

The Convention on Biological Diversity Changes Rules of the Game for International Plant Genetic Resources Regime

by Daniel Witmeyer

The Convention on Biological Diversity (CBD), when it entered into force on December 29, 1993, changed the rules of the game for the plant genetic resources (PGR) community. Although many of the details for implementing the Convention still need to be worked out, there is broad agreement that the CBD is already altering the international cooperative effort to conserve and utilize PGR. Simply, this is fundamentally an issue of political cooperation among nations.

From an international relations perspective, what developed to guide the international PGR conservation effort is referred to as an *international plant genetic resources regime*. An 'international regime' is defined as a cooperative arrangement that constrains the activities of countries and others with regard to an issue area, in this case, the conservation of and access to plant genetic resources. The PGR regime (Krasner, 1983:2) may be defined as consisting of the principles, rights and obligations (norms), specific rules, and decision-making procedures which guide the actions of participants (see sidebar 1). Together these prescribe and proscribe the actions to be taken. The result is a level of predictability that facilitates the organization of specific cooperative efforts between and among countries.

Because the Convention formally and legally establishes an international biodiversity regime which overlaps with, and to some extent conflicts with, the previously existing PGR regime, the CBD will now affect both regime rules and the participants' roles (see sidebar 2). As the current PGR regime lacks any formal legal basis equivalent to the CBD, the norms and principles of the CBD would be expected to take precedence over those of the PGR regime when they diverge or conflict and may ultimately overwhelm and subsume the PGR regime.

International PGR Regime

At this crucial juncture, when the CBD is about to be implemented, it may be instructive to look at the PGR regime and to understand its evolution. It has largely been shaped by three primary sets of negotiations: 1) a series of meetings from 1961 to 1973 that led to the establishment of the International Board for Plant Genetic Resources (IBPGR) in 1974 and the subsequent establishment of the International Plant Genetic Resources Institute (IPGRI); 2) negotiations in the UN Food and Agriculture Organization (FAO) from 1981 to the present that have produced the International Undertaking on PGR, the FAO Commission on Plant Genetic Resources, the three Annexes to the Undertaking, and the planned renegotiation of the Undertaking; and 3) continuing negotiations which have produced the Convention on Biological Diversity. (The sometimes contentious and controversial history of what Sir Otto Frankel coined "The Genetic Resources Movement" has been chronicled by DIVERSITY for more than a decade, as detailed on pp.47-48.)

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Primarily as a result of these negotiations, the set of principles and norms that initially defined the PGR regime has evolved: there has been increased recognition of political and economic issues associated with access to PGR, and developing countries have a greater voice in decision-making through the FAO Commission. These are small adjustments, however, compared with what the Convention promises—and is beginning to deliver. This was clearly the case as documented by the FAO Commission on Plant Genetic Resources when shortly after the treaty's passage, it "recognized that the Convention on Biological Diversity will play a central role in determining policy on PGR in the future" (FAO Council, 1993:7).

Diverse Perspectives

The PGR community has had to deal with a number of overlapping and related challenges, based on the differing perspectives of various interested parties. For example, the 'Seeds Issue' perspective on PGR, as defined by non-governmental organizations (NGOs) has a very different focus than the 'Rescue Operation' perspective of many scientists. Some view PGR as unavoidably linked to other larger issues, such as the North's domination of the South, while others believe it more useful to focus on more specific, solvable problems.

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Related to these perspectives are profound differences in perceptions and attitudes about science and politics. Many believe science operates best in a neutral and apolitical environment. They see the central issues as scientific or technical (except for the inescapable problem of funding) and consider the political arguments as hopelessly marred by technical ignorance, political ideology, and/or nationalistic self-interests. As a result, they see political considerations injected into the debate as destructive, sometimes deliberately so.

For others, PGR issues are inherently political, involving conflicting values and goals, and competition for limited resources. From this view, scientific and technological knowledge is not inevitably neutral but is a tool which may be employed politically for economic gain or power enhancement. From this perspective, Western science too often serves the status quo: the current distribution of wealth and power. This viewpoint argues that governments and scientists of developed nations have acted to preserve or advance a system that transfers resources from developing nations to developed nations. These two positions set the parameters of a continuum that includes a variety of intermediate attitudes.

Many from developing countries do not assume that increasing aggregate global benefits necessarily increase their national benefits. To defend their relative position(s) in the world, they oppose any international arrangements that seem to increase the relative power and influence of industrialized states.

Early interest in PGR conservation was limited to a small community of specialists who assumed that effective conservation only required the active participation of such a relatively limited group which included conservation specialists and those

advising governments on agricultural development issues. The PGR regime that developed was strongly influenced by Western political and economic beliefs as well as Western scientific practices. Implicit was the optimistic assumption that everyone will benefit from the free exchange of germplasm, a reflection of the neoliberal, free-trade approach that has dominated the post-WWII economic order.

Critics See Political and Economic Impact

Both NGOs and developing nations who perceived PGR as linked to larger issues with wide political and economic significance for the developing world have sought a greater influence in the PGR regime. For them, the dominant influence of the industrialized countries has always been a sore point and was one aspect of the regime that was attacked, and slightly undercut, in the negotiations associated with the FAO Undertaking and Commission. The CBD moves further in this direction.

Development NGOs traditionally work to improve the condition of those in the world community who are least well-off. Toward that end, they have sought more representation within the PGR regime for the interests of the Third World rural poor, especially subsistence farmers outside of the Green Revolution.

This opposition coalition has been neither monolithic nor unchanging, but its members have displayed some consensus and consistency. They opposed the PGR regime's operating principles, contending that these enrich the developed countries at the expense of the developing countries. Therefore, they advocate compensation from developed countries for genetic resources taken or used (Farmers' Rights), transfer of relevant technology, opposition to intellectual property rights (IPR) for plants, and opposition to the involvement of multinational corporations in genetic resources.

In effect, critics of the PGR regime have offered two alternative suggestions: 1) improve the benefits going to cooperating developing states by increasing the contributions from the industrialized states and/or by changing some of the rules that affect benefits, such as IPR; or 2) allow developing states to make individual efforts to capture more of the value of their native resources, as the CBD allows.

One can draw the conclusion that whatever the technical merits of a narrowly defined regime to conserve PGR, it is not feasible to ignore economic and political concerns of states that provide essential contributions. This applies to both donors of germplasm and donors of money and technology. The problem that confronts the PGR regime is how to provide each state with a package of benefits sufficient to induce that state's adequate cooperation.

If states feel their concerns are not adequately addressed, they will contribute less.

One issue that lacks consensus among PGR regime critics is unrestricted access to germplasm for bona fide users. Some have supported access, while arguing that benefits have inequitably gone to industrialized states. They propose increases in the reciprocal flow of resources from the industrialized states to the developing states in order to balance the free flow of germplasm. As the negotiations for the CBD illustrated, gene-rich developing states are less inclined to support free availability than are gene-poor states, whether developing or industrialized. Some

countries have imposed formal embargoes on the export of certain native PGR, while others have sought some quid pro quo for their germplasm. With the CBD, many more developing states are expected to limit access to germplasm.

The central issues in the debate involve some aspect of access to germplasm and related resources such as financing, technology, and information. They seek the answers to such questions as:

- What should be conserved, by whom, and how?
- Who decides this and other issues, and how are decisions made?
- Who should control access to crop germplasm, and how should it be controlled? For example, should crop-related germplasm be treated as a common heritage of humankind and made available without restriction to all bona fide users, or should germplasm be considered a national heritage, with access controlled by each country? What is the proper role of the private sector, and of IPR for PGR?
- How should germplasm conservation and related activities be financed; what should the level of funding be; and which activities should be funded?
- How, and when, should the providers of genetic resources be rewarded/compensated including questions regarding both IPR and Farmers' Rights?
- How can effective access to germplasm be provided to all who need it?

Biodiversity Convention Will Alter PGR Regime

The Convention on Biological Diversity pursues two goals that are currently outside the PGR regime:

The first goal—increasing funding available for biodiversity conservation by allowing biodiversity-rich countries to capture more of the economic value of their biodiversity by controlling access to their genetic resources—confronts a problem

inherent in the PGR regime.

The "common heritage" principle means non-exclusive access for all legitimate users, but it also means that original providers of germplasm receive nothing in direct return for their

Principles and Norms of the PGR Regime

1. Emphasis should be placed on collecting and conserving the primitive landraces.
 2. Germplasm should be preserved in long-term storage.
 3. Conserved germplasm should be evaluated and documented, and any information should be freely shared.
 4. Conservation should emphasize extensive and broad collections (as Vavilov had), not just immediate needs.
 5. Sovereign states have the right to control access to their national resources, but
 6. Plant genetic resources are the common heritage of mankind; therefore,
 7. Nations and conservators ought to make germplasm freely available to all bona fide users, and
 8. Plant genetic resources should be protected under some form of active, common property resource management.
 9. The wealthier states should contribute financial and other resources to the conservation effort, but
 10. Donors have the right to decide what funds and proprietary technology they will provide, and to whom.
 11. The PGR regime should seek to maximize efficiency and utility, as measured in aggregate terms.
 12. Conservation of plant genetic resources is primarily a scientific and technical issue; therefore,
 13. Participation in the decision-making process should generally be limited to those individuals with the appropriate specialized knowledge (scientists, economists, et al.).
- The first four of these come from the 1967 FAO/IBP Technical Conference. Others generally reflect the existing world economic order or are derived from scientific practice. The most important is the non-exclusive availability of germplasm to all bona fide users.

contributions. Economic theory, and some empirical evidence, suggests that this reduces willingness to absorb costs incurred conserving germplasm (particularly *in situ*), including political, financial, and opportunity costs. Eventually this will reduce access to germplasm, a problem the CBD promises to solve.

The second goal-increasing the transfer of financial and technological resources from North to South to increase equity in the international system-addresses the developing nations' criticism of the present world economic system.

Though it is unclear from the text of the CBD how the Convention will be implemented, actual implementation, not preliminary interpretations of the current document, is what will matter. With that caveat, the following are some principles and norms from the CBD which could alter the PGR regime (for comparison, see sidebar 2):

- Technologically advanced states have the obligation to transfer relevant technology to poorer states;
- Both unimproved and improved germplasm may be exclusively held, with access negotiated on the owner's terms;
- Each state has the responsibility to monitor and conserve its national biodiversity;
- The benefits from the utilization of genetic resources should be equitably shared;
- Each state has the right to share in any benefits derived from the use of its national genetic resources;
- Each state has a right to participate in any research that utilizes its national genetic resources, preferably conducted in its own state; and
- States that provide genetic resources have a right to priority access to the products of any research that uses that germplasm.

A More Limited, Market-Like System

The most important change, from the perspective of crop genetic resources, is the movement away from common heritage and non-exclusive access toward more limited access to germplasm under a market-like system. While the Convention does not require that nations pursue a market-like approach to providing access to their genetic resources, it is supportive of that approach. The magnitude of this change will depend on the specific decisions taken by individual countries.

What the CBD seeks to introduce is the international institutionalization that would enable this form of property right to be enforceable beyond national borders. While this may prove to be both a fair and an efficient approach to increasing *in situ* biodiversity conservation, and to allocating access to some types of naturally occurring biological materials, it does fail to take into account some important characteristics of PGR conservation and utilization.

CBD and PGR Utilization

Certain characteristics of plant germplasm, and of its conservation and use for crop improvement, preclude efficient levels of PGR conservation and utilization unless conservation and access are managed collectively. These characteristics include global patterns of occurrence and use of PGR; the renewable nature of genetic resources; the non-rival quality of PGR conservation and use; and the non-rival nature of the immediate products of germplasm utilization such as new varieties of crop

plants. (Non-rival refers to instances when one person's access to a good does not affect another's access to the same good.)

A genetic improvement can be utilized in a number of new varieties and adapted to an international variety of growing conditions. Limiting its availability limits its usefulness, wastes potential value, and reduces the value of conservation.



One of the strong arguments for broad conservation of PGR is its non-rival utilization in crop improvement. Economic theory and experience predict that when non-rival goods are distributed by a market mechanism, they will be under-utilized.

The CBD fails to distinguish between the use of PGR for non-exclusive crop improvements and the use by the pharmaceutical industry and others both of PGR and of biological compounds derived from plant sources to produce exclusive products. Sellers of improved seeds have, even with plant variety protection (PVP), little of the monopolistic advantage that pharmaceuticals and other industrial users of genetic resources often enjoy. Most of the value of crop improvements is passed through to farmers rather than captured by breeders or seed suppliers. Seed companies are therefore not in as good a position as pharmaceutical firms to help the providers of native germplasm capture the potential value of their genetic resources. It will be much more difficult to prevent the unauthorized transfer or use of crop genetic resources since every seed purchaser will own copies of the germplasm, unlike the situation with most industrial products where ownership is exclusive.

PGR and Biodiversity Regimes Need Compromise To Solve Problems

What may be needed is an effective compromise between the current approaches of the PGR and biodiversity regimes, one that recognizes both the need for and fairness of selective compensation to those who provide genetic resources for use in developing rival or exclusive goods (such as pharmaceuticals and industrial products) and the need for non-exclusive access to germplasm used for developing products which are non-rival and non-exclusive (such as food crop varieties). Varieties cov-

ered by PVP are still non-exclusively available For further breeding, but hybrids and biotechnology products, where protected by patents or trade secrets, are exclusive like industrial products and would be treated as such.

Parties to the Convention may enter into a multilateral agreement that guarantees continued unrestricted access to crop genetic resources if,

according to Article 15, users of genetic resources share "in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources."

A PGR Convention or Protocol

As referred to earlier, another problem that the CBD poses for the PGR regime is that the CBD is a legally binding contractual agreement; its rules have legal precedence over those of the PGR regime when they diverge. Therefore, the international PGR regime ought to be formalized through an appropriate international convention. A similar suggestion was raised in the FAO Commission

Protocol must also ensure sufficient funding, and it must address the sometimes conflicting major concerns of all participants. This demands a regime that is sufficiently centralized to

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effectively monitor and coordinate the activities of an increasingly complex issue area. It also means a regime sufficiently decentralized to promote the individual initiatives crucial to effective conservation and utilization and to be sufficiently flexible to adjust to changing needs and realities.

Clearly, the CBD is potentially a great human achievement. Its primary goals are unarguably commendable, and some of its changes to the PGR regime are reasonably seen as improvements. Its potentially negative impact on PGR may be an unintended product of how the Convention was negotiated. Because the CBD is still undergoing development, it is premature to assume any worst-case scenario; the devil is in the details and those details could yet work to the benefit of PGR users. The future success of the PGR regime depends on negotiations for the International Undertaking on PGR and the Convention on Biological Diversity and the decisions of each national government.

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(Photo courtesy of IPGRI)

Roles of PGR Regime Participants

The PGR regime can be described in terms of the principal roles of the participants in the international effort:

- **Germplasm conservators** actively manage the conservation of germplasm in genebanks (*ex situ*), on farms (*in hortis*), or in nature reserves (*in situ*).
- **Germplasm donors** provide native germplasm, newly created genetic resources, or acquired germplasm for conservation and distribution to users.
- **Distributors of germplasm** to crop breeders and researchers include many conservators (*ex situ*) of germplasm, as well as some researchers and crop breeders.
- **Donors of financial and technological resources** provide direct bilateral aid transfers, funding for the IARCs, multilateral aid, and non-governmental assistance.
- **Crop improvers** include scientific crop breeders and biotechnologists, as well as traditional farmers.
- **Providers of knowledge** about crop genetic resources also include scientists and farmers.
- **Information processors** acquire, evaluate, and disseminate information about PGR and the activities of the regime. The organizations that have acted as international coordinators and facilitators for the PGR regime have included IBPGR/IPGRI, FAO and the FAO Commission on PGR, and the Keystone Center.
- **Decision-makers** include both those who make decisions about activities that fall within the scope of the PGR regime, such as collecting or research, and those who make decisions about the rules of the regime itself, including decisions made outside the context of the regime, such as the GATT negotiations or those for the CBD.

on PGR, at the time it proposed to renegotiate its International Undertaking on PGR, in order to harmonize it with the provisions of the CBD. The Commission discussed the possibility of the revised Undertaking being made a protocol to the Convention on Biological Diversity, subject to the approval of the COP (FAO Council, 1993:7).

The revised Undertaking/Protocol of the PGR regime needs to go somewhat beyond what is currently envisioned, so as to provide a strong and effective international legal basis of support for all of the major components of the PGR effort. This includes providing for continued collective conservation and non-exclusive access to PGR within the CBD framework. The