Chapter Four

Power/Knowledge, Plant Genetic Resources and the FAO

This chapter examines the influence of power, power/knowledge networks and discourses of security, sustainable development and human rights within the United Nations’ Food and Agriculture Organisation (FAO), and particularly its Commission on Genetic Resources for Food and Agriculture (CPGR/CGRFA).\(^1\) The FAO has existed since 1945 with a mandate of contributing to the expansion of the world economy and promoting freedom from hunger by promoting more efficient food production and distribution, raising levels of nutrition and standards of living, and improving the conditions of rural populations. The FAO agreed to form the CPGR in 1983, and the Commission held its first session in 1985. Its focus is global policy development concerning plant genetic resource conservation and development, and it oversees the implementation of the 1983 International Undertaking on Plant Genetic Resources (IU). The aim of the IU is to ensure that plant genetic resources of economic and/or social interest, particularly for agriculture, will be explored, preserved, evaluated and made available for plant breeding and scientific purposes.

Security discourse is examined in the first section. The security concerns partially motivating the Green Revolution are noted, as is the irony that since the 1960s the Green Revolution has come to be seen as the cause of other food security concerns arising from genetic erosion. This section explains how, in the 1960s, the conservation of plant genetic resources became a global institutional responsibility as a result of the exercise of concentrated power, power/knowledge and various security discourses. Conferences and scientific networks were the main vehicle by which discourses of food, environmental and economic security were mobilised toward international institutional change within the FAO, led by only a few scientists. Power within global governance in relation to plant genetic resources was not diffuse between the 1950s and 1970s.

The second section provides an example of micro-conflict within a section of a global governance institution, demonstrating the merit of Foucault’s concern that power conflicts can arise anywhere. This section notes the tensions between those preferring \textit{in situ} over \textit{ex situ} conservation methods. It notes that within the FAO until the 1990s, proponents of long-term, low temperature \textit{ex situ} conservation methods for plant genetic resources in gene banks and other storage facilities, were far more influential than proponents of \textit{in situ} and geneecological approaches. The latter do not store plant

\(^1\) Formerly the Commission on Plant Genetic Resources (CPGR). It was renamed the Commission on Genetic Resources for Food and Agriculture (CGRFA) by FAO Resolution 3/95. This broadened mandate brings within the Commission’s aegis domesticated animals and marine and aquatic resources.
material in artificial environments but either maintain them in their natural ecosystem or transplant them to experimental gardens for evaluation. Genecology also focuses on ecological contributions to genetic variability and characteristics. In situ approaches have only gained increasing legitimacy within the FAO in the 1990s, partly because of the constitutive effect of human rights discourses in restoring recognition of stakeholder rights to natural and cultural resources, and because of IPOs, NGOs and professional networks activities promoting participatory and collaborative management. These were likely to have influenced the FAO to begin to address in situ as well as ex situ conservation activities, although it is difficult to establish direct causative links.

The third, main section of this chapter examines sustainable development discourse and the ongoing so-called 'seed wars' in the CPGR/CGRFA. It provides a brief genealogy of the Commission and IU and notes other features of the FAO’s Global System for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. It examines discursive influences, and particular states’ receptivity to and resistance to knowledge-based power mobilised by academics, NGOs and states in the late 1970s and early 1980s. Effective international professional networking by agronomists, rural sociologists and NGOs led to the formation of the CPGR and the IU, and continues to influence the work of the CGRFA. A significant change is identified in the location of power in the global governance of plant genetic resources. Private sector plant breeders, represented by their organisation ASSINSEL, is having unprecedented influence in the re-negotiation of the IU. The reasons for this are explored.

This section also demonstrates the persuasiveness of Shapiro, Bonham and Heradstveit’s theoretical approach to inter-state negotiations by explaining how the Commission and the IU were formed in response to critical political economy analyses of plant genetic resource issues. This section also explores the negotiations over ‘Farmers’ Rights’ (FRs). FRs recognise the contributions that farmers have made to plant genetic resource conservation, and promote benefit-sharing through compensation and incentive mechanisms. This section also argues that comprehensive, co-operative and common security discourses are identifiable in the evolving draft IU.

The fourth section argues that the gender dimension of human rights discourses has had limited constitutive effects during the renegotiation of the IU, which is paradoxical since the FAO as an international institution, is a leading inter-governmental institution on gender issues. The relevance of gender to the debate about Farmers’ Rights is outlined. It is argued that gender-differentiated knowledge relevant to the conservation and sustainable use of plant genetic resources, and the need to render Farmers’ Rights gender sensitive, have not been addressed explicitly in the renegotiation of the IU.

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Security discourse

The Green Revolution and the Cold War

Discourses of security and development were at the heart of the ‘Green Revolution’, which saw the development and adoption of high-yielding and sometimes higher-protein varieties of staple varieties (HYVs) of wheat, corn and rice in many ‘developing’ countries in the 1960s and early 1970s. Some HYVs were bred specifically to withstand mechanised production, with the aim of maximising yields and commercial returns. The FAO’s World Plan for Agricultural Development, launched in 1963, also facilitated this agricultural development. Hybrid corn was an early Green Revolution crop. It was enhanced by corporate plant breeders and diffused globally to increase food production and commercial returns. By the 1930s in the United States, traditional open-pollinated corn varieties had been replaced with hybrids. By the 1940s in Mexico, hybrid corn was being planted extensively. Wheat varieties were the next to be significantly enhanced by selective breeding and were adopted quickly in Mexico, India and Pakistan. Rice was similarly developed, but in the International Rice Research Institute established in the 1960s in the Philippines.3

In addition to the benevolent or humanitarian intent behind agricultural development policies in the 1960s, donors in the United States had particular interests in ‘security’, ‘development’, and expanding agricultural sales and production particularly in developing countries. Harry Truman’s Presidency in 1948 vowed to support ‘free peoples’ threatened by internal insurrection or pressure from communist states. When the communist movement defeated the Kuomintang in China in 1949, fears arose in ‘the West’ that communism would spread to India, across East and Southeast Asia, and in Latin America. The United States’ government saw rural food shortages and rising pressures for land reform as a potential cause of political instability in Asia and fertile ground for the spread of communism, and supported capitalist agricultural development as a countermeasure.4 Security discourse that was partly Malthusian thus influenced the United States’ agricultural foreign policy during the Cold War (c.1947-1989). United States’ policy-makers reasoned that if hunger and poverty could be reduced in the developing world, and if possible threats to national and international security from peasant insurrection movements and particularly from communism could be contained strategically and militarily, this would enhance security generally.5 The Marshall Plan of post-war aid complemented the Truman Doctrine for European states potentially threatened by internal subversion.6

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Many HYVs were developed within the Consultative Group on Agricultural Research (CGIAR). The FAO, the UNDP and the World Bank formed the CGIAR in 1971, with financial support from two well-endowed and pro-capitalist American foundations, the Rockefeller and Ford Foundations. Two highly successful American industrialists, John D. Rockefeller and Henry Ford had established these foundations. Amongst other philanthropic activities, they promoted capitalist development and intensive agriculture in the developing world. This also increased sales for the agro-chemical companies associated with the Foundations.

The modernist discourse of development and the maximisation of gross national product promoted within capitalist states were not completely antithetical to governance policies within socialist or developing states, however. A modernist development discourse has been widely influential around the world since the industrial revolution. It privileges industrial innovation over informal innovation. But in liberal states the development and marketing of commercially-bred plant varieties and manufactured inputs (such as agri-chemicals) is rewarded with national level industrial and intellectual property protections. Liberal-democratic governments tended to use Eurocentric indicators such as ‘urbanisation, industrialisation, political democracy, secularisation, social mobility, occupational differentiation, proliferation of voluntary associations, free enterprise, nuclear-family patterns and independent judiciaries’ to gauge levels of social development. Five-year plans tended to be the standards applied within socialist states. In this ‘development’ model, natural resources are subject to large-scale extraction, so as to maximise gross national product. Agricultural production systems are encouraged to maximise yields. This development approach to ‘national security’ and the human security of states’ citizens preceded the emergence of ‘sustainable development’ discourse, as outlined in the previous chapter.

The Green Revolution has generated much criticism in recent years. Increased food production did relieve malnutrition, hunger and starvation in many countries, but population pressures remained. It was also not possible to remedy the political causes of famines, such as inequitable land distribution, rural poverty amongst the landless, political corruption, and the export of food crops in times of domestic undersupply, simply by increasing food production. It also remains contentious as to whether HYVs

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7 Kloppenburg, *First the Seed*, p.160.
contribute more to food security over time than locally selected and improved varieties that have cheaper production costs. In the 1970s and 1980s the Green Revolution was criticised for exacerbating land and income inequalities between rich and poor farmers in developing countries, and more recently, for unduly serving the interests of scientists, politicians and private sector funds in donor countries.

Other drawbacks of the agricultural intensification promoted by the Green Revolution were that it caused genetic erosion, and this underlies much of the contemporary concern with plant genetic resource conservation. HYVs commonly led to the displacement of older landraces and traditional cultivars. Since HYVs are genetically more uniform than heterogeneous locally adapted varieties they are particularly vulnerable to pests and diseases. Genes need to be selected from more resistant varieties and incorporated back into vulnerable plant varieties to prevent future crop loss. The gene pools from which new varieties can be developed have become rarer, however, because HYVs have tended to displace local varieties. The value of agricultural crop landraces to commercial breeders and the need for their collection and conservation had been recognised by agricultural scientists such as Von Proskowetz and Schindler in Europe in the late nineteenth century. Vavilov’s work on centres of genetic diversity in the 1920s also stimulated research around the world. Jack Harlan and others warned of the threat of genetic erosion in 1936 but this did not stimulate global policy initiatives to combat the threat. The FAO had been involved in research on economic plants and threatened species since at least the 1950s, but it was not until the mid-1960s that FAO scientists responded seriously to the problem of genetic erosion, as discussed in the next sub-section.

The environmental costs of the Green Revolution and intensive agricultural practices also came to be better appreciated in the 1970s. These were first popularised in the 1960s by Rachel Carson’s damning critique of the chemical contamination and soil degradation caused by the excessive use of pesticides. Other costs have since been identified. These include adverse impacts on aquatic biodiversity and the taxing of
waterways by irrigation systems and their contamination by agricultural run-off. Alkalinity and salinity have also become more common in areas of intensive agriculture. Soil fertility and soil structures are also degraded, resulting in soil erosion and desertification in many regions. Other agro-biodiversity has also been seriously affected by intensive agriculture such as forest species, insects, bacteria and fungi.\(^\text{18}\) These issues raise concerns for comprehensive security, but also for sustainable development. Although agro-biodiversity is discussed again in Chapter Five, this thesis is more concerned with the debate about the food security implications of plant genetic erosion than it is with the ecosystem services performed by plant diversity, preventing erosion and maintaining genetic diversity largely drives the FAO governance programs being examined.

**Genetic erosion and agricultural security**

The FAO began to address the problem of genetic erosion in the 1960s. Policy changes were not made in response to the influence of NGOs, or broadly based epistemic networks or social movements, however. Governance by the United Nations in the 1960s, concerning plant genetic resources, was largely exercised by public sector institutional employees, and governments, with likely input from the largest agribusiness corporations in the United States. In the 1960s and 1970s it was only a small group of widely-published natural scientists (particularly biologists and agronomists) from industrialised countries, including Otto Frankel, Jack Harlan, John Creech and Jack Hawkes, who gave direction to plant genetic resource conservation policy, particularly in relation to *ex situ* conservation. These scientists warned of the risks created by genetic erosion for commercial agriculture.\(^\text{19}\)

International conferences convened by public sector institutions in the 1960s and 1970s were far more influential than NGO activity in encouraging the development of international plant genetic resource conservation policies. In 1959 the 10th FAO Conference had agreed that the genetic base of crops was too narrow and that landraces and other indigenous materials should be safeguarded in protected areas. But change was slow. An FAO International Meeting on Plant Exploration and Introduction in 1961 generated the momentum for a 1967 conference, which has been described as ‘the constituent assembly of the genetic resources movement’.\(^\text{20}\) This 1967 conference\(^\text{21}\)

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\(^\text{20}\) Frankel, ‘Genetic resources: evolutionary and social responsibilities’, at pp.21-22.

\(^\text{21}\) The Technical Conference on the Exploration, Utilization and Conservation of Plant Genetic Resources.
was convened jointly by the FAO and the International Biological Program (IBP).22 This was particularly important for setting the priorities and parameters for ex situ plant genetic resource conservation in the 1970s and 1980s, and for ensuring that in situ conservation efforts would be pursued less seriously than ex situ conservation, except in relation to forest genetic resources.23 The conference proceedings became the first comprehensive publication on plant genetic resources and their conservation.24 UNESCO’s 1968 ‘biosphere conference’ was important for the support it gave to various international conservation initiatives, including the United Nations Conference on the Human Environment held in Stockholm in June 1972.25 Numerous other scientific conferences on the extinction problem during the 1970s and 1980s generated public concern and promoted policy initiatives domestically and internationally.26

But in the 1970s within global institutions and processes there was a high degree of specificity in who exercised power/knowledge concerning plant genetic resource conservation. Otto Frankel has written that he drafted the substance of the resolutions on plant genetic resources that were adopted at the 1972 Stockholm conference. He wrote later that few involved in the conference knew beforehand about the problem he was addressing, and that change was instituted without the support of environmentalists, the church or politicians.27 The Stockholm Action Plan called for an

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22 The IBP was an international research program which sought to understand the dynamics of ecosystems, partly through modelling. Between 1974 and 1984 it developed a co-operative network of agricultural research centres in about 100 countries. The IBP was one of the activities of the International Council of Scientific Unions (ICSU), an international scientific NGO first founded in 1919 as the International Research Council. In 1964 the IBP formed a small working group to promote plant genetic resource conservation in centres of genetic diversity.


27 Frankel, ‘Genetic resources: evolutionary and social responsibilities’, at pp.22-23; Pistorius, Scientists, Plants and Politics, p.54. The report of the conference notes that ‘numerous’ international NGOs that were invited to the conference, attended: Report of the United Nations Conference on the
international program to preserve the world’s genetic resources, giving particular attention to surveys, inventories of collections, exploration and collection, evaluation and utilisation, and conservation. It did recognise the need for in situ conservation and the action plan suggested that the IUCN might have responsibility for wild species, in co-operation with the FAO, the Man and the Biosphere Programme (UNESCO) and governments. In practice, however, in situ conservation received far less institutional support from the FAO than did ex situ conservation.

Although few individuals were involved in plant genetic resource policy within global institutions, broad discourses of economic and food security were also strongly constitutive in the development of institutional responses to the plant genetic erosion problem. The security of major traded and consumed agricultural crops in particular, was one of the main concerns underpinning genetic resource conservation efforts in the 1970s. The need for urgent action was also stimulated by a devastating corn blight in the U.S. in 1970, which had destroyed about one-fifth of the crop and generated losses estimated at between US$1 and $2 billion. A similarly devastating collapse of wheat crops in the former Soviet Union also occurred in the early 1970s. Scientists from the major agricultural exporting countries issued warnings and called for action. In the mid-1970s Frankel, Hawkes and Harlan warned again that traditional or primitive varieties of crops were acutely threatened following their widespread displacement by uniform, high-yielding varieties of crops. The United States National Academy of Sciences was then also producing reports on the genetic vulnerability of major agricultural crops and the need for better germplasm conservation. It saw this as an imperative. The United States’ 1980 Global 2000 Report to the President which assessed the long-term implications of then-present trends across a range of sectors reinforced the urgency of conservation. It predicted increasing genetic vulnerability for food and agricultural plants caused by dependence on inbred strains and the continuing spread of monoculture agriculture. It cited historical examples of major crop failures leading to famine and large-scale migration, and warned that the increasing genetic uniformity of

Human Environment, Stockholm; 5-16 June 1972, UN Doc. A/Conf.48/14/Rev.1.


major crops throughout the world increased the risk of widespread crop failures and reduced ability to selectively breed varieties which were resistant to identified pathogens. It also addressed the loss of biotic diversity through deforestation.\textsuperscript{34}

Perhaps this small group of influential scientists would have had less power within the FAO and their national agricultural policy institutions had environmental NGOs been more active on genetic resource conservation. Most environmentalist activities were at the species or landscape level until the 1990s. For example in 1949 a conference convened by the International Union for the Protection of Nature (IUPN)\textsuperscript{35} called on governments to establish protected areas containing rare or vanishing plant species. It also proposed that the Union maintain species' lists. This issue was raised again at international assemblies in the early 1950s.\textsuperscript{36} In 1962 a small botanical sub-committee of the IUCN’ s Survival Service Commission (SSC) was formed to assess the issue of threatened plant species. \textit{Red Data Book} lists of plant species began to be compiled from 1968, and in 1974 a SSC Threatened Plant Committee was convened.\textsuperscript{37} But Martin Holdgate, a former director-general of the IUCN, suggests that the organisation largely ignored plant conservation until a WWF/IUCN plants program was established in the 1980s, led by Professor Vernon Heywood of Reading University in the United Kingdom.\textsuperscript{38} Academics also did not popularise concerns about the escalating rate of species’ extinctions, including plants, until the late 1970s and early 1980s. For example it was not until British ecologist Norman Myers wrote \textit{The Sinking Ark} (1979),\textsuperscript{39} and Paul and Anne Ehrlich wrote \textit{Extinction} (1981)\textsuperscript{40} that the problem of disappearing species became more widely known.

Participation in the global governance of plant genetic resources in recent years has significantly broadened. IUCN’ s extensive recent work on both \textit{ex situ} and \textit{in situ} plant conservation activities is noted in the next section. Many NGOs have been active on plant genetic resource conservation in the 1990s, as are many more governments. This broadening participation was exemplified in the processes of the Fourth International Technical Conference on Plant Genetic Resources, which was held in


\textsuperscript{35} The IUPN was the predecessor to the International Union for the Conservation of Nature (IUCN).


\textsuperscript{37} The SSC was formally designated as an IUCN Commission in 1956: Boardman, \textit{International Organisation and the Conservation of Nature}, p.52.


Leipzig, Germany, in June 1996. That conference produced the *Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture*. The Action Plan was developed with the active participation of most countries. One hundred and fifty-one country reports on the state of domestic genetic resources were submitted to the FAO. Eleven sub-regional meetings were held at which 143 governments and various international and non-government organisations were represented. The conference secretariat also visited more than 100 countries in the lead-up to the conference.\(^4\) In February 1995 more than 30 NGOs had attended a seminar sponsored by the Dag Hammarskjold Foundation in Uppsala Sweden in preparation for the Leipzig conference. One hundred and twenty NGOs from more than 50 countries attended the conference and issued a joint statement calling for a new paradigm for agriculture and food security based on cultural and agricultural diversity, and the removal of intellectual property rights over genetic resources. NGOs also called for recognition of Farmers’ Rights and the rights of women farmers and indigenous peoples. They condemned the growing concentration of corporate power over food and food policy as a result of economic globalisation and advocated instead the promotion of decentralised and community-based agricultural policy development and food self-sufficiency.\(^4\) That such diverse perspectives are produced and partially recognised in global governance instruments also demonstrates that power in the global governance of plant genetic resources has become more diffuse since the 1960s.

**Concentrated power and ex situ conservation within the FAO and other institutions**

Largely as a result of leading scientists’ concerns about plant genetic resource erosion and the loss of traditional landraces and cultivars in the 1960s and 1970s, as well as the crop blights in the 1970s, a range of institutions were established to promote the predominantly ex situ conservation of plant genetic resources. These included the International Board for Plant Genetic Resources (IBPGR), the CGIAR and the International Board for Plant Genetic Resources (IBPGR). These institutions prioritised the ex situ conservation of plant genetic resources and gave little support to in situ conservation until the 1990s. Several earlier in situ conservation collaborative projects undertaken by the FAO, UNESCO, UNEP and large NGOs such as the IUCN and WWF, were short-lived.\(^4\) In situ conservation was advocated by a small group of scientists working within and with the FAO in the 1960s and 1970s, such as the female agronomist, Erna Bennett, and other scientists including R.W. Allard, H. Kuckuck, and

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\(^4\) Pistorius, *Scientists, Plants and Politics* p.113.
Jack Harlan. But the in situ approach was not given a lot of institutional support.\textsuperscript{44} Pistorius claims that Erna Bennett was specifically excluded from the 1972 Beltsville conference that led to the formation of the CGIAR.\textsuperscript{45} In situ proponents were associated with geneology conservation theory and practices. They analysed landraces and wild relatives of cultivated plants and were particularly interested in plants’ natural adaptation, and adaptation through the selective breeding of locally farmed varieties by local farmers. Bennett tried to promote alternative conservation strategies within the FAO but with little success. She later became a critic of Plant Breeders’ Rights within the FAO, and was marginalised as a result. Pistorius suggests that she was considered too idealistic, and her career ended bitterly with her resignation from the FAO in 1983.\textsuperscript{46} In 1994 Stephen Brush, a leading proponent of in situ conservation, described FAO’s approach to the issues as one of ‘benign neglect’.\textsuperscript{47}

The IBPGR was created in 1974 and was to work independently of the FAO, but it had an FAO-supplied secretariat. The IBPGR was to co-ordinate plant genetic resources activities by governments and scientists, and to promote the collection, conservation, documentation, evaluation and use of plant germplasm. The IBPGR began forming a gene bank network of base collections in developed countries in 1976,\textsuperscript{48} and later supported the creation, operations, and growth of gene banks at national, regional and international levels. It also undertook training and research. IBPGR subsequently became the IPGRI in 1990, funded by the CGIAR.\textsuperscript{49} IPGRI’s mandate is to promote the global conservation and use of plant genetic resources for the benefit of present and future generations with special attention to the needs of developing countries, to work with other organisations and to undertake research and training, and to provide scientific and technical advice and information.

The FAO, the United Nations Development Program and the World Bank formed the CGIAR in 1971. Genetic resource conservation was not initially conceived as within its mandate but has since become so. The CGIAR undertakes international research and works with national research systems on enhancing the sustainable productivity of agriculture, forestry and fisheries in developing countries. The CGIAR network was created after the successful contributions made by longer-established international agricultural research centres towards the Green Revolution. In 1989 the CPGR initiated a process whereby germplasm held by CGIAR centres would be brought within FAO jurisdiction. This followed concerns that property rights in CGIAR germplasm accessions were unclear and that there were no guarantees that safe

\textsuperscript{44} Pistorius, \textit{Scientists, Plants and Politics}, pp.23-30, 104-105.
\textsuperscript{45} Pistorius, \textit{Scientists, Plants and Politics}, p.56.
\textsuperscript{46} Pistorius, \textit{Scientists, Plants and Politics}, p.78.
\textsuperscript{48} \textit{Base Collections of Plant Genetic Resources}, UN Doc. CPGR/85/4, p.2; \textit{Report on Activities on Plant Genetic Resources by FAO, IBPGR and Other Organisations}, UN Doc. CPGR/93/6, pp.7-8.
conservation could be guaranteed. NGOs had also campaigned that IPRs were being claimed over accessions obtained from CGIAR centres. In 1994 twelve CGIAR centres entered into agreements with the FAO and placed about five million accessions under FAO jurisdiction. The FAO was to hold the germplasm ‘in trust for the benefit of the international community’ and it was agreed that ownership or IPRs was not to be claimed over the germplasm or related information.\textsuperscript{50} By 1994 the 18 CGIAR centres derived about $300 million annually from 40 donor agencies, including government aid agencies, private foundations and inter-governmental agencies. Today 13 of the CGIAR centres work on the conservation and use of plant (including forest) genetic resources with the aim of contributing to the sustainable development of agriculture, forestry and fisheries in developing countries, particularly so as to benefit low-income people. It also undertakes research on the management of livestock, forestry, agro-forestry and aquatic resources, conservation of genetic resources, irrigation, and agricultural policy.\textsuperscript{51}

Other international organisations gave variable levels of support to plant genetic resource conservation in the 1970s, but there was little support for \textit{in situ} conservation except in protected areas. The United Nations Development Program (UNDP) had declined to fund a proposed action plan for the collection, conservation and documentation of genetic resources as the plan was considered too ambitious and long-term.\textsuperscript{52} This concept was revived subsequently within the FAO, however. As noted earlier, the \textit{Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture} was adopted at the Leipzig conference in June 1996. Other international programs working on plant genetic resource conservation include the post-1986 Commonwealth Secretariat’s international genetic resource conservation program.\textsuperscript{53}

UNESCO was relatively active on the conservation of genetic resources, but its program for biosphere reserves has not been well integrated with FAO plant genetic resource programs. UNESCO’s Program on Man and the Biosphere (MAB)\textsuperscript{54} began in

\textsuperscript{50} Progress Report on the International Network of Ex Situ Collections under the Auspices of FAO, UN Doc. CGRFA-8/99/7, p.1.
\textsuperscript{54} Negotiations on the International Undertaking on Plant Genetic Resources for Food and Agriculture: Report of the Commission on Genetic Resources for Food and Agriculture, Eighth Session,
1971 and was designed to address human ecological issues in a range of biogeographical regions. One of the MAB’s themes was the conservation of natural areas and the genetic material they contained, and one of its aims was to establish an international network of protected areas or biosphere reserves. Biosphere reserves include representative examples of biogeographical areas of natural or minimally disturbed ecosystems (core areas). They may include any or all of the following: centres of endemism and of genetic richness or unique natural features of exceptional scientific interest, areas suitable for sustainable development experimentation, examples of harmonious landscapes resulting from traditional patterns of land-use, and examples of modified or degraded ecosystems that are suitable for restoration to natural or near natural conditions. Traditional land use systems can be maintained within biosphere reserves in many circumstances. Education and training activities are also encouraged within biosphere reserves. The first biosphere reserves were named in 1976 and in 1995 324 biosphere reserves were recognised in 82 countries. Surprisingly, it was not until 1999 that the CGRFA requested that in future it receive reports from various international organisations whose activities were relevant to the conservation and sustainable use of genetic resources for food and agriculture, including from the United Nations Environment Program and UNESCO’s Man and the Biosphere program. The World Health Organisation and health professionals had also become increasingly active on medicinal plant conservation in the late 1970s and 1980s in response to rising concerns about their disappearance. It also reflected discursive change, in that respect was growing within several disciplines for ‘traditional knowledge’ of relevance to sustainable development.

**Diffuse power and in situ conservation**

There has been a trend within global governance institutions and actors since at least the early 1980s to better promote in situ conservation strategies. This has been facilitated by the global international human rights movement, the restoration of land and some resource rights to indigenous communities in many areas of the world, and a growth in public and private sector support for community-based conservation activities. The long-term implications of human rights norms and land rights were discussed in the previous chapter. The recognition of indigenous peoples’ land title was particularly significant as this empowered indigenous peoples by providing a base upon which joint and/or indigenous management structures could be developed. The joint management of protected areas has been the most significant and sustained example of

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collaborative community-based resource management to date, although increasingly biodiversity conservation and *in situ* plant genetic resource conservation is being implemented outside reserves.\(^5^8\)

Disciplinary change also facilitated growing institutional interest in *in situ* conservation. Genecology and *in situ* conservation were related to sub-disciplines such as ethnoecology, cultural ecology, ethnobiology and ecological anthropology but none of these have significantly influenced the direction of plant genetic resource conservation policy in the FAO. In the 1950s and 1960s Harold Conklin, Charles Frake and others began to represent local cultures and human-environment interactions from what they understood to be the local person’s point of view. This ethnoscientific effort tried to avoid interpreting local perceptions of reality using frameworks which were more familiar to the visiting analyst. Conklin’s work, following his 1954 PhD, ‘The Relation of the Hanunuo Culture to the Plant World’, unsettled the then dominant view that shifting cultivation was a destructive and primitive lifestyle. This apparently paradigm-shifting ethnoecology stimulated a large and new body of literature.\(^5^9\) Ecological knowledge of terrestrial and marine environments, local classification systems and taxonomies, and other indigenous, local or situated knowledge were later brought within ethnoecology. But a recognition of the value of indigenous peoples’ and local communities’ traditional knowledge, innovations and practices related to resource management, and the collaborative management of plants by resource management agencies and local stakeholders, did not emerge in many regions of the world until at least the 1980s, and not in international legal instruments until the 1990s.

The World Conservation Union has been one of the most influential environmental transnational organisations working on plant conservation since the 1980s. It has worked collaboratively with other inter-governmental and non-governmental organisations on plant conservation both inside and outside protected areas. The IUCN/UNEP/WWF 1980 World Conservation Strategy had as its main objectives, to maintain essential ecological processes and life-support systems, to preserve genetic diversity, and to ensure that any utilisation of species and ecosystems was sustainable.\(^6^0\) In 1981 a Protected Areas Data Unit (PADU) was established within the IUCN supported World Conservation Monitoring Centre (WCMC), to manage information concerning about 9,000 protected areas. The WCMC is also a clearinghouse of information on threatened plants. The IUCN had long been concerned with protected areas and its classification system is recognised in many countries. The


Union and WWF\textsuperscript{61} began to focus more specifically on plants and plant genetic resources when they launched their Plants Conservation Programme. In 1985 the IUCN contributed to the first session of the FAO’s Commission on Plant Genetic Resources on \textit{in situ} conservation, monitoring and international data bank systems. It also worked with the FAO, UNEP, and UNESCO on the formation of an Ecosystem Conservation Group in the mid-1980s to work towards an action plan for the \textit{in situ} conservation of plant genetic resources.\textsuperscript{62} Information booklets and a project concerning the \textit{in situ} conservation of a species of wild mango in Borneo were early projects.\textsuperscript{63} The People and Plants initiative, a joint initiative of WWF-International, UNESCO, and the Royal Botanic Gardens, is also a leading contemporary international example of promoting \textit{in situ} conservation and the sound management of biological resources, whilst contributing to biodiversity conservation and community development. In the late 1980s the Union also began work on a major series \textit{Centres of Plant Diversity: A Guide and Strategy for their Conservation}.\textsuperscript{64} The Union produced a handbook on the principles and practice of plant conservation following the 1987 recommendations from an IUCN Plant Advisory Group.\textsuperscript{65} A Botanic Gardens Conservation Secretariat (BGCS), established at Kew, also prepared a strategy for \textit{ex situ} plant conservation. It later became an independent (non-IUCN) focal point for botanic gardens activities.\textsuperscript{66} Both WWF and the IUCN have also actively supported community-based and collaborative resource management in numerous conference resolutions, conservation strategies, publications and projects, and this continues.\textsuperscript{67}

\textsuperscript{61} The World Wildlife Fund outside the US changed its name to the Worldwide Fund for Nature in 1989 but retained the WWF acronym.


The 1992 Global Biodiversity Strategy which was developed by a number of international environmental organisations is an important and relatively recent example of the growing importance attached to the in situ conservation of plant genetic resources, as well as to longer-established ex situ conservation practices. The Strategy outlines 85 guidelines for action to save, study and use the Earth’s biotic wealth sustainably and equitably. Its chapter on species, populations and genetic diversity elaborates two core objectives. These are to:

- strengthen capacity to conserve species, populations and genetic diversity in natural habitats [i.e. in situ conservation], and
- strengthen the capacity of off-site conservation facilities to conserve biodiversity, educate the public, and contribute to sustainable development.

The Global Strategy suggests that regional management and protected area reviews need to better address biodiversity conservation, and it suggests that experts in agriculture and forest genetic resources should work more closely with people working on habitat conservation and management. It calls for a strengthening of the legal regimes governing trade in species to ensure that species do not become threatened. It also calls for the implementation of the Keystone Group’s Global Initiative for the Security and Sustainable Use of Plant Genetic Resources, including its recommended expansion of on-farm conservation, in situ conservation, and monitoring and early warning of genetic erosion. The Strategy also warns that while major advances have been made in the conservation of the gene pools of globally important crops, locally or regionally important minor crops, medicinal plants, forest trees and ornamentals have been neglected. The Strategy highlights the security imperative and urged reducing excessive consumption, conserving the life of the planet, and living within the Earth’s carrying capacity.

However it was not until the mid-1990s that the CPGR/CGRFA gave in situ conservation for plant genetic resources more support, and began discussing the possibilities for the establishment of a network of in situ conservation areas. In 1991 the Commission had expressed some concerns about diluting core ex situ conservation efforts, technical, socio-economic and practical difficulties, capacity-building, and coordination. The Commission stressed the need for ‘sound, adequate knowledge of the biology and genetics of the target species concerned’ with particular attention needed
for the management of intraspecific genetic variation.\textsuperscript{71} Despite these reservations, \textit{in situ} conservation was recognised in the 1996 Global Plan of Action as one of the six basic concerns of the plan.\textsuperscript{72} Several recent FAO \textit{in situ} seed management projects are noted in the gender section below.

Other international institutions long focused on \textit{ex situ} conservation were also slow to intensify work on \textit{in situ} conservation. It was not until 1994 that IPGRI established an \textit{in situ} Conservation Task Force and proposed a five-year multi-donor program to support research on the biological and social basis of \textit{in situ} conservation. IPGRI’s aims for this program included the training of national scientists in conservation research, identifying target areas for conservation programs, and building bridges between conservationists, farmers, policy-makers and agricultural development specialists.\textsuperscript{73}

This section has demonstrated that increased institutional support for \textit{in situ} conservation occurred as a result of changing priorities and values amongst a range of government and non-government actors who worked collaboratively to articulate new conservation policy directions. The exercise of governance power in the 1980s and 1990s has been shown to be far more diffuse in the 1980s and 1990s than in the 1960s and 1970s. Although the FAO took several years to begin to better address \textit{in situ} conservation, it is now occurring. Perhaps this slow rate of institutional response in terms of implementation is partly explained by the diffuse nature of the power driving the change, with large networks of experts such as the IUCN and WWF playing important roles. More concentrated power may have driven change more quickly.

**Sustainable development discourse and the CPGR/CGRFA**

The Shapiro, Bonham and Heradstveit’s situational representation and discursive practices approach, as discussed in Chapter One, is a useful way of analysing early international negotiations over plant genetic resources within the CPGR/CGRFA. It is argued here that collective decision-making was influenced by critical political economy approaches to plant genetic resources, as noted in Chapter Two. NGO and professional declarations on equitable benefit-sharing, where access is provided to customarily-used or conserved plant genetic resources, are also likely to have been influential. This section confirms the validity of the view that representations of reality and governance can be understood as ‘a kind of discursive package deal that is competing for adherents’.\textsuperscript{74} Bargaining and negotiation takes place within boundaries

\textsuperscript{73} IPGRI, ‘\textit{In situ} conservation: broadening the basis of maintaining the world’s crop resources’, Information Update, October 1994.
\textsuperscript{74} M.J. Shapiro, G.M. Bonham and D. Heradstveit, ‘A discursive practices approach to collective
that are constructed discursively. But this section will also demonstrate that ASSINSEL, a global industry association, is exerting unprecedented influence in the multilateral negotiations that are revising the IU. But first, a brief history of the Commission and the IU.

In 1981 Mexico and other developing country delegations successfully moved a resolution in the FAO that sought the development of an international instrument regulating the exchange of plant genetic resources. The resolution also called for an International Gene Bank under FAO auspices, with Asian and African delegations adding that an international convention on the exchange of plant genetic resources was needed. The resolution also sought multilateral jurisdiction over a proposed new international ex situ collection of genetic resources. The President of Mexico had commissioned advice on the issues and options concerning genetic resources through the American University, and Pat Mooney and Cary Fowler provided that advice. Although states such as Ethiopia and India had already been asserting their national sovereignty over some particularly valuable plant genetic resources and restricting access to them, Mooney’s role was crucial in stimulating international institutional change. Fowler has described Mooney’s role as pivotal:

The proposals of the Mexican delegation did not come out of thin air or even a consulting report. They were worked out in close cooperation with Mooney. This in turn began a ten-year period of co-operation and planning between Mexican officials in Rome and NGOs on this issue, which grew particularly close when José Ramon Lopez-Portillo, son of the former Mexican president, arrived in Rome to be Mexico’s ambassador to the FAO.

By 1983 developing countries were also seeking the creation of a multilateral commission to discuss plant genetic resource issues and to monitor the implementation of the proposed international agreement.

Discursive influence was clearly at work in these developments. Pat Mooney’s publications, Seeds of the Earth (1979) and the Law of the Seed (1983), preceded a host of others on the political economy of plant genetic resources that were published in the 1980s and 1990s. Pat Mooney’s international lobbying also heightened developing countries’ awareness about plant genetic resource issues such as genetic erosion, the increasing value of genetic resources because of developments in biotechnology, and the implications of industrialised states’ expanding intellectual property rights regimes.
over plants and plant components. As discussed in Chapter Two, IPRs, where enforced, enable their owners to restrict the commercial use of property that is the subject of an IPR or to permit usage on commercial terms. Some forms of IPRs are more beneficial than others, but in the 1980s, plant variety rights, which were mainly recognised in developed countries, became highly politicised in the FAO. Academics and NGOs began to campaign from the mid-1980s that IPRs were discriminatory and did not recognise informal innovation.

In 1983 the FAO Conference adopted the IU by Resolution 8/83, and agreed to establish an inter-governmental Commission on Plant Genetic Resources by Resolution 9/83. The Commission, which had a membership of 160 countries and the European Union in November 1999, monitors the IU, which 113 countries had adhered to at that time. The IU initially recognised a broad range of plant genetic resources as part of the heritage of mankind [sic], which were to be preserved and to be available without restriction, for the benefit of present and future generations. This free access status was initially applied to cultivars in current use but also newly-developed cultivars, landraces, wild and weed species, near relatives of cultivated varieties, and special genetic stocks such as elite and current breeders’ lines and mutants. This broad application of heritage of mankind [sic] status to even specialised breeders’ lines reflected the success of the radical critique of intellectual property rights in the FAO. The 1983 resolution effectively denied the legitimacy of IPRs over plant materials. The resolution initially sought to weaken their effect by categorising even elite and breeders’ lines and mutants as part of the heritage of mankind [sic] and ‘freely available’. It was not surprising therefore that eight industrialised states entered reservations to the IU because of their concerns about the incompatibility of these access provisions with Plant Breeders’ Rights under the UPOV Convention and domestic laws that implement UPOV.

Compromise interpretative annexes to the IU were subsequently developed to encourage the lifting of these reservations to the IU, and to encourage other countries to become members of the Commission and to sign the IU. The concept of Farmers’ Rights was developed to accommodate developing countries’ concerns that the primary managers and conservers of plant genetic resources did not sufficiently benefit from those resources when they were used in plant breeding programs or biotechnology products that became subject to intellectual property protection.

The emergence of this compromise is attributable again to a small number of academic writers and activists. According to RAFI, Pat Mooney and Cary Fowler

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79 Fowler, Unnatural Selection: Technology, Politics, and Plant Evolution, ch.6.
82 The USA, Canada, France, Germany (Republic of), Japan, New Zealand, Switzerland and the UK.
introduced the concept and coined the term ‘Farmers’ Rights’ informally at the FAO Commission on Plant Genetic Resources in 1985, as a compensatory mechanism which could remedy concerns about plant breeders’ rights. Other non-state actors developed suggestions as to how Farmers’ Rights could be realised and funded. In 1987 Kloppenburg and Kleinman argued for a compensation mechanism for countries which provide plant genetic resources, and suggested that a tax on seed industry sales, flat germplasm exploration fees or a commitment advanced industrial nations to fund breeding programs and germplasm preservation in the Third World might be appropriate. They argued that heritage of mankind status for both primitive and elite germplasm was unworkable and inappropriate, pointed to its incompatibility with the domestic laws of UPOV parties, and argued the trend in northern legal systems towards patentability for plant germplasm. They also argued that plant germplasm should be subject to national sovereignty just like other unprocessed valuable and strategic natural resources located within states, and that germplasm suppliers should be compensated for their contribution to agricultural development through their selective breeding over the millennia. Eric Christensen also called for a global institution to regulate germplasm exchange and for profits arising from germplasm use to be distributed with genetic resource supplier countries.

These views on sovereignty and some form of a compensation mechanism, or similar views published elsewhere and consistent with this approach, must have influenced the Commission. The stalemate between those countries that had reservations over the heritage of mankind designation and the majority proved to be short-lived. A CPGR Working Group agreed in 1986 that an international fund should be created to finance activities such as plant genetic improvement and seed production, and to compensate farmers for their contribution to the safeguarding and development of plant genetic resources, in a manner similar to that by which plant breeders’ rights were recognised. So as to increase the number of parties to the undertaking, the Working Group agreed to assess the feasibility of negotiating an agreed interpretation rather than seeking an amendment to the undertaking or maintaining the status quo. The Commission recommended at its second session that an International Fund for Plant Genetic Resources be created. The FAO Director-General wrote to member states and some international institutions seeking contributions in October 1987. But that request

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83 Personal communication, Jean Christie, RAFI Canada, 3 July 1996, <rafican@web.net>. RAFI has since argued that the concept should be broadened to include rights relating to self-determination and land.
85 Belgium, Denmark, France, Federal Republic of Germany, Hungary, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, South Africa, Spain, Sweden, Switzerland, the United Kingdom, and the United States.
only generated offers and donations of over US$348,000 for various activities, as well as contributions in kind. In 1987 the CPGR suggested that the role of the fund needed to be better defined.\footnote{UN Doc. CPGR/87/REP, pp.10-11.} This occurred through subsequent resolutions.

The compromise that was agreed was a revised interpretation of the IU. States agreed that Farmers’ Rights could be implemented in part by additional contributions to the FAO International Fund for Plant Genetic Resources from states that benefited most from plant germplasm. The Fund was to support plant genetic conservation, management and utilisation programs particularly in developing countries. Resolution 4/89 (Annex 1 to the IU) recognised the enormous contribution that farmers of all regions have made to the conservation and development of plant genetic resources, which constitute the basis for plant production throughout the world, and which form the basis for the concept of Farmers’ Rights.

Plant breeders’ rights were simultaneously recognised. FAO Resolution 4/89 provided that plant breeders’ rights were not incompatible with the IU, and that states could restrict access to plant genetic resources only to the extent that that was consistent with their national and international legal obligations. Plant genetic resources were recognised as part of the common heritage of mankind [sic] and to be freely available for use. It was also agreed that free access did not mean free of charge, and that the benefits to be derived under the IU were part of a reciprocal system and should be limited to countries adhering to the undertaking.

FAO Resolution 5/89 (Annex 2 to the IU) recognised Farmers’ Rights as rights arising from the past, present and future contribution of farmers in conserving, improving and making available plant genetic resources, particularly those in centres of origin and/or diversity. It also recognised that farmers in developing countries provided most plant genetic resources without sufficient recognition or reward. Farmers’ Rights were vested in the international community, as trustee for present and future generations of farmers.

In 1991, FAO Resolution 3/91 (Annex 3 to the IU), recognised states’ national sovereignty over plant genetic resources, and provided that breeders’ lines and farmers’ breeding material should only be available at their developers’ discretion, whilst under development. It also recognised that conditions of access to plant genetic resources needed further clarification, but also that the availability of those resources and the information technology and funds necessary to conserve and utilise them, were complementary and of equal importance.

FAO Resolution 3/91 provided that an international fund would be created to finance activities in plant genetic resource conservation and development, and to compensate farmers, particularly but not exclusively in developing countries, for their contributions in safeguarding and developing plant genetic resources. It was agreed that resources for the fund should be substantial, with contributions sustainable, equitable and transparent. The CPGR would administer the fund.
The Commission also agreed in 1991 that a scientifically sound Global Plan of Action on Plant Genetic Resources for Food and Agriculture, which was to be developed through the preparatory process for the Fourth International Technical Conference on Plant Genetic Resources (ITCPGR), would provide the basis for implementing Farmers’ Rights through the fund.\(^89\) The Secretariat to the CGRFA estimates that the implementation of the priority activities of the plan range from US$150 million for a basic or elementary approach, to US$248 million for a moderate approach, to US$455 million for a more ideal or comprehensive approach. Other estimates range between US$300 million and US$500 million per annum. The Secretariat has also estimated that about US$600 million is already spent annually on relevant plant genetic resource activities.\(^90\)

Contentious debates over access and benefit-sharing were simultaneously taking place in other international fora. The CBD, which is examined more closely in Chapter Five, affirmed national sovereignty over genetic resources but included obligations for contracting parties to facilitate access and benefit-sharing.\(^91\) In 1992, at the Nairobi Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity (CBD), governments adopted Resolution 3 which urged that ways and means should be explored to develop complementarity and co-operation between the CBD and the FAO’s Global System for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture. It recognised that support was needed for plant genetic resource conservation and utilisation programs, and that outstanding matters not addressed in the CBD, including access to \textit{ex situ} collections not acquired in accordance with the CBD, and the question of Farmers’ Rights, should be resolved within the FAO’s Global System.

The FAO Conference in Resolution 7/93 agreed to provide a forum for governments to renegotiate the IU to bring it into harmony with the CBD, and to consider the issue of access on mutually agreed terms, including \textit{ex situ} collections. Negotiations have been underway since 1994. In 1999 the re-negotiation of the IU was the Commission’s highest work priority, and a revised instrument is expected to be adopted by the Commission in July 2000, for submission to the FAO Committee on Constitutional Matters in October, and the Council in November 2000.\(^92\) It is likely that the IU will become a legally binding instrument.\(^93\)

Various proposals have been put forward by stakeholders during the revision of the IU as to how benefit-sharing might be financed. These include:

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90. UN Doc. CGRFA-8/99/4, pp.3-4.
91. Articles 15-20.
• from Asian developing countries: that a share of the financial benefits from the commercial and other uses of plant genetic resources should be paid into an international fund administered by the IU’s governing body;\footnote{94}
• from the European region: that a mechanism be established to better channel and promote the flow of funds from available sources;
• from the seed industry: that the owners of patents could contribute to a fund established for collecting, evaluating and enhancing genetic resources, recognising that patents limit access to germplasm; and
• the use of indicators to apportion financial responsibilities under the IU.\footnote{95}

The re-negotiation of the IU has proceeded with the aid of a Chair’s Contact Group and informal meetings of experts. In January 1999 the CGRFA Chair, Ambassador Fernando Gerbasi (Venezuela), produced a series of ‘Chairman’s Elements’ as a basis for future negotiations. These elements represent consensus positions on issues that were previously highly contentious. All aspects of benefit sharing in the multilateral system have not yet been agreed however. Draft text concerning Farmers Rights is also included in the Chairman’s elements. Article 15 of the draft revised IU as at September 1999 provided:

15.1 The parties recognize the enormous contribution that the local and indigenous communities and farmers of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world.
15.2 The parties agree that the responsibility for realizing Farmers’ Rights, as they relate to Plant Genetic Resources for Food and Agriculture, rests with national governments. In accordance with their needs and priorities, each Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers’ Rights, including:

(a) protection of traditional knowledge relevant to plant genetic resources for food and agriculture;


\footnote{95}{Financing the Implementation of the Global Plan of Action on Plant Genetic Resources, UN Doc. CGRFA-8/99/4, p.8.}
(b) the right to equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture;
(c) the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.

15.3 Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate.96

How Farmers Rights are to be funded remains unresolved. Proposals for funding from taxation have not attracted much support within the CGRFA. Private breeders mounted a strong counter-attack to ‘biopiracy’ arguments (referred to in Chapter Two) in the Commission in 1999, claiming that claims of ‘appropriation’ were ‘greatly exaggerated’.97 A joint FIS/ASSINSEL98 paper argued that plant breeders’ rights are temporary (of 15 to 20 years duration), are limited to individual plant varieties, and that protected varieties remained available for other non-commercial uses. The paper argued that all plant genetic resources should be freely available but in accordance with the terms and conditions of a material transfer agreement, with bilateral agreements being developed in exceptional circumstances. The FIS/ASSINSEL paper recognised that some countries had IPR systems that enabled plants to be patented and that this restricted access to further breeding using the patented variety.

The FIS and ASSINSEL offered to examine the possibility of patentees making contributions to the multilateral fund to be established to implement the IU.99 This sparked considerable interest in the CGRFA in 1999, and draft text explicitly based on the ASSINSEL proposal was discussed, but not finally agreed to in April 2000. The draft text referred to benefit sharing through partnerships in research and technology development. It would also commit parties to contributing a fixed share of any royalties to a multilateral fund, if they were derived from plant genetic material protected by patents or any form of commercial protection that restricts further access to that genetic material for research and plant breeding.100

The fact that this FIS/ASSINSEL proposal has been incorporated in the draft IU, albeit to be discussed further, demonstrates a recognition by governments that private sector plant breeders are powerful stakeholders in access and benefit-sharing debates.

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96 Composite draft text of the International Undertaking on Plant Genetic Resources, incorporating the texts of Articles 11, 12 and 15, negotiated during the Commission’s Eighth Regular Session, First Inter-sessional meeting of the Contact Group, Commission on Genetic Resources for Food and Agriculture, Rome, 20-24 September 1999, UN Doc. CGRFA/CG-1/99/2.
97 Background documentation provided by the International Association of Plant Breeders for the Protection of Plant Varieties (ASSINSEL), UN Doc. CGRFA-8/99/Inf.9, p.2.
98 FIS is the acronym of the International Seed Trade Federation.
99 UN Doc. CGRFA-8/99/Inf.9, p.2.
100 Revision of the International Undertaking on Plant Genetic Resources, in harmony with the Convention on Biological Diversity: Texts for Article 13, Facilitated Access, Article 14.2(d), The Sharing of Monetary Benefits on Commercialization, and Article 16, Financial Resources, Established by the Contact Group during its Second Inter-sessional Meeting, UN Doc. CGRFA/CG-2/00/TXT, p.4.
Other benefit-sharing proposals based on broadly based taxation measures were never taken so seriously. This proposal legitimises patents and other restrictive IPRs over plants and suggests that benefit sharing issues can be resolved through the fund. It offers little in terms of benefit sharing when other forms of IPRs, such as plant breeders rights, are claimed. This proposal is antithetical to ‘biopiracy’ arguments and will have to be negotiated further.

Comprehensive, co-operative and common security discourses within the IU

The negotiations over the revised IU are complex partly because of the growing recognition that plant genetic resources raise comprehensive, co-operative and common security issues. The draft IU is intended to promote food security (comprehensive), ensure amicable co-operation in access and benefit-sharing (co-operative), and it recognises interdependence (common security). As noted in Chapter Two, there is a high degree of interdependence amongst countries on plant genetic resources for food and agriculture. The current draft revised IU recognises the sovereign rights of states over their own plant genetic resources for food and agriculture and states’ authority to determine the terms of access. But for defined categories of plant genetic resources of importance for food and agriculture, access is to be facilitated. The terms of that facilitated access remain bracketed in the draft article of the revised IU, which indicates that agreement has not yet been reached on the draft text. But it has been agreed that the aims of the multilateral system are to reduce transaction costs, obviate the need to track individual accessions and to ensure expeditious access. This facilitated access is not to apply to access for purposes such as chemical, pharmaceutical and other non-food and non-agricultural use. It has been agreed that recipients of material under the system will not seek any form of intellectual property protection over that material although provisions concerning patents remain bracketed.

This multilateral system was developed in recognition of the fact that there is a high degree of interdependence amongst countries, in non-indigenous plant genetic materials for use in agriculture, and for food security. The revised IU is to include provisions for the sharing of benefits on commercialisation, but again the text has not been finalised. Draft text on the provision of financial resources has also not yet been agreed. Whether the draft will be finalised in 2000 remains uncertain however, and various governments have expressed their concerns about the apparent lack of genuine commitment to the provision of finance and benefit sharing in the negotiations. But insofar as the draft IU is recognising obligations to share benefits, it is consistent with a

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101 Exploring options for the list approach within the multilateral system of facilitated germplasm exchange within the revised International Undertaking — report of an informal workshop of experts convoked by the ‘Istituto Agronomico per l’Oltremare’, on behalf of the Italian Ministry of Foreign Affairs — Florence, Italy, 1-3 October 1998, UN Doc. CGRFA/8/99/Inf.3.

102 See statements by the Iranian and Brazilian delegations in April 2000, Appendices A and B, UN Doc. CGRFA/CG-2/00.TXT.
substantial body of publications, resolutions and declarations produced by academics and civil society in recent years, and with recent international instruments such as the CBD. Thus the text has been constituted discursively in at least two respects: in accordance with changing concepts of security, and with recent critical political economy discourse. This demonstrates that power is not primarily state-centred but collaborative, as the impetus for change came from academics and NGOs who worked with governments from the G77 in the FAO. More recently significant power in this fora is being exercised by global industry associations who also work collaboratively with governments.

In addition to these implicit security concerns the FAO has instituted various other programs to promote food security. For example, the CPGR/CGRFA has developed a Global System for the Conservation and Sustainable Utilization of Plant Genetic Resources. Its ‘World Information and Early Warning System’ monitors the state of the world’s genetic resources, and responds to potential threats from crop pathogens. In 1999 a warning of a global threat to wheat crops was issued.\textsuperscript{103} The FAO has also established a ‘Food Insecurity and Vulnerability Information and Mapping System (FIVIMS)’ which comprises networks of systems that assemble, analyse and disseminate information about food insecurity and vulnerability. Similarly, private donors have funded an ‘early warning centre’ for global biological diversity within an international NGO, Conservation International.\textsuperscript{104} Other components of the FAO’s global system include:

- the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, and periodic reports on the state of the world’s genetic resources;
- the international network of \textit{ex situ} collections and \textit{in situ} conservation areas for plant genetic resources, including the CGIAR international research centres;
- the voluntary International Code of Conduct for Plant Germplasm Collecting and Transfer, and
- parties’ commitments to use plant genetic resource networks, global information systems, and international partnerships in research and technology development.

Again these are manifestations of various aspects of security discourse and demonstrate that the concept of what security comprises is complex and evolving.

\textbf{Human rights discourse: discourses of gender}

This final section explores the extent to which discourses of gender have been constitutive of trends or directions in the global governance of plant genetic resources within the FAO, and particularly the IU. It argues that discourses of gender have not yet influenced the terms of the draft text for the revised IU, although they have influenced


work within the FAO that is relevant to plant genetic resource management.

The current draft IU does not differentiate on the basis of gender, which is surprising, given that so many other international instruments have in recent years, and the FAO as an institution is active on gender issues. The Rome Declaration on World Food Security and World Food Summit Plan of Action adopted in November 1996 included more than 30 references to gender and women’s issues. These included gender equality, equal participation by men and women, the empowerment of women, poverty eradication bearing in mind women’s disproportionate experience of poverty, promoting equal access to productive resources, and gender-sensitivity in research agendas, planning and implementation. The 1996 Leipzig Declaration recognised ‘the roles played by generations of men and women farmers and plant breeders, and by indigenous and local communities, in conserving and improving plant genetic resources’. The FAO’s Global Plan of Action identifies women farmers in relation to on-farm management and improvement of plant genetic resources for food and agriculture and concerning the promotion of in situ conservation of wild crop relatives and wild plants for food production. In October 1996 a joint IPGRI and FAO workshop on how to better incorporate gender-sensitive approaches into plant genetic resources conservation and use, noted the scarce references to gender in the Global Plan of Action. The workshop report described it as an important point of leverage to demonstrate the importance and potential benefits of using gender-sensitive approaches. The workshop saw gender-sensitivity as crucial to in situ conservation, Farmers’ Rights, and neglected and under-utilised crops.

Bunning and Hill have also urged the FAO to recognise and respect men and women farmer’s different contributions to genetic diversity, including in agreed texts on Farmer’s Rights. The preambles to the CBD also recognises ‘the vital role that women play in the conservation and sustainable use of biological diversity’ and affirms ‘the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation’. The revised draft IU is supposed to be harmonised with the CBD, as noted above. The CBD’s weak engagement with gender issues is discussed further in Chapter Five.

The absence of gender-sensitivity in the current draft text for the IU reflects poorly on negotiating delegates, given governments’ prior commitments to mainstreaming human rights and gender issues throughout the UN system, as noted in

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Chapter Two. This cannot be explained by reference to the gender of the negotiators in the CGRFA Contact Group, as between one-quarter and one-half of the listed delegates at the April 2000 meeting were women. But it does indicate that the networks of activists who lobby the CGRFA on plant genetic resource issues, and particularly RAFI and GRAIN, have not prioritised it as a negotiating issue. Their priority concern in the CPGR/CGRFA has always been IPRs and promoting sustainable agriculture. This ‘discursive package’ has been acceptable to many G77 governments. Gender has been much more of a concern to university-based academics who have not been directly involved in lobbying concerning the IU, so policy options consistent with gender-based discourse have not featured in the revision of that instrument. IPOs in the CBD have been more vocal on gender issues, although also with limited success until COP-5, as discussed in Chapter Five.

Notwithstanding the failure of government negotiators of the revised IU to address gender issues, the FAO as an inter-governmental institution is addressing gender in relation to plant genetic resources in various other ways. But this does not detract from the persuasiveness of the Shapiro, Bonham and Heradstveit view that situational representation and discursive practices are useful for analysing inter-governmental negotiations. It is just that when the most influential actors do not identify particular issues as being a priority concern within a negotiating process, they can become ‘non-issues’. Moreover, if issues are not identified early in a negotiating process it is likely that governments will not embrace them later as this could further complicate what is inevitably a complex process given that so many negotiating parties are involved.

Notwithstanding the fact that gender within the IU has been a non-issue to date, the FAO has been relatively more active than other inter-governmental institutions on gender issues. In November 1995 the FAO Conference adopted the Plan of Action for Women in Development (1996-2001) which commits the FAO to implementing the Beijing Platform for Action and for mainstreaming women in development and gender concerns in the work of the organisation. Core commitments in the Plan of Action include:

- increasing the availability, accuracy and use of data on the gender dimension of agriculture and rural development;
- assisting development specialists to integrate a gender perspective into agricultural and rural development approaches;
- reducing women’s workload and improving their opportunities for paid work; and
- supporting the formulation and application of gender-responsive agricultural and rural development policy.

The plan recognises that rural women in developing countries are the most disadvantaged population in the world. It also recognises that gender bias and blindness persist, with farmers generally being perceived as male by policy-makers, development planners and agricultural service deliverers. It notes that this contributes to food
insecurity because women tend to be denied access to agricultural extension services.\textsuperscript{109}

The FAO Plant Production and Protection Division projects investigate women’s roles in on-farm \textit{in situ} conservation and use of plant genetic resources, seed production and exchange, and home-gardens. They also develop appropriate training programs in gender issues.\textsuperscript{110} The FAO’s Women in Development Service in the Sustainable Development Department has produced various case-studies on gender and plant genetic resource management in Central and Latin America, and other publications on gender and Farmers’ Rights. A regional project, ‘Gender, Biodiversity and Local Knowledge Systems to Strengthen Agricultural and Rural Development’ began field project activities in Zimbabwe and Tanzania in July 1998. Research on the gender impacts of crop diversity in Mali was also supported.\textsuperscript{111} Such projects suggest that in significant areas of the developing world, the on-farm and \textit{in situ} conservation and use of plant genetic resources are women’s responsibilities. A UN General Assembly Special Session, between 5 and 9 June 2000, will be assessing the extent to which progress has been achieved in the implementation of the 1985 Nairobi Forward-Looking Strategies for the Advancement of Women and the Beijing Platform for Action.\textsuperscript{112}

This acknowledgment that the FAO is endeavouring to recognise gender concerns in its plant genetic resource work, does not detract from the concern there is no guarantee that the implementation of the IU and other non-FAO plant genetic resource programs and activities will be similarly gender-sensitive. Commitments by FAO policy-makers may not be implemented by national governments. Another fundamental reason for gendering the IU is that unpaid work should be recognised and benefit-sharing activities directed specifically at poverty-alleviation. Of the large proportion of resource-poor farmers in developing countries who do not have access to external inputs (eco-friendly or otherwise fertiliser, irrigation and agro-chemicals), an increasing majority are women. Most of the 70 per cent of people who live in poverty in developing countries are rural women.\textsuperscript{113}

It is also important to note that whilst there is no reference to men and women specifically in the draft IU, the phrase ‘local and indigenous communities and farmers’ is included. Indigenous peoples’ organisations would likely prefer the use of the term ‘peoples’ rather than communities, as discussed in the next chapter. The draft United


\textsuperscript{111} Commission on Genetic Resources for Food and Agriculture, Report from FAO on its Policies, Programmes and Activities on Agricultural Biological Diversity: (2) Cross-sectorial \textit{sic} Matters UN Doc. CGRFA-8/99/10.2, para. 15.


\textsuperscript{113} Commission on Genetic Resources for Food and Agriculture, Recent Developments in Biotechnology as they Relate to Plant Genetic Resources for Food and Agriculture. Background Study Paper No.9 by C. Spillane 1999, p.5.
Nations Declaration on the Rights of Indigenous Peoples (DUNDRIP) is more sensitive to gender considerations, as was noted in Chapter Three. It is currently being negotiated by an inter-governmental working group within the UN Commission on Human Rights. Draft article 43, which was adopted in 1997, provides that all the rights and freedoms in the Declaration ‘are equally guaranteed to male and female indigenous individuals’. The draft Declaration also includes draft rights to ‘the recognition of the full ownership, control and protection of their cultural and intellectual property’, and ‘to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs and visual and performing arts’ (art.29). The current IU’s proposed system multilateral system of facilitated exchange might weaken gender-specific rights, as it does not acknowledge their existence.

Conclusions

This chapter has demonstrated that there has been a clear trend towards a more participatory, interest-based global governance by the FAO since the 1970s, and this is likely to weaken the policy-influence by individuals within inter-governmental institutions. The chapter provided an example of micro-conflict between in situ and ex situ conservationists in the FAO in the 1970s. Non-state actors who can exert influence at the global level (such as RAFI, GRAIN, and FIS/ASSINSEL) are relatively more powerful now than they were in the 1970s. Pluralist governance is evident in the participatory development of global strategies and declarations, and in the diversity of the stakeholders influencing inter-governmental negotiations, including NGOs, quasi-NGOs, IPOs, global industry associations, academics and governments. But government’s preparedness to include the FIS/ASSINSEL reform proposals in the draft IU indicates how important a stakeholder private plant breeders have become. In the 1980s and early 1990s NGOs and academics were not challenged by the corporate sector in the CPGR, only governments, and debates were cast in North-South terms with little explicit reference to private interests.

This chapter argued that in the 1980s and 1990s a critical political economy discourse strongly influenced governance debates within the CPGR/CGRFA. This critical discourse was mobilised by academics, NGOs and governments, and has intensified in recent years, as explained in Chapters Two and Three. The private sector has responded in recent years with a vigorous refutation of many of the arguments previously put concerning ‘biopiracy’. It is not yet clear how the benefit-sharing issues will be resolved, but the outcome of the TRIPS revisions will be important as that will determine whether plant patents will remain optional for governments, as discussed in Chapter Six. Patents are unlikely to be claimable over material accessed from the IU’s multilateral system for food and agricultural products in which there is a high degree of interdependence. The private sector has indicated that it is prepared to return some of
the benefits it can secure from patents to the suppliers of genetic resources within the IU, but it will not accept the relatively radical, NGO-championed argument that all patents on animal and plant material should be prohibited. The composition and powers of the IU Governing Council, which will influence the implementation of these benefit-sharing mechanisms, has not yet been agreed. But this debate shows that limited intervention to promote equity is tolerable but more radical challenges to private IPRs are not. The boundaries of acceptable discourse within global liberal capitalism are thus a negotiated outcome, which reflect inter-subjective liberal values. These debates also demonstrate that global governance has also become more transparent than in previous decades as evolving FAO texts are now readily accessible on the Internet, and the draft IU and other texts acknowledge the source of reform proposals.

This chapter has also suggested that the boundaries and the content of what is ‘acceptable’ in inter-governmental negotiations are largely a product of their times. Negotiations cannot be adequately explained on the basis that unitary states continually seek to enhance their economic power, as more realist analyses would suggest. Nor are the outcomes of these negotiations likely to be determined by relative distributions of economic power at the global level, as neo-realist analyses might suggest. Rather, changing concepts of security and the imperative of providing incentives to ensure the continued maintenance of plant genetic diversity are likely to reinforce arguments based on equity, that informal innovation should be compensated. Again normative values are constitutive.

The chapter has also shown how plant genetic diversity became significantly ‘problematised’ as a security issue and became a subject of governance within a global institution, and how various aspects of security discourse continue to influence the implementation and re-negotiation of the IU. The absence of gender-sensitive text in the IU, despite UN commitments to gender mainstreaming and to improving the situation of rural women demonstrates that human security for gendered individuals, and household security, are still not well recognised by governments in the IU. They are recognised by FAO officers and within institutional programs, but not in the text of the IU explicitly, which raises concerns about gender-sensitive implementation. Although gender is becoming better recognised as an issue in the implementation of the CBD, as discussed in Chapter Five, it may be that negotiations are too far advanced for gender to be dealt with now in the revised IU.