

Plant Genetic Resources, Farmers' Rights, and the Globalization of Intellectual Property Rights: Reinforcing Asymmetries in Autonomies

Author(s): William D. Coleman, McMaster University
Austina J. Reed, McMaster University

Capitalism and information and communication technologies are two important contributors to globalizing processes. With the fall of the Iron Curtain, capitalism has become the dominant economic system in the world, penetrating all countries and creating markets for more and more goods and services. Some of this increased prevalence of capitalism is linked to information and communication technologies. These technologies make information instantly available in networks that span the world, and thus they support the expansion of capitalism. At the same time, as information becomes more valuable, entrepreneurs want to control it, create rights to use it, and then to make profits from it. Much of this information takes the form of intellectual property. Intellectual property consists of legal rights given to human-made creations or products representing ideas or information, like software, films, music, literature, and trademarks for brands of goods and services. This move to control both information and the creation of new ideas and processes has extended to the breeding of plants and animals — that is, the manipulation of their genetic resources. In light of these developments, we posed several questions for research.

1. To what extent is ownership in the form of intellectual property rights coming to regulate the availability, control, and distribution of plant genetic resources? Are these forms of regulation becoming globalized? Has the introduction of biotechnology into this field accelerated the push in favour of intellectual property rights or not?
2. Has the role of nation-state governments shifted when it comes to promoting the conservation and sustainable use of these resources as intellectual property rights have been established?
3. We had several questions about collective autonomy and personal or individual autonomy. Collective autonomy refers to the capacity of communities to define for themselves their own laws. Personal autonomy is the capacity of individuals to shape the conditions under which they live. In light of these possible changes in intellectual property rights, what is the impact on the collective autonomy of governments of wealthier countries and of governments of less wealthy countries? What is the impact on the autonomy of transnational life sciences corporations? What are the implications for the autonomy of public research laboratories long operated by governments to improve plant genetic resources? Finally, what is the impact of these changes on the personal autonomy of farmers, who for millennia have been the innovators and conservators of plant genetic resources?

Ultimately, these questions are important because the matters involved relate to how human beings nourish themselves, an activity crucial to their well-being and quality of life. For most of human

history, the germplasm — that is, the part of the seed that bears the factors determining the transmission of characteristics from parent to offspring and is itself transmitted unchanged from generation to generation — has not been owned. Rather, seeds have been part of the commons, the resources in the world available to everyone. With the spread of capitalist relations of production, more and more components of the commons — seeds, water, wilderness — are privatized, turned into commodities that can be bought and sold, and thus become sources of profit. When something that was once generally available to all becomes a commodity in this way, the change can affect the quality of life of millions of people. Those who can purchase the commodity do well; those who lack the means to buy the commodity may suffer terribly.

Finally, these questions are important because they pertain to the conservation of biological diversity in the plants we eat for food. To understand this point, we need to know a little more about how farming practices worked for the several millennia since agriculture first began. Until the middle half of the nineteenth century, plants were developed and improved by farmers themselves. They would plant seeds, cultivate and harvest the plants, and collect seeds to be planted the following year. The collection of seeds was a careful process. Farmers observed that some plants were taller, or more productive, or more resistant to cold or heat, or needed less water, or had other favourable traits. Those traits most valued by the farmers, given the particularities of their locality, guided the selection of seeds. Farmers would sometimes share or trade these seeds with one another. Fields were thus composed of locally developed varieties of cereals or other plants. There ended up being tremendous diversity in the plants across the world. For example, cotton grown in India would differ from that found in West Africa which would differ once again from that grown in the southern part of the United States.

In short, the genetic resources in those plants are the product of constant innovation, sharing, and trading among farmers over millennia. Their seeds concentrate the wisdom and hard work of millions of people over time and they are a source of tremendous biological diversity. Once farmers begin to stop doing their work this way and they buy seeds each year from companies and maybe even lose the right to replant seeds from the plants they grow because they do not "own" the intellectual property in those seeds, they also stop building biological diversity. Diversity is no longer conserved and the plant genetic resources available to humankind shrink.

In our research we learned several things about these questions. First, beginning in the late nineteenth century and accelerating through the twentieth century, private companies found ways to commodify seeds, particularly by breeding plants that did not produce seeds suitable for replanting. As they made seeds something that could be bought and sold, they sought protection of their innovations through intellectual property rights. They demanded these rights in two forms: either they pursued a patent or they advocated for "breeders' rights" for "new" plant varieties. These forms of intellectual property became established in the wealthy or developed countries, even to the point where plant varieties protected in one country would be protected in other ones close by as well.

Second, the arrival of biotechnology accelerated the turning of plant genetic resources into commodities to be bought and sold. This technology is globalizing in two ways. First, genetic engineering techniques permitted scientists to transfer genetic information from one species to a completely different species. For example, a gene from a fish that permitted it to stand cold water could be transferred into a plant to build up resistance to the cold. Under traditional techniques, farmers usually formed new plant varieties by cross-breeding plants from the same species. With these new biotechnology processes, genetic information from any part of the planet could be used to "improve" a given plant species. Second, because genes are essentially tiny bits of information, they

could be coded, put into a digital database, and then easily transferred around the world by the Internet — for a price. So the building codes of plants became commodities.

Third, in possession of these new technologies and dreaming of the vast new varieties of plants they could invent, transnational life sciences corporations pushed strongly for the globalization of intellectual property rights. Their pressure was sufficiently intense and their arguments persuasive enough that they succeeded, perhaps beyond their dreams. Intellectual property rights related to the patenting of plants and the protection of plant varieties were legalized in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) that is part of the World Trade Organization. All 149 countries (as of 2006) belonging to the WTO were required to insert the protection of intellectual property rights into their own domestic laws. For most of the less wealthy countries in the world, they had never thought of taking this step and feared that such a step would change the way farming was done in profound ways. As members of the WTO, however, they had no choice; they had to institute intellectual property rights more generally, and for "inventors" of plant genetic resources in particular.

Fourth, we found that many less wealthy countries and some farmers' groups in wealthy countries resisted these developments. In particular, they sought to enshrine "farmers' rights" in various treaties like the Convention on Biological Diversity and the International Treaty on Plant Genetic Resources for Food and Agriculture. Farmers' rights are *rights arising from the past, present and future contributions of farmers in conserving, improving, and making available plant genetic resources, particularly those in the centres of origin/diversity*. Clearly, such a notion was incompatible with the privatization inherent in intellectual property rights found in the TRIPS Agreement. Some less wealthy countries like India have sought to use this idea of farmers' rights to preserve traditional farming practices and to gain recognition of the benefits that should be provided to farmers for their centuries long innovations. At this point, it is unclear whether these efforts will be successful.

The globalization of intellectual property rights and of the buying and selling of seeds and plants has brought important changes in autonomies. The autonomy of the transnational life sciences corporations who dominate these markets and of the wealthy countries in which they are based has increased significantly. Governments of less wealthy countries, where the vast majority of the world's plant genetic resources are found, have lost options once available to them. It is increasingly difficult to treat plant genetic resources as part of a "commons" and thus as a resource to be shared by all. Those like India that have had enough wealth to set up public research laboratories to work with farmers to improve plants now feel pressure to have these laboratories work with private firms. Such co-operation is commonplace in the wealthy countries, although many of these have largely dismantled public research. Finally, farmers have lost some of the rights they had to shape their own production and thus determine their livelihood. In this respect, their personal autonomy, their capacity to influence the conditions under which they live, is diminished.