1. Introduction

The intention of this book is to chart the evolution of the various access and benefit-sharing agreements that have been concluded, tracing the early resource agreements to the most recent array of standard form terms and conditions in material exchange contracts. The journey by the various institutions through this exciting area of law has involved a lot of negotiation and this book attempts to capture those negotiations in a narrative leading to the concluded positions. This is important as the concluded positions provide substance to the often ambiguous diplomatic language in the original texts, albeit the concluded positions reflect compromises that are not (ever) finally resolved. Most significantly, however, the different approaches and different concluded positions across the various resource agreements are a laboratory of legal approaches and possibilities. They are likely to inform future developments as it becomes apparent which approaches are working and why they are working. By considering this array of resource agreements and detailing their development this book will provide a valuable overview of these different approaches and a basis for future assessment of how each approach is working.

This project of assessing the various approaches to resource agreements is important as genetic resources are a resource frontier of this century and their exploitation is critical for economic development and our sustainable futures. They potentially hold some of the solutions to the challenges of the future such as adapting to climate change, food security, life saving medicines, alleviation of poverty, and so on. But they are also a fragile resource that needs to be properly conserved across the globe. Genetic resources hold the myriad solutions to nature’s problems and once extinguished will be incredibly difficult, if not impossible, to recreate or re-conceive (without even considering their non-utilitarian values). Both conserving and exploiting these valuable resources is therefore a worthy challenge and demands our attention to the form and the content of any regulation.
1.1 SOVEREIGNTY

At the boundaries of our recent ideas about owning and sharing resources the issue of sovereignty is never far removed. Here sovereignty is referring simply to the jurisdiction, power and authority of Nation States recognised by the United Nations (UN) and principally the agreements made under the UN powers.\(^1\) In this context sovereignty is an established principle of international law that recognises the way Nation States determine how their tangible and intangible assets and resources are allocated, owned and used.

In dealing with natural resources, the UN has long recognised the Nation States’ permanent and absolute sovereignty.\(^2\) For example, the UN Convention on Biological Diversity (CBD) expressly provides:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.\(^3\)

At the heart of this conception of sovereignty at the UN is a model of an international community recognising equality among the Nation States over their territory. This is expressly acknowledged by the Charter of the United Nations prohibition on attacking ‘the territorial integrity or political independence of any state’\(^4\) and intervening ‘in matters which are essentially within the domestic jurisdiction of any state’.\(^5\) Meanwhile within Nation States sovereignty is determined according to the particular governing arrangements within that Nation State, there being a plethora of different forms and degrees of sovereignty exercised by different blocks of power (regal, totalitarian, parliamentary, secular, religious, federated, democratic, republican, and so on). Importantly this means that Nation States may

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\(^1\) This is perhaps a gross generalisation that fails to appreciate the contours and contentions of ‘sovereignty’: see, for a modern English-language account, Hinsley (1986). The sovereignty at the United Nations also appears to be shifting to allow some forms of intervention: see, for example, S/RES/1236; A/RES/50/172.

\(^2\) See Resolution 1803 (XVII). See also Resolution 3171 (XXVIII); Resolution 3016 (XXVII); Resolution 2386 (XXIII); Resolution 2158 (XXI); Resolution 720 (XVI).

\(^3\) Convention on Biological Diversity, Art 3.

\(^4\) Charter of the United Nations, Art 2(4).

\(^5\) Charter of the United Nations, Art 2(7).
choose different ways of exercising their sovereignty (jurisdiction, power and authority) so that the allocation, ownership and use of natural resources reflect the public and private goods preferences of the particular Nation State. This sovereignty both between and within Nation States must, however, take place within the complex of agreements and the established and evolving State customs, norms and practices. For our purposes this conceives the UN as a forum for rule-making with the Nation States cooperating in making those rules (establishing international norms) and then the Nation States implementing those rules within their particular domestic governmental arrangements. In this context this book is a case study of sovereignty over genetic resources (as a subset of natural resources) and charting the recent developments in international laws about access and benefit-sharing genetic resources. These genetic resources are, as a generalisation, the variety within and among species and ecosystems of the living and fossil organism and their components, albeit there are some variations in the definitions adopted or applied in the different resource regimes considered in this book.

As a source of Nation States’ jurisdiction, power and authority the UN as an international organisation was established by the Charter of the United Nations signed on 26 June 1945 at the conclusion of the UN Conference on International Organization and came into force on 24 October 1945. The Charter of the United Nations essentially provided a forum for peace and security, '[t]o achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character' and '[t]o be a centre for harmonizing the actions of nations in the attainment of these common ends'. The significance of the UN has been as the foremost institution recognising the legitimacy of national sovereignty and promulgating international laws that have then been adopted and applied by its members to affect sovereignty. Within the UN the principal organs include the General Assembly, the Security Council, the Economic and Social Council, the Trusteeship Council, the International Court of Justice, and the Secretariat. Various entities under the auspices of these organs then act

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6 Charter of the United Nations, Preamble.
7 Charter of the United Nations, Arts 1(1) and (2).
8 Charter of the United Nations, Art 1(3).
10 Notably this organ suspended operations on 1 November 1994 with the independence of Palau; see Resolution T/RES/2200 (LXI).
11 Charter of the United Nations, Art 7(1).
Regulating genetic resources

to make laws through negotiation and agreement often reporting back to these principal organs. Through these various UN entities, agreements (or international norms) have now been established for the resource frontiers of outer space (the Outer Space Treaty system), the seas and oceans (the Convention on the Law of the Sea (UNCLOS)), general biological diversity (the CBD and its subsidiary agreements), some plants for food and agriculture (the International Treaty on Plant Genetic Resources for Food and Agriculture (the Plant Genetic Resources Treaty)) and human pandemic viruses (the International Health Regulations and the PIP Framework). While Antarctica is not a resource frontier directly governed through UN agreements, principally because the territory is not that of any particular Nation State (albeit territory claims have been made and remain alive), the resources are regulated consistently with the Charter of the United Nations (the Antarctic Treaty system).12 Also, Antarctica holds a considerable wealth of genetic resources that are potentially exploitable raising the same questions about access and benefit-sharing addressed in the other UN forums. Table 1.1 sets out the relevant governance arrangements for the agreements considered in this book and Table 1.2 sets out the principal instruments for the entities addressed in this book. The book is structured around each of these agreements tracing the evolution of these regulatory forms over time. This is important as the originally agreed texts were the starting points for regulation, and the institutions established under these agreements are the UN entities establishing and developing this international law. Tracking this evolution also exposes the changing norms that underpin the regulatory arrangements as theoretical conceptions underpinning regulations are tested, modified and abandoned over time. This has been particularly evident in the approaches to dealing with property and sovereignty over resources.

There are essentially three approaches for dealing with resources:

(a) The res nullis (belongs to none) approach that views a resource as owned by no one so that it goes to the first occupier (dominator). According to this approach, a natural resource is available to the first person with the capacity and technology to exploit that resource.

(b) The res communis (belongs to everyone) approach views a resources as either owned by no one or by everyone and advocates a common or open access to a resource generally though a common ownership arrangement or international regime.

12 See Antarctic Treaty, Arts X and XIII(1) and (6).
Table 1.1  Principal governance arrangements for the entities addressed in this book

<table>
<thead>
<tr>
<th>Resource frontier</th>
<th>International law</th>
<th>Principal organ</th>
<th>Administrative entities</th>
</tr>
</thead>
</table>
| Antarctica        | Antarctica Treaty system | Antarctic Treaty Consultative Meetings (ATCM) | - Antarctic Treaty Secretariat  
                  |                   |     | - Committee for Environmental Protection  
                  |                   |     | - Scientific Committee on Antarctic Research  
|                   |                   |     | - Committee on the Peaceful Uses of Outer Space COPUOS  
                  |                   |     | - Scientific and Technical Subcommittee  
                  |                   |     | - Legal Subcommittee  
|                   |                   |     | - Commission on the Limits of the Continental Shelf  
                  |                   |     | - International Seabed Authority  
                  |                   |     | - Ad Hoc Open-ended Informal Working Group to Study Issues about the Conservation and Sustainable Use of Marine Biological Diversity beyond Areas of National Jurisdiction  
| Outer space       | Outer Space Treaty system | UN Secretariat  
                  |                   |     | - UN DPA (Department of Political Affairs)  
|                   |                   |     | - International Seabed Authority  
|                   |                   |     | - Ad Hoc Working Group to Study Issues about the Conservation and Sustainable Use of Marine Biological Diversity beyond Areas of National Jurisdiction  
| Seas and oceans   | Law of the Seas system | UN Secretariat  
                  |                   |     | - UN OLA (Office of Legal Affairs)  
|                   |                   |     | - Conference of the Parties to the Convention on Biological Diversity (COP)  
                  |                   |     | - Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA)  
                  |                   |     | - Working Group on Art 8(j)  
| Biodiversity      | Convention on Biological Diversity | UN General Assembly  
                  |                   |     | - UN Economic and Social Council  
                  |                   |     | - Ad Hoc Working Group on the Review of Implementation of the Convention  
                  |                   |     | - Ad Hoc Working Group on Access and Benefit-sharing  
                  |                   |     | - Secretariat  
                  |                   |     | - Secretariat  
|                   |                   |     | - World Health Organization  
                  |                   |     | - WHO Secretariat  

Note: The table shows the different UN entities (except for Antarctica) that are responsible for the various agreements and the names of the various administrative entities engaged in facilitating the development of the various agreements.
<table>
<thead>
<tr>
<th>Resource frontier</th>
<th>International instruments</th>
<th>Governing entity</th>
</tr>
</thead>
</table>
| Antarctica        | *Antarctica Treaty system comprising:*  
|                   |   *Antarctica Treaty (1959)*  
|                   |   *Protocol on Environmental Protection to the Antarctic Treaty (1991)*  
|                   |   *Convention on the Conservation of Antarctic Marine Living Resources (1980)*  
|                   |   *Convention for the Conservation of Antarctic Seals (1972)*  
|                   | Antarctic Treaty Consultative Meetings (ATCM)  |
| Outer space       | *Outer Space Treaty system comprising:*  
|                   |   *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (1963)*  
|                   |   *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty) (1966)*  
|                   |   *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1967)*  
|                   |   *Convention on International Liability for Damage Caused by Space Objects (1971)*  
|                   |   *Convention on Registration of Objects Launched into Outer Space (1974)*  
|                   |   *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement) (1979)*  
|                   |   *Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (1982)*  
|                   |   *Principles Relating to Remote Sensing of the Earth from Outer Space (1986)*  
|                   |   *Principles Relevant to the Use of Nuclear Power Sources in Outer Space (1992)*  
|                   |   *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (1996)*  
|                   | Committee on the Peaceful Uses of Outer Space (COPUOS)  |
| Seas and oceans   | *Law of the Seas system comprising:*  
|                   |   *Law of the Sea Convention (1982)*  
|                   | Secretary General of the UN  |
Introduction

<table>
<thead>
<tr>
<th>Resource frontier</th>
<th>International instruments</th>
<th>Governing entity</th>
</tr>
</thead>
</table>
| Biodiversity      | *Convention on Biological Diversity* system comprising:  
|                   |   • *Convention on Biological Diversity* (1992)  
|                   |   • *Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilisation* (Bonn Guidelines) (2002)  
|                   |   • *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization* (Nagoya Protocol) (2010)  
|                   | *International Health Regulations* (2005) | Conference of the Parties to the Convention on Biological Diversity (COP)  
|                   | Governing Body | WHO Secretariat |

Note: The table shows the various legal instruments that have been concluded and their governing entity.

(c) The ‘freedom’ approach (as in ‘freedom of the High Seas’) that views a resource as unclaimed by anyone, but can be exploited with due regard to the rights and legitimate interests of others until some contrary agreement or regime takes effect. This is perhaps a subset of the *res communis* (belongs to everyone) approach.

Within this division, a Nation State can exercise sovereignty over a resource to the exclusion of others, and control others’ demands for access to those resources over which sovereignty has been exercised. And sovereignty has proved a useful means for dealing with genetic resources and was a central feature of the CBD (and the subsequent *Plant Genetic Resources Treaty* for some agricultural plants and PIP Framework for human pandemic viruses), and a significant change from the earlier schemes under the *Antarctic Treaty* system, the *Outer Space Treaty* and UNCLOS.

The UN has essentially been the main forum for dealing with genetic resources and their regulation in recent decades and established the bulk of international law about genetic resources. This, however, has evolved out of the ongoing discussions about (socio-)economic development at the UN and the changing nature of the UN as a representative forum for global affairs. The key outcomes of those discussions have recognised that conserving genetic resources was a critical aspect of (socio-)economic development requiring a law for access to those resources and benefit-sharing their uses. The context of these developments has shaped the regulation and continues to inform the evolving international norms.
1.2 THE UN AND (SOCIO-)ECONOMIC DEVELOPMENT

Before getting into the detail about the various resource regimes, it is important to understand the current UN arrangements and rules in context. Recall that the institution of the UN was originally crafted before the large-scale disintegration of colonialism after the 1940s. Since then there has been a massive expansion of independent Nation States and a massive expansion in the role and place of the UN in global affairs. With the UN dealing with the Nation State as the unit of negotiation and having an equal voting power the transition out of colonialism has meant that the desires of the economically powerful, rich and technologically advanced Nation States (the North) have had to accommodate a broader range of interests. In particular, the recognition that many of the economically weak, poor and technologically deprived Nation States (the South) had natural resources that could be exploited, and through that exploitation, there might be an opportunity for economic development. This tension between North and South has been at the centre of the UN debates about resources and genetic resources in particular. While a broad generalisation, this generalised North/South division marks, and continues to mark, the major divisions of power within the UN negotiating forums. As the analysis in this book demonstrates, these South concerns continue to drive developments. This North/South division also provides a useful thread to account for the content and direction of genetic resources regulation.

The North/South division crystallised in earnest in the 1970s with the proposed creation of a new international economic order following the Declaration on the Establishment of a New Economic Order. It is worth quoting from this Declaration as it captures many of the still-resonant contentions in implementing the resource agreements negotiated in the following decades:

We, the Members of the United Nations …

Solemnly proclaim our united determination to work urgently for the Establishment of a New International Economic Order based on equity, sovereign equality, interdependence, common interest and cooperation among all States, irrespective of their economic and social systems which shall correct inequalities and redress existing injustices, make it possible to eliminate the widening gap between the developed and the developing countries and ensure steadily

accelerating economic and social development and peace and justice for present and future generations, and, to that end, declare:

1. The greatest and most significant achievement during the last decades has been the independence from colonial and alien domination of a large number of peoples and nations which has enabled them to become members of the community of free peoples. Technological progress has also been made in all spheres of economic activities in the last three decades, thus providing a solid potential for improving the well-being of all peoples. However, the remaining vestiges of alien and colonial domination, foreign occupation, racial discrimination, apartheid and neo-colonialism in all its forms continue to be among the greatest obstacles to the full emancipation and progress of the developing countries and all the peoples involved. The benefits of technological progress are not shared equitably by all members of the international community. The developing countries, which constitute 70 per cent of the world’s population, account for only 30 per cent of the world’s income. It has proved impossible to achieve an even and balanced development of the international community under the existing international economic order. The gap between the developed and the developing countries continues to widen in a system which was established at a time when most of the developing countries did not even exist as independent States and which perpetuates inequality …

3. All these changes have thrust into prominence the reality of interdependence of all the members of the world community. Current events have brought into sharp focus the realization that the interests of the developed countries and those of the developing countries can no longer be isolated from each other, that there is a close interrelationship between the prosperity of the developed countries and the growth and development of the developing countries, and that the prosperity of the international community as a whole depends upon the prosperity of its constituent parts. International co-operation for development is the shared goal and common duty of all countries. Thus the political, economic and social well-being of present and future generations depends more than ever on co-operation between all the members of the international community on the basis of sovereign equality and the removal of the disequilibrium that exists between them.

4. The new international economic order should be founded on full respect for the following principles …
   e. Full permanent sovereignty of every State over its natural resources and all economic activities. In order to safeguard these resources, each State is entitled to exercise effective control over them and their exploitation with means suitable to its own situation, including the right to nationalization or transfer of ownership to its nationals, this right being an expression of the full permanent sovereignty of the State. No State may be subjected to economic, political or any other type of coercion to prevent the free and full exercise of this inalienable right …
Giving to the developing countries access to the achievements of modern science and technology, and promoting the transfer of technology and the creation of indigenous technology for the benefit of the developing countries in forms and in accordance with procedures which are suited to their economies.\textsuperscript{14}

The action program adopted at the same time focussed on rebalancing the apparent imbalance in economic circumstances between the North and South through ‘urgent and effective measures’ to ‘assist the developing countries, while devoting particular attention to the least developed, land-locked and island developing countries and those developing countries most seriously affected by economic crises and natural calamities’.\textsuperscript{15} And again natural resources were a key focus of the South’s concerns.\textsuperscript{16}

Subsequently the UN General Assembly adopted the \textit{Charter of Economic Rights and Duties of States}\textsuperscript{17} and again asserted sovereignty over natural resources.\textsuperscript{18} In achieving these UN General Assembly resolutions and challenging the existing economic norms the developing South countries further developed and entrenched their bloc of support known as the Group of 77.\textsuperscript{19} The Group of 77 emerged in the negotiation of the UN Conference on Trade and Development (UNCTAD) in 1964\textsuperscript{20} and formed a recognisable institution through membership, structure, organisation and meetings.\textsuperscript{21} They have used their solidarity to pursue a range of economic and other goals despite ongoing internal tensions about the viability and membership of this bloc.\textsuperscript{22} Significantly, the Group of 77 has had a major effect on the negotiation of the agreements considered in this book though their advocacy and presentation of the South’s perspectives, and the increasing representation of South countries in influencing the outcomes of these

\textsuperscript{14} A/RES/S-6/3201, Preamble, [1], [3] and [4].
\textsuperscript{15} A/RES/S-6/3202, [1].
\textsuperscript{16} See A/RES/S-6/3202, [2] (I[1]).
\textsuperscript{17} A/RES/29/3281. See generally Chatterjee (1991).
\textsuperscript{20} See Committee on Australia’s Relations with the Third World (1979) pp 240–264.
\textsuperscript{21} For recent examples of this institutional nature see G-77/SS/2005/1.
\textsuperscript{22} See, for examples, Kasa, Gullberg and Heggelund (2008); Rothstein (1980); Adede (1979).
Introduction

various multilateral negotiations.23 Perhaps the Group of 77 has also precipitated some of these North/South divisions in negotiating fora by articulating a predominant South perspective, despite individual members of the Group of 77 having a diversity of often conflicting interests.24

This North/South division has also been precipitated in the debates over genetic resources. At its most simple, and ignoring some of the nuances, the industrial agricultural practices of the North moved away from governmental institutions to the private sector and increasingly relied on selling their goods and commodities for profit (often relying on the expanding role of intellectual property to secure exclusivity). This was perhaps insulting to the South as they had provided the majority of the raw genetic resources free and were now required to forego any benefits and pay for the goods and commodities incorporating those genetic resources. Within the forum of the UN these economically weak, poor and technologically deprived South Nation States (through the Group of 77) saw the opportunity to renegotiate the economic and technological imbalance, and gain some of the benefits from their genetic resources. In essence:

The tension between North and South is brought about when the commercial value flowing North is not acknowledged and the South does not receive compensation for its contributions to the benefits received by the North. The situation worsens massively when governments in developed [North] countries allow the patenting [and other forms of intellectual property] of material wholly or partially derived from farmers’ varieties.25

In parallel with these developments at the UN has been the evolution of a global trading system through the separate World Trade Organization (WTO). Like the UN the WTO also recognises the same Nation States as units of negotiation and also imposes standards and solutions in another body of evolving international law, including the imposition of minimum standard intellectual property obligations. The WTO is the successor of the General Agreement on Tariffs and Trade (GATT) and completed the triptych conceived at Bretton Woods of an institution to reduce trade barriers and other trade-related matters, an institution for monetary management (the International Monetary Fund) and an institution for development

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23 For a collection of Group of 77 documents over the decades demonstrating their involvement, participation and influence on multilateral negotiations see Ahmia (2009).
24 See Williams (1997).
Regulating genetic resources

finance (the World Bank). The WTO’s focus is removing barriers to market access through a comprehensive set of agreements primarily directed to the form and content of Nation States’ regulations. As a central theme in the evolving international WTO laws has been a tension between ‘free trade’ and ‘fair trade’. As a generalisation the South favour ‘fair trade’ and the North favour ‘free trade’. Central to this tension is the hotly contested potential for WTO laws to be ameliorated to accommodate other bodies of law, and in particular, environmental laws and socio-economic factors. As the last quote suggests, intellectual property, which is a stalwart of WTO law, is intimately linked with genetic resources arising at almost every turn, and goes to the heart of the North/South tension, and will be addressed throughout this book.

The UN and the WTO also mark another significant shift in global concerns. At the time the UN was established in 1946 war and peace were critical to the global community. The cold war and antics of the super-powers (predominantly the Soviet Union and the United States and their respective allies) shuffled through the period transitioning out of colonialism. More recently, and this probably coincided with the establishing of the WTO in 1995, global trade has become increasingly more important and engaged much of the South in significant economic developments and poverty alleviation. For many in the South, however, joining the WTO and participating in the global trade arena has not delivered the promised benefits of economic development and the alleviation of poverty to the extent that might have been expected and they still remain locked out of trade that plays to their competitive advantages. The most significant restraint has been the agricultural subsidies that support North farmers and the North’s restrictions on manufactured products and services that remain in place despite a liberalising of financing and technology protections (intellectual property) that predominantly favoured the North. In effect the South has opened its markets to the North and its competitive advantages and the North has not reciprocated in opening its markets to the South’s competitive advantages, particularly in agricultural production – in the language of diplomats, there has not been a ‘balanced outcome’. To address these broader South concerns the WTO instigated the Doha Development Agenda in 2001. While this round of trade negotiations remains incomplete, the WTO Ministerial Council meeting in Cancún in 2003 probably marked a turning point because South countries asserted their perspectives

26 See, for example, Bhagwati and Hudec (1996) and the essays therein.
27 See WT/MIN(01)/DEC/1; WT/MIN(01)/17.
and refused to concede to further liberalising of their markets in favour of more benefits to the North (such as investment, government procurement and trade facilitation) until the North addressed their market access and subsidies, particularly in agriculture. In effect, the South found a new voice and challenged the global trading framework that has predominantly favoured the North and codified rules and processes from a North perspective – bringing to a reality the challenge that existing international laws were ‘a product of relations among imperialist States and of relations of an imperial character between imperialist States and colonial peoples’. With the increasingly rapid shift in global economic power to developing South countries (and particularly China, India, Brazil and Indonesia) the WTO might increasingly be expected to address a South perspective. For our purposes these shifts mark a move away from concerns about peace and war to concerns about trade, and also an increasing focus on the beneficiaries and economic development. This shift is also reflected in the genetic resources regulations. The *Antarctic Treaty* and the *Outer Space Treaty* were infected by cold war imperatives, the *Outer Space Treaty* and UNCLOS concentrated on global commons resources, while the more recent CBD and *Plant Genetic Resources Treaty* are more specifically focussed on self-interested economic development and poverty alleviation. These recent economic imperatives have also framed the modern developments under the *Antarctic Treaty*, the *Outer Space Treaty* and UNCLOS, driving their evolution to delivering benefits more equitably from exploiting (genetic) resources.

Thus, out of the transition from colonialism a plethora of new international laws has emerged, although the socio-economic and political divisions between the colonial powers of the North and the formerly colonised supplicant South essentially remain intact. These divisions continue to shape the debates about access to genetic resources. Importantly for the analysis presented in this book, however, the role and place of the UN is as the forum and maker of the majority of current international genetic resources laws, albeit there are significant influences from other forums.

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28 Sinha (1965) p 121.
1.3 THE CRYSTALLISING GENETIC RESOURCE AGREEMENTS IN THE 1990s

The start of formal discussion about genetic resources can probably be traced to the adoption of the *Undertaking on Plant Genetic Resources for Food and Agriculture* and the establishing of the Commission on Plant Genetic Resources for Food and Agriculture Organization of the UN in 1983 and their concerns about maintaining genetic diversity. The non-binding Undertaking set out the then popular ideal that various resources were the ‘common heritage of humanity’, which had recently been enshrined in the then recently concluded UN Convention on the Law of the Sea (UNCLOS): 30

The objective of this Undertaking 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. This Undertaking is based on the universally accepted principle that plant genetic resources are a heritage of mankind and consequently should be available without restriction.

And then framed ‘plant genetic resources’ to mean:

In this Undertaking: (a) ‘plant genetic resources’ means the reproductive or vegetative propagating material of the following categories of plants: (i) cultivated varieties (cultivars) in current use and newly developed varieties; (ii) obsolete cultivars; (iii) primitive cultivars (land races); (iv) wild and weed species, near relatives of cultivated varieties; (v) special genetic stocks (including elite and current breeders’ lines and mutants).

While a popular concept, the ‘common heritage of humanity’ proved to be a popular diplomatic and political catchcry but a nebulous construct for law. Despite considerable attention, discussion and negotiation the concept still remains uncertain. The problem for the ‘common heritage of humanity’, however, was that it reinforced the free exchange of genetic resources and undermined an opportunity for the economically weak, poor and technologically deprived South to develop economically and technologically. This

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30 *Law of the Sea Convention*, Art 136. See also Resolution 2749 (XXV).
was particularly compelling because the economically powerful, rich and technologically advanced North had relied, and was predicted to rely increasingly, on importing genetic resources from the South to maintain their economies. Thus:

The North’s dependence on the South for biodiversity has been increased by the effect of genetic erosion. For example, a survey of [United States] vegetable varieties revealed that 97% of the varieties of 75 species have become extinct since the turn of the [20th] Century. A third of the remaining livestock species in both Europe and North America are endangered. The industrialized countries of the North are now almost 100% dependent on the South’s biodiversity (footnotes omitted).33

At the time the Undertaking on Plant Genetic Resources for Food and Agriculture was adopted some Nation States recorded reservations because they considered the heritage-based approach could undermine the rights of plant breeders.34 To ameliorate these concerns subsequent resolutions were adopted that accepted that the International Union for the Protection of New Varieties of Plants (UPOV)-based plant breeder’s rights (intellectual property) were compatible with the undertaking in 1989,35 and recognising the Nation States’ sovereign rights over their plant genetic resources in 1991.36 In short this was a move away from the ‘common heritage of humanity’ in favour of State sovereignty recognising the jurisdiction, power and authority of the Nation State.

An apparent halfway measure before the complete abdication of the ‘common heritage of humanity’ was the Food and Agriculture Organization of the United Nations’ (FAO) International Code of Conduct for Plant Germplasm Collection and Transfer.37

34 Canada, France, Germany, Japan, New Zealand, Switzerland, UK and USA: see Mekouar (2002) p 4.
35 C 1989/REP, [108] (Resolution 4/1989) (‘Plant Breeders’ Rights as provided for under UPOV (International Union for the Protection of New Varieties of Plant) are not incompatible with the International Undertaking’: [1]).
36 C 1991/REP, [104] (Resolution 3/1991) (‘the concept of mankind’s heritage, as applied in the International Undertaking on Plant Genetic Resources, is subject to the sovereignty of the States over their plant genetic resources’: Preamble).
37 Negotiated at the Commission on Plant Genetic Resources (see CPGR/93/REP, [58]) and adopted by the FAO: see C 1993/REP, [113] (Resolution 8/1993).
The code recognizes that nations have sovereign rights over their plant genetic resources in their territories and it is based on the principle according to which the conservation and continued availability of plant genetic resources is a common concern of humankind. In executing these rights, access to plant genetic resources should not be unduly restricted.38

State sovereignty was formally enshrined in international discourse culminating in the CBD signed at the Rio conference in 1992 with the objectives:

The objectives of this [CBD], to be pursued in accordance with its relevant provisions, are [1] the conservation of biological diversity, [2] the sustainable use of its components and [3] the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.39

On the face of the CBD, the third objective of benefit-sharing the uses of genetic resources marked a fundamental shift in binding international measures to conserve biodiversity:40 first, by recognising the sovereign right of countries over their genetic resources;41 secondly, by linking access to those resources with the outcomes of scientific research and commercial uses, and access to technology on more favourable and non-commercial terms, including the products and technologies of the private sector derived from those genetic resources;42 and thirdly, by introducing intellectual property into the economic and policy debates about conserving genetic

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39 Convention on Biological Diversity, Art 1.
41 Convention on Biological Diversity, Art 15(1). See also Art 3, and the possible limitations on sovereign countries exploiting their natural resources according to the CBD’s provisions: see Blay and Piotrowicz (1993) p 462.
resources that might benefit future technological, economic and social development.43

At the time the CBD was being negotiated, there was almost universal consensus that the predominantly poor countries with the majority of the earth’s useful biological diversity (the South) should benefit from the exploitation of that diversity by the predominantly rich and technologically advanced countries (the North).44 However, the content of the benefits to be shared from exploiting that accessed diversity and the issue of access to and transfer of technology to exploit those genetic resources remained contentious.45 A central contention was the developed North’s view that intellectual property should be maintained and respected.46 Meanwhile the South contended that its genetic resources had value and exploiting that value was an opportunity to address poverty alleviation and technological development requiring more favourable and non-commercial terms of access to useful technology.47 In essence, the contentions over the CBD might be reduced to: ‘The South wants the technology and the North wants the South to have it. But while the South sees itself as a potential partner, the North looks South and sees only paying customers.’48

The outcome of these contentions in the final text of the CBD was to postpone the resolution through agreeable diplomatic language effecting a compromise: ‘that patents and other intellectual property rights may have an influence on the implementation of this CBD’ with an obligation to ‘cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to A/CONF.151/26 (Vol I) (Principle 9) (Rio Declaration on Environment and Development). See generally Grubb et al (1993) pp 144–145.

43 Convention on Biological Diversity, Preamble and Arts 3, 10, 11, 15, 16, 19 and 22. See also Organisation for Economic Co-operation and Development (2003) pp 18–19 and 109; Commission on Intellectual Property Rights (2002) pp 57–72. Noting that at the time the CBD was being negotiated the developed nations were the net beneficiaries of developing nations’ biological materials: see, for example, United Nations Development Program (1994). Note also the contributions of germplasm held in North repositories: Odek (1994) pp 145–147. Albeit the developed countries of the North were not a homogeneous, cohesive or coordinated block: see Panjabi (1997) pp 263–264.

44 For a summary of those contemporary competing South and North views see, for example, Gillespie (1995) pp 389–392 and the references therein.

45 For an overview of the various contentions and particularly those of the United States see generally Panjabi (1997).

46 For an overview of the various contentions and particularly those of the United States see generally Panjabi (1997).

47 See for example UNEP/BioDiv2/3, p 7.

its objectives’.\(^{49}\) The diplomatic language allowed the technology-rich North countries (principally those in the European Union, and Japan) to agree to preferential and concessional access to and transfer of technology using undefined terms that would not undermine the concern of the North countries to maintain their existing intellectual property arrangements.\(^{50}\) The outcome was, at best, just an in-principle agreement to exchange genetic resources for benefits that might include access to and transfer of technology.\(^{51}\)

This compromise also reflected, in part, the unresolved tensions between intellectual property negotiations in international trade and the environment, which were being concurrently negotiated in different forums. The environmental CBD was negotiated under the auspices of the UN Environment Programme and the international trade Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)\(^{52}\) was being negotiated under the auspices of the General Agreement on Tariffs and Trade (GATT), which subsequently became the WTO. Essentially the CBD attempted to set a balance by encouraging the biodiversity-rich countries to maintain their resources so they might be sustainably used by the countries with highly developed technology, with the benefits accruing to both the biodiversity-rich and poor countries.\(^{53}\) In contrast, the WTO’s TRIPS attempted to establish new rules and disciplines moving intellectual property into the realm of international trade laws so as to reduce distortions and impediments to international trade while encouraging new invention relying on the

\(^{49}\) Convention on Biological Diversity, Art 16(5). See also Marin and Lucia (2002) p 92.

\(^{50}\) See for example Grubb et al (1993) p 29.

\(^{51}\) Noting that a number of North countries were careful to declare their position on intellectual property. For example, Switzerland declared on ratification that ‘transfers of technology and access to biotechnology, as defined in the text of the [CBD] will be carried out in accordance with Art 16 of the said [CBD] and in compliance with the principles and rules of protection of intellectual property, in particular multilateral and bilateral agreements signed or negotiated by the Contracting Parties to this [CBD]’: Secretariat of the Convention on Biological Diversity (2005) p 388.

\(^{52}\) Marrakech Agreement Establishing the World Trade Organization, Annex 1C.

formula ‘patents = free trade + investment = economic growth’.\textsuperscript{54} According to the generalised North/South divide,\textsuperscript{55} the CBD imposes obligations on the biodiversity-rich South to provide access to its genetic resources,\textsuperscript{56} and in return the technology-rich North facilitates access and transfer of technology, know-how and financial support and incentives,\textsuperscript{57} which promotes economic growth, directly addressing the development agenda to alleviate poverty.\textsuperscript{58}

The expressed objections of the leading technology-rich North Nation State (the United States) to the CBD’s agreed text was that the treatment of finances, intellectual property, technology transfer and biotechnology was inadequate.\textsuperscript{59} In particular, the United States was concerned that the language dealing with intellectual property was ‘a constraint to the transfer of technology rather than … a prerequisite’\textsuperscript{60} reflecting the United States’ biotechnology industry’s perspective that the CBD opened the way for countries to reduce the level of intellectual property protection and introduce compulsory licensing arrangements.\textsuperscript{61} However, the United States, following a change of administration, signed the CBD, subject to the following proviso:

The United States declares its understanding that access to and transfer of technology subject to intellectual property rights under this [CBD] require the recognition of, and consistency with, the adequate and effective protection of intellectual property rights, and thus does not provide a basis for the use of compulsory licensing laws to compel private companies to transfer technology under this agreement … The United States declares its understanding of Art 16(2) that the phrase ‘fair and favourable terms’ means terms that are determined

\textsuperscript{54} Sell and Prakash (2004) p 154. See also Drahos (1995) p 7.\textsuperscript{55} There is a considerable literature about this divide, but see, for a contemporaneous commentary, Palmer (1992).\textsuperscript{56} As a generalisation these are the general obligations set out in the Convention on Biological Diversity, Arts 6–15.\textsuperscript{57} As a generalisation these are the general obligations set out in the Convention on Biological Diversity, Arts 16–21.\textsuperscript{58} See, for example, A/CONF 151/26 (Vol I) annex 1 (Rio Declaration on Environment and Development).\textsuperscript{59} Secretariat of the Convention on Biological Diversity (2005) pp 394–395. See also United Nations Conference on Environment and Development (1992). Although the United States had expressed ongoing concerns during the negotiation process and at the Earth Summit: see Panjabi (1997) pp 244–263.\textsuperscript{60} United States Department of State (1992).\textsuperscript{61} See United States Patent and Trade Mark Office (1992); Reilly (1992). For a critique of this opposition see McManis (1998) pp 262–265.
by a free market without trade restrictions and government coercion … The United States declares its understanding that fair and equitable sharing of the benefits arising out of the utilisation of genetic resources requires members of this [CBD] to respect the rights of other member countries and of private parties to the technology that arise out of such utilisation of genetic resources … For this reason the United States believes that the extension of adequate and effective intellectual property protection for the technology derived from the use of genetic resources is an essential prerequisite to the success of the [CBD].62

Following the CBD’s entry into force for Contracting Parties (on 29 December 1993) minimum intellectual property standards have been established and codified in TRIPS for WTO Member States (from 1 January 1995). The interaction between the CBD and TRIPS remains contentious,63 with internationally contested inherent conflicts between TRIPS and the CBD being that TRIPS requires that genetic materials be protected by patents or a sui generis plant variety that privately appropriates genetic resources over which a country has sovereignty under the CBD,64 and that these privileges do not also require the additional measures set out in the CBD, such as prior informed consent, mutually agreed terms and benefit-sharing.65 These essentially North/South contentions about intellectual property are being resolved through various forums, albeit they have continued to colour every negotiation and agreement about genetic resources.

The other contention is whether the CBD is specifically (and exclusively) directed to biodiversity conservation. As a generalisation, market-based economies have addressed biological diversity conservation as a market failure.66 Most of these economies have sought to deal with the market failure, at least in part, by establishing a property regime controlling access to the biological diversity and then imposing obligations on the subsequent users of any accessed biological resources to share the benefits.67 This

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63 For an overview of the current state of the controversy see WT/GC/W/633, [18]–[27].
64 IP/C/W/368, p 2. See also IP/C/W/163.
65 IP/C/M/28, p 43. See also IP/C/W/368, p 2.
Introduction

approach reflects the theory that the benefits of biological diversity conservation accrue to society and cannot be sufficiently captured by those likely to undertake the conservation – the marginal private returns from conservation activities do not correspond with their marginal social returns favouring biological diversity destruction and decline. Establishing exclusive property rights over the biological resources appropriates part of the social value for individual economic activities thus compensating those likely to undertake the conservation activity, and providing an incentive to undertake future conservation activities:

Exclusive property rights will induce economic agents, who are interested in the utilisation of genetic resources, to pay for the access to genetic resources. This entrance fee will compensate those agents who bear the cost of conserving and providing genetic resources, and hence create real economic incentives for engaging in protection and provision of diverse genetic resources.

The objective of controlling access and benefit-sharing is therefore to establish a market for biological diversity conservation that internalises into a market transaction all the costs of the impacts of biological diversity destruction and decline. According to this analysis the terms and conditions of the access and benefit-sharing are the price (and compensation) for maintaining biodiversity and the cost of conservation. Others, meanwhile, assert that even though the access and benefit-sharing obligations are part of an environmental treaty they should not be expected to fulfil an environmental purpose. According to this analysis there is no link between the price paid for accessing genetic resources reflected in the terms and conditions of the access and benefit-sharing and the costs of maintaining

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71 See, for example, Simpson (1997) pp 13–14. A prolific economics literature has also developed dealing with genetic resources as information for subsequent research and development and the allocation of property rights: see, for example, Swanson and Goeschl (2000). While a compelling and useful contribution, this does not account for or address the property inherent in accessing the genetic resources and the price paid for that access.

72 See, for example, Stoll (2009) pp 4–5.
and conserving biodiversity. Further, the issues of sovereignty are merely a requirement for establishing the provenance of genetic resources to ensure that the ownership is not contested.

With no clear resolution of either the objectives of access and benefit-sharing or the intellectual property issues the North/South division remains. The ongoing theme is the unresolved nature of the basic problem – ‘while the South sees itself as a potential partner, the North looks South and sees only paying customers’.

In the meantime a comprehensive body of international law about access and benefit-sharing has developed. In more recent times this has been in a move away from general access and benefit-sharing arrangements to arrangements dealing with specific kinds of genetic resources – plant genetic resources for food and agriculture and human pandemic viruses.

At the time of the CBD negotiations there was recognition of ‘the special nature of agricultural biodiversity, its distinctive features and problems needing distinctive solutions’. The result was a negotiation of the Plant Genetic Resources Treaty according to the mandate ‘for the adaptation of the International Undertaking on Plant Genetic Resources, in harmony with the [CBD]’. Following soon after the Plant Genetic Resources Treaty there was dispute over access and benefit-sharing pandemic influenza viruses that led to the World Health Organization (WHO) developing a framework agreement (the PIP Framework). These developments, together with the further developments at the CBD (such as the agreement of the Nagoya Protocol) have sustained the North/South contentions and enhanced the body of international law. In the meantime genetic resources have also become contentious in Antarctica, the seas and oceans, and possibly now even in outer space and various entities are now addressing these new resource frontiers. All these developments are considered in this book to demonstrate an evolving complex of international laws governing the access and benefit-sharing of genetic resources.

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74 UNEP/CBD/COP/2/19, [125] and Annex II (Decision II/15).
75 C 1993/REP, [105] (Resolution 7/1993). See also CGRFA-Ex6/01/REP, [5]–[10]; CGRFA-Ex5/98/REP, [7]–[42]; CGRFA-EX4/97/REP, [5]–[14]; CGRFA-Ex3/96/REP, [5]–[16]; CGRFA-Ex2/96/REP, [32]–[39]; CPGR-Ex1/94/REP.
1.4 OUTLINE OF THE BOOK

Each of the chapters 2 to 7 are dedicated to a separate resource agreement: Chapter 2 – Antarctica (the Antarctic Treaty system); Chapter 3 – outer space (the Outer Space Treaty system); Chapter 4 – the seas and oceans (the Law of the Sea system); Chapter 5 – genetic resources within Nation State jurisdiction (the CBD); Chapter 6 – the sub-grouping of plant genetic resources for food and agriculture (the Plant Genetic Resources Treaty); and Chapter 7 – human pandemic viruses (the International Health Regulations). Each chapter outlines the regulatory framework and then provides a narrative about its development through the relevant governing body leading to the concluded positions. The final Chapter 8 then draws together the various resource agreements to detail the common themes and demonstrate the regulatory complex applying to genetic resources. The result is an overview of the existing regimes, their relationships, and hopefully, some understanding of how these various genetic resource access and benefit-sharing regimes might be improved.