitary certificates have been specified and notified points of entry have been increased.</li> </ul> |
| <ul style="list-style-type: none"> <li>● Guidelines for Safety of Biotechnology by DBT under the EPA 1986<br/>Effective from: 1990 (last revised in 1998)</li> </ul>      | <ul style="list-style-type: none"> <li>● National framework for development of genetically modified plants and their commercial exploitation</li> </ul>   | <ul style="list-style-type: none"> <li>a) Gives guidelines for import and shipment of genetically modified plants only and for toxicity and allergenicity evaluation of transgenic seeds, plants and plant parts.</li> </ul>   |

### References

- Bragdon S (ed) (2004) International Law of relevance to plant genetic resources: A practical review for scientists and other professionals working with plant genetic resources, Issues in genetic resources No. 10, March 2004. IPGRI, Rome Italy.
- Brahmi P, Sanjeev Saxena and BS Dhillon (2004a) The Protection of Plant Varieties and Farmers' Rights Act of India. *Current Science* 86: 392-398.
- Brahmi P, RP Dua and BS Dhillon (2004b). The Biological Diversity Act of India and agro-biodiversity management. *Current Science* 86: 659-664.
- Gautam PL (2001) International Protocol on Biosafety. In: *Transgenic Crops and Biosafety Concern* (eds. GJ Randhawa, RK Khetarpal and BS Dhillon) NBPGR, New Delhi, 53-57.
- Khetarpal RK and Kavita Gupta (2002) Implications of Sanitary and Phytosanitary Agreement of WTO on Plant Protection in India. *Annual Review of Plant Pathology* Vol I, 1-26.

### ABSTRACTS

## Interception of Plant Viruses in Exotic Germplasm Imported During 2000-04

VC Chalam, RK Khetarpal, DB Parakh, AK Maurya, A Jain and Shamsheer Singh

Division of Plant Quarantine, National Bureau of Plant Genetic Resources, New Delhi-110012

Germplasm of different crops is imported into India every year for crop improvement programmes. As per the Plant Quarantine (Regulation of Import into India) Order, 2003 the imported germplasm material including transgenics are subject to quarantine processing at the National Bureau of Plant Genetic Resources, New Delhi. During 2000-2004, a total of 27,632 samples comprising cereals (23912) and legumes (3720) were imported from different countries. Cereals comprised of *Hordeum vulgare* (5536), *Triticum* spp. (17400) and *Triticale* (976), and legumes include *Asparagus* spp. (1), *Glycine* spp. (1700), *Phaseolus* spp. (1281), *Pisum sativum* (53), *Vigna radiata* (177), *V. unguiculata* (360), *Vicia faba* (136) and *Vicia* spp. (12). They were grown in post-entry quarantine nursery and greenhouses for screening against exotic viruses or strains thereof. The objective was to minimize

the risk of introduction of destructive viruses and their strains into the country and release virus-free harvest to the indenter. Seedlings were observed regularly after emergence till flowering. The accessions showing virus-like symptoms were further subjected to a combination of more than one of the techniques viz., infectivity test, electron microscopy, variants of enzyme-linked immunosorbent assay (ELISA) viz., Double Antibody Sandwich- ELISA and Direct Antigen Coating- ELISA and dot immunobinding assay. All plant residues in greenhouse and plant samples used for testing were incinerated as per quarantine procedure. Twelve viruses viz., *Alfalfa mosaic virus* (AMV), *Bean common mosaic virus* (BCMV), *Bean yellow mosaic virus* (BYMV), *Cherry leaf roll virus* (CLRV), *Cowpea aphid borne mosaic virus* (CABMV), *Cowpea mosaic virus* (CPMV),