

DISCUSSION PAPER

Access to Genetic Resources and Intellectual Property Rights: What Is Biopiracy?

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Biopiracy has been defined in a number of ways:

- Unauthorized use of biological resources;
- Unauthorized use of traditional knowledge;
- Unequal share of benefits to the provider; and
- Patenting without respect to patentable criteria of novelty, non-obviousness, utility.

Before determining a definition of biopiracy, it may be useful to set the scene by reviewing features related to the distribution and use of plant genetic resources for food and agriculture (PGRFA).

Important features of PGRFA are:

- No country has developed a successful agricultural system without recourse to non-indigenous plant genetic resources;
- All countries are highly inter-dependent for their supply of PGRFA;
- No single country is home to the full complement of crop species in their agriculture; and
- Developing countries will need ready access to PGRFA so they can develop their agricultures, just as industrially developed countries have had.

For example, Brazil is the country of origin and the ancestral home of cassava and peanut. Several other Central and South American countries, however, are also origin countries for cassava and peanut. Brazil, as an agricultural producing country, ranks in the following order among developing countries for the following crops:

- No 1 for soybean, maize, and citrus fruits;
- No 3 for cereals and apples;
- No 5 for cocoa beans; and
- No 6 for watermelons.

China, meanwhile, is the centre of origin for soybean, yet soybean varieties bred and used on farms in the United States are now being used in Chinese breeding programs to increase yields on farms in China.

Additional features of PGRFA that may be useful to consider are:

- PGRFA do not fit the pharmaceutical model.
- Global seed business = US\$15 billion, pharmaceuticals US\$235 billion (1990s data).
- Crop varieties have large genotype x location interactions and are often used only locally - a variety that is productive in one region of the USA may well be a failure in another region and fail to grow in other countries.
- Pharmaceuticals are far less dependent upon country location in regard to their efficacy.
- There may be many varietal substitutes or alternate choices, e.g. chemical pest control.
- There might be only 1-2 possible drugs.

What are the activities and who are the agents to bring forth more productive crop varieties?:

- Important activities - Actors
- Evolution of crop landraces - Farmers
- Conservation of PGRFA diversity on farms - Farmers
- Conservation of PGRFA diversity in genebanks - Publicly funded genebanks
- Breeding of more productive crop varieties - Public sector plant breeders / Private sector plant breeders

Who are the beneficiaries and who are the agents who create benefits?

The greatest value of PGRFA can only be realized in farmer's fields, in the agricultural production system. The major beneficiaries of a productive agriculture are consumers. The agents who allow these benefits to be created for consumers, constitute a chain linking PGRFA through the farm to the consumer. The agents can be categorized according to how they obtain financial resources:

- Private sector: Farmers and privately funded plant breeders
- Public sector: National and Internationally funded plant breeders and conservators, and Non-Governmental Organisations (may be privately or publicly funded, but provide public goods)

A proposed definition of Biopiracy:

Any activity that breaks the cycle of effort, investment, innovation, and creativity in developing improved crop varieties.

Eliminating biopiracy requires respect for contributions:

- CBD, national sovereignty
- FAO International Treaty; providing benefits into the multilateral system
- Traditional knowledge
- Respect for what is already publicly known
- Respect for developers of new varieties and innovations

Biopiracy leads to serious problems:

- Undermines investment in conserving diversity
- Undermines efforts into improving crop varieties
- Can lead to misrepresentation of varieties to farmers (same or similar varieties with different names)
- Reduces genetic diversity
- Reduces improved varieties for agriculture, thereby reducing farm productivity
- Unethical
- Unfair
- Undermines livelihoods, health, and the genetic resource base.

With the invention of agriculture some 8-10,000 years ago, humankind set a course that is dependent upon the cultivation and stewardship of domesticated animals and crop plants. Conscious human acts of genetic resource conservation, evaluation, crop improvement and good husbandry are ever more critical to maintain the plant genetic resource base upon which current and future generations must depend for food, health and environmental security. Biopiracy is a particularly important problem because PGRFA are biological, living resources and pirating can therefore not only lead to an undermining of efforts made by individuals or by organisations to conserve or to improve varieties, but also lead to the vulnerability and erosion or loss of the biological resources.

Respect and recognition should be provided to:

- **Farmers**, via the FAO Global Plan of Action, via the FAO International Treaty, via the CBD and as valued experts in crop husbandry and customers;
- **Nations**, via the CBD and support for the public sector (both national and International) from the private sector;
- **Public sector**;
- **NGOs**; and the
- **Industry-Private sector** to encourage investment in research and product development.

The private sector can encourage providers of germplasm or technologies via mutually agreed benefit sharing. The private sector should provide strong support for a public sector that can address needs not provided for by the private sector. The private sector should be open to honest criticism, and participate in constructive dialogue, debate, and learning.