



The Politicization of Carbon Domestication II

A.M.MANNION



The University of Reading

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The author is a member of the Department of Geography,
University of Reading, Whiteknights,
Reading RG6 6AB
Telephone: 0118 9318320
Email: A.M.Mannion@Reading.ac.uk

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1. Introduction

In the 1970s the politicization of carbon domestication continued and intensified following the momentum gained in the immediate post World War II period with the establishment of the United Nations (UN). This began with formation of the United Nations Educational Scientific and Cultural Organization (UNESCO) in 1946 and was reinforced with the Man and Biosphere (MAB) programme in the 1970s; habitat description and conservation were given formal and international status. The establishment of the United Nations Environment Programme (UNEP) in 1972 was another milestone in the internationalization and politicization of carbon appropriation and management and it facilitated the strengthening of links with non-governmental organizations such as the World Wide Fund for nature (WWF), details of which are given in Mannion (2005a and b). It was under the auspices of UNEP that the concept of sustainable development was born and internationalized (WCED, 1987) and related activities generated the Earth Charter. UNEP's high-profile conferences have helped to catapult environmental issues into mainstream political agendas and have contributed to the formulation of management and conservation strategies. Amongst the most significant are the initiatives on climate and biodiversity. Acid rain, ozone depletion and global warming are subject to international investigation and action as a result. Carbon trading is one such action stimulated by the Kyoto Protocol on climatic change to tackle global warming. The Convention on Biodiversity (CBD) addresses the pressing issue of biodiversity loss and its embrace of the concept of sustainable development has led to several regional and national conservation initiatives.

Trade is also an important aspect of the domestication of carbon and indeed what could be more political? World trade is a complex issue and requires a more complete exposition than is possible here but some of the major features, organizations and problems are referred to in the penultimate section to ensure that trade is considered as major component of carbon-based resource exploitation.

2.1 The UN, UNEP, international agreements and the Earth Charter

The United Nations (UN) was created in 1945 with the objective of securing world security and peace following the upheaval of two World Wars between 1914 and 1945. One of its first agencies was the United Nations Educational Scientific and Cultural Organization (UNESCO) which was founded in 1946. Its objective was, and remains, the promotion of collaboration, and thus peace, between nations through education, science and culture. However, in the first two decades of its existence, environmental issues were of little consequence in UN activities, but increasing awareness of such issues in the late 1960s and early 1970s (see Mannion, 2005b) led the UN to recognize their role in the achievement of security and peace. Although concerns since the 1980s about UNESCO's administration and possible political bias have caused rifts within the organization and the withdrawal of several nations, including the USA and the UK, it has been instrumental in conservation through its establishment of the Man (*sic*) and Biosphere (MAB) in 1971; this was the result of deliberations between FAO, the World Health Organization (WHO), the World Meteorological Organization (WMO) and the International Council for Science (ICSU) in 1968. The MAB programme was charged with promoting an interdisciplinary approach to environmental investigation and conservation and people – environment relationships. In its 33-year history the MAB programme has undergone many changes but its prime objective remains the reconciliation of resource use and conservation. In this respect it is a major advocate of the 'ecosystem approach' adopted by the Convention on Biological Diversity (CBD) at the UN Conference on Environment and Development in 1992 (see Section 2.3 and [Table 2](#)).

To achieve these objectives MAB has established a series of Biosphere Reserves worldwide which are defined (see UNESCO, 2004) as "areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with its sustainable use". They are internationally recognized, nominated by national governments and remain under sovereign jurisdiction of the states where they are located. Biosphere reserves serve in some ways as 'living laboratories' for testing out and demonstrating integrated management of land, water and biodiversity. Each biosphere reserve is intended to fulfil three basic functions, which are complementary and mutually reinforcing, as given

in *Table 1*. The designation of biosphere reserves is ongoing and in November 2004 there were 459 reserves in 97 countries (for a complete list see UNESCO, 2004). Some of these reserves are classified as World Heritage Sites. The MAB programme also publishes a bulletin and organizes workshops and conferences.

Table 1: The functions of MAB biosphere reserves (based on UNESCO, 2004).

CONSERVATION	to contribute to the conservation of landscapes, ecosystems, species and genetic variation.
DEVELOPMENT	to encourage economic and human development which is socially, culturally and ecologically sustainable.
LOGISTICS	to provide support for research, monitoring, education and information exchange on scientific and socio-cultural aspects of conservation and development at scales from the local to the global.

A year after MAB was founded, the United Nations Environment Programme (UNEP; see UNEP, 2004a) was established in 1972 as a component of the United Nations (UN) following the International Conference on the Human Environment in Stockholm, Sweden, in 1972. Its mission is given below.

To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

Based in Nairobi, UNEP is ‘the voice of the environment’ in the UN. It has an executive director who works with a senior management group, regional directors and representatives and national committees, and who liaise with ministries of environment worldwide and international organizations such as the WWF (see Mannion, 2005b). UNEP produces publications, web-based information and technical advice as well as organizing international conferences. The information it makes available includes the Global Resource Information Database (GRID), the International Register of Potentially Toxic Chemicals (IRPTC). The former comprises a network of co-operating centres worldwide whose objective is to make environmental data accessible; a major resource is a range of digital maps, including thematic maps. The latter lists details of potentially toxic chemicals and their mode of action. UNEP also runs an environment network through a web site (www.unep.net) which provides environmental information through links with other web sites. There is also a regular magazine entitled *Our Planet*, a series of reports entitled *Global Environmental Outlook (GEO)* as well as a range of other services to governments, environmental groups etc.

The UN, independently of UNEP, also commissioned the World Conference on Environment and Development in 1983 under the chairpersonship of Gro Harlem Brundtland, former prime minister of Norway. The object was to devise a plan to bring about development within the bounds of maintaining environmental integrity. The outcome of this conference, published in 1987 as *Our Common Future* (WCED, 1987), advocated the concept of sustainable development. This concept, formally proposed as “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” has been widely adopted by governments worldwide. Now more sentiment than objective, the concept of sustainable development has become

clichéd, and much debate surrounds its true meaning and relevance (see Williams and Millington, 2004, for a discussion and Lumley and Armstrong, 2004, for historical background).

However, UNEP has embraced sustainable development as a focus in its activities. This is reflected in UNEP's most high-profile activities, notably its international conferences. Apart from the founding conference in Stockholm in 1972 which established the duality of environment and development, other conferences include the so-called Earth summits of Rio de Janeiro in 1992 and Johannesburg in 2002. The former (the International Conference on Environment and Development) was influential insofar as it achieved several major agreements relating to the environment and which all concern carbon in one form or another. Brief details of the agreements on climatic change, biodiversity, forests and action plans are given in Table 2. The principles (see O'Riordan, 2000, for details) established in these agreements have become significant nationally, regionally and locally through their adoption by government agencies.

Table 2: Major agreements of the 1992 UN Conference on Environment and Development (UN, 1997).

<p>Framework Convention on Climate Change</p> <p>The aim is to provide an international framework within which future actions can be taken. The main climate problem was recognized as global warming and discussions ensued concerning reductions in carbon dioxide emissions, i.e. to reduce them to 1990 levels by 2000. The UN Framework Convention on Climate Change was drawn up. The EU declined to ratify the treaty; individual countries set their own targets and lengthened the time available to reach them. Developing countries expected developed countries to set the pace and to fund the cuts for both groups of countries. This treaty, although being diluted by ambiguous composition, has at least established the value of the precautionary principle since, in 1992, the evidence for anthropogenic global warming was equivocal. 150+ nations signed this agreement.</p>
<p>The Convention on Biological Diversity</p> <p>The focus of this treaty, which came into force in 1994, is the conservation of the Earth's biota through the protection of species and habitats or ecosystems. The debate polarized developing and developed nations insofar as the developing countries house more of the world's biodiversity (where it is experiencing many threats) than the developed countries which are skilled in biotechnology. The convention was signed by 153 countries, a major exception being the USA because of fears that US biotechnology companies could be disadvantaged. The USA has since signed.</p>
<p>Statement on Forest Principles</p> <p>This represents a diluted (and legally unenforceable) consensus on forest management which resulted from earlier (1990-1991) attempts to formulate a global forest convention. The principles assert the sovereign right of individual countries to profit from their forest resources but advocate that this should take place within a framework of forest protection, conservation and management.</p>
<p>The Rio Declaration on Environment and Development</p> <p>This has its origins in the UN Conference on the Human Environment, Stockholm in 1972. It is a statement of 27 principles upon which the nations have agreed to base their actions in dealing with environment and development issues.</p>

Agenda 21

This is a 40-chapter action plan for sustainable development. It established tasks, targets, costs, etc., for actions which combine economic development and environmental protection. In many nations, e.g. the UK, the suggestions of Agenda 21 have been incorporated into local, regional and national development strategies. It led to the establishment of the UN Commission on Sustainable Development in 1992.

The UN Commission on Sustainable Development, established in 1992 (see *Table 2*), is charged with promoting, implementing and monitoring development focussed on sustainability, including the addressing of social issues such as poverty and grass-roots decision making. This commission, as part of UNEP, lacks authority and its various reports indicate that some, but not nearly enough, progress has been made and that environmental degradation continues. In 2002 a further 'Earth summit', the World Summit on Sustainable Development, was held in Johannesburg. Its objectives were to determine progress in sustainable development, a measure of the success of Agenda 21 which was promoted at the UNCED in 1992 (see *Table 2*); it confirmed earlier reports from the UN Commission on Sustainable Development but also highlighted the partnership approach. This is defined as voluntary, multi-stakeholder initiatives aimed at implementing sustainable development and governments were urged to promote such liaisons as complementary approaches to those of government agencies (see Johannesburg Summit, 2002). It culminated in the 'Johannesburg Declaration' which restated and renewed commitments on the part of governments to sustainable development.

Its objectives encompass the eradication of poverty, changing unsustainable patterns of consumption and production, protecting and managing the natural resource base of economic and social development, sustainable development in a globalizing world, health and sustainable development, sustainable development of small island developing states, sustainable development for Africa and other regional initiatives, the means of implementing sustainable development, the institutional framework for sustainable development, strengthening the institutional framework for sustainable development at the international level, and the roles of international agencies such as the UN as well as those of national governments in promoting sustainable development. In addition, UNEP was responsible for the First Global Ministerial Environmental Forum which was held in 2000. It reflects the 'globalization' of environmental politics and the need for governments to confer and exchange ideas.

Other initiatives under the auspices of the UN/UNEP have focussed on climatic change and are examined in Section 2.2. Another formal development from the UNCED in Rio de Janeiro is the Earth Charter. Intergovernmental efforts to generate a formal charter at Rio failed but interested parties from civic society, whose interest stemmed from the 1983 World Conference on Environment and Development (WCED), continued to press for it and it came into existence in 1994 under the direction of an international, but non-governmental, Earth Charter Commission. Its history and objectives are described by d'Evie and Glass (2002). The Earth Charter's focus is the recognition of close people-environment relationships and the necessity of sustainable development. It promotes just ecological and social integrity (see papers in Miller and Westra, 2002) and thus embraces equity in resource use as well as peace and democracy. Its mission is given below (see The Earth Charter Initiative; Earth Charter, 2004).

- The mission of the Earth Charter is to establish a sound ethical foundation for the emerging global society and to help build a sustainable world based on respect for nature, universal human rights, economic justice, and a culture of peace.

- The goals of the Earth Charter Initiative are:
 - To promote the dissemination, endorsement, and implementation of the Earth Charter by civil society, business, and government.

 - To encourage and support the educational use of the Earth Charter.

 - To seek endorsement of the Earth Charter by the UN.

The Earth Charter did not gain official UN acceptance at the World Summit on Sustainable Development in Johannesburg in 2002 but its supporters continue to press for recognition and it was endorsed by the IUCN in November 2004. The web site provides material for educational purposes.

2.2 International initiatives on atmosphere/climate

Throughout the 1970s and 1980s concerns were intensifying in the scientific community about the prospect of atmospheric and climatic change. Three main problems can be identified: acid rain, stratospheric ozone depletion and global warming. All are linked to the domestication of carbon.

First so-called 'acid rain' is produced through fossil-fuel burning, especially coal. Its production, impact and mitigation is discussed in Mannion (1997a), Middleton (2003) and Kemp (2004), and referred to in Section 5.5. When carbon dioxide, nitrous oxides and sulphur dioxide are released into the atmosphere they combine with water to produce acids, notably carbonic, nitric and sulphuric acids, and also possibly combine with heavy metals such as lead and cadmium. These are deposited from precipitation either locally where they are produced or at a distance from the source if they are transported by winds. The result is soil acidification and the corrosion of buildings in cities. The former can impair vegetation and cause acidification of lakes and streams which, if severe, may result in the loss of flora and fauna. In cities, the etching of buildings, erosion of material from limestone-clad walls and loss of definition of sculpted façades cause eye-sores, and poor atmospheric quality is a health hazard, especially for those with respiratory problems. Mitigation is, however, possible as is demonstrated by the considerable success of many industrialized nations in the northern hemisphere to curb emissions, a process which has led to much recovery from acidification in vulnerable environments.

The strategies employed include flue gas desulphurization requiring the employment of scrubbers in power stations to remove sulphur dioxide. Catalytic reduction processes have been developed to remove nitrous oxides though they are not as widely applied due to high costs, and little effort has been made to remove carbon dioxide prior to emission (see below in relation to global warming). However, these mitigating strategies are linked with international agreements to reduce the spread of acidification and reverse its impact. Such agreements have come into existence under the umbrella of the Geneva Convention on Long-range Transboundary Air Pollution (LRTAP) of 1979. According to the United Nations Economic Commission for Europe (UNECE, 2004), this convention has its origins in the 1960s when it was first recognized that pollution could be transported between nations; research indicated that Scandinavian lakes were being acidified by emissions from other European nations. This issue was highlighted at the UN Conference on the Human Environment in 1972 and following collaborative studies which highlighted long-distance transport of pollutants the LRTAP was

established and came into force in 1983. There are now eight protocols as listed in *Table 3*. The 1985 protocol is often referred to as the 30 per cent club because of the requirement of signatories to reduce sulphur emissions by at least 30 per cent and it was the first major protocol, and indeed international agreement, to tackle ‘acid rain’. The other protocols deal with other aspects of atmospheric pollution.

Table 3: Protocols to the Convention on Long-Range Transboundary Air Pollution (LRTAP), (based on UNECE, 2004)

1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone; 31 Signatories and 14 ratifications. Not yet in force. (Guidance documents to Protocol adopted by decision 1999/1).
1998 Protocol on Persistent Organic Pollutants (POPs); 21 ratifications parties. Entered into force on 23 October 2003.
1998 Protocol on Heavy Metals; 24 ratifications parties. Entered into force on 29 December 2003.
1994 Protocol on Further Reduction of Sulphur Emissions; 25 Parties. Entered into force 5 August 1998.
1991 Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes; 21 Parties. Entered into force 29 September 1997.
1988 Protocol concerning the Control of Nitrogen Oxides or their Transboundary Fluxes; 29 Parties. Entered into force 14 February 1991.
1985 Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent; 22 Parties. Entered into force 2 September 1987.
1984 Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP); 41 Parties. Entered into force 28 January 1988.

Today ‘acid rain’ is much less of a problem than it was 20 years ago in Europe and North America but it is now spreading in industrializing countries in Asia and Latin America. In order to help prevent acidification in these regions the Regional Acidification Information and Simulation (RAINS) programme has been devised by EU researchers as ‘early warning’ system for Asian governments. Details for RAINS for Europe and for Asia are documented by the International Institute for Applied Systems Analysis (IIASS, 2004).

Another aspect of atmospheric pollution involving carbon is that of chlorofluorocarbons (CFCs). As discussed in Mannion (2005a), these are molecules containing carbon combined with halides such as chlorine. They do not occur in nature and were first created artificially in the late 1920s; widespread use as refrigerants and propellants in aerosols began in the 1950s and as cleaning agents in the electronics industry in the early 1980s. Unfortunately, these compounds are now known to damage the ozone layer in the stratosphere, a layer of the upper atmosphere between 12 and 50 km above the Earth’s surface. The ozone is important because it absorbs ultraviolet light and thus limits the amount reaching the Earth’s surface where high concentrations can cause skin cancer and genetic alterations

in organisms. Moreover, CFCs are themselves potent heat-trapping gases and thus contribute to global climatic change. The problem of ozone depletion went unrecognized until the 1970s when Molina and Rowland (1974) produced evidence that CFCs cause stratospheric ozone to break down and in the mid-1980s an ‘ozone hole’ was first identified over the Antarctic by Farman *et al.* (1985). By 1979 the governments of Canada, Norway, Sweden and the USA had banned CFC use for aerosols and by 1987 concern had become international. This culminated in the UN-sponsored Montreal Protocol on Substances that Deplete the Ozone Layer (see UNEP, 2004b for details) which was widely adopted, with subsequent amendments in 1990 and 1992. This protocol prescribes that the production and use of compounds with the capacity to deplete ozone in the stratosphere, i.e. chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform, should be phased out by 2000, or by 2005 for methyl chloroform. The protocol has been widely though not universally accepted, but it is anticipated that the stratospheric ozone layer will return to its pre-CFC condition by c. 2050.

However, while the issues of ‘acid rain’ and stratospheric ozone depletion remain significant, and provide evidence that internationally agreed strategies can be effective, the most pressing problem of carbon dioxide emissions remains. This has spawned another round of international protocols under the auspices of the UN. In 1988 the Intergovernmental Panel on Climate Change (IPCC) was established as a joint venture between the World Meteorological Organization (WMO) and UNEP. Its role “is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation” (IPCC, 2004). IPCC is managed by a secretariat and is based in Geneva at the WMO. As *Table 4* shows, it comprises three working groups and a task force whose objective is to appraise the international community on all aspects of climatic change through the analysis of published literature. The first report was produced in 1990 and provided impetus for the formation of an Intergovernmental Negotiating Committee which documented the UN Framework Convention on Climate Change (UNFCCC) in 1992 which was signed at the UNCED (Earth Summit) in Rio de Janeiro (see *Table 2*); it came into force in 1994.

Table 4: The structure of the IPCC (based on IPCC, 2004)

Working Group I	assesses the scientific aspects of the climate system and climate change
Working Group II	assesses the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adapting to it
Working Group III	assesses options for limiting greenhouse gas emissions and otherwise mitigating climate change
Task Force	is responsible for the IPCC National Greenhouse Gas Inventories Programme

The second report of the IPCC was published in 1995 and was instrumental in the formulation of the Kyoto Protocol to the UNFCCC in 1997. It highlighted the significance of human impact on global climate. Its third report was in 2001 a fourth report is scheduled for 2007.

The Kyoto Protocol was signed initially by 84 nations who accepted the principle that emissions of heat-trapping (greenhouse) gases should be reduced by at least 5 per cent of levels in 1990 in the commitment period of 2008 -2012 (UNFCCC, 2004). The gases are listed in *Table 5*.

Table 5: The major heat-trapping (greenhouse) gases

<p style="text-align: center;">Carbon dioxide (CO₂) Methane (CH₄) Nitrous oxide (N₂O) Hydrofluorocarbons (HFCs) Perfluorocarbons (PFCs) Sulphur hexafluoride (SF₆)</p>
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How this was to be achieved was decided at a later meeting in Marrakech in 2001, with details documented as the Marrakech Accords. Some nations have not signed the Kyoto Protocol, notably the USA which is one of the world's major producers of heat-trapping gases. The EU has a block target of an 8 per cent reduction and an agreed redistribution within EU nations will take place to meet it. This began in January, 2005, and as pointed out by Pearce (2005a) it involves the allocation of carbon dioxide quotas to specific companies; those with insufficient quotas to match their real emissions will have to purchase additional quotas from those companies which produce less carbon dioxide than their permits allow. A record or permit allocation and exchange is to be effected through an electronic registration system. All signatories are required to establish domestic policies and measures to achieve their targets though not all measures have to be concerned with actual emissions. Other actions involving carbon sinks may be developed to offset emissions. Possibilities include afforestation, reforestation and deforestation (as defined in the Kyoto Protocol) and forest management, cropland management, grazing land management and land revegetation. The Protocol also establishes three 'mechanisms' known as joint implementation, the clean development mechanism and emissions trading to assist nations in reducing emissions. Joint implementation, which is essentially a technology transfer, involves reducing emissions or providing sinks in another country which is also a signatory of the same status i.e. Annex 1 countries. These are defined as "the industrialized countries listed in this annex to the Convention who sought to return their greenhouse-gas emissions to 1990 levels by the year 2000.... They have also accepted emissions targets for the period 2008-12. They include the 24 original OECD members, the European Union, and 14 countries with economies in transition (e.g. Croatia, Liechtenstein, Monaco, and Slovenia, with the Czech Republic and Slovakia replacing Czechoslovakia)". The 'clean development mechanism' allows credit for emission reductions and/or the establishment of carbon sinks in another nation not in Annex I. Emissions trading allows an Annex I Party to transfer some of the emissions under its assigned amount, as assigned amount units (AAUs), to another Annex I Party that finds it relatively more difficult to meet its emissions restrictions. Trading in gains made under the auspices of joint implementation and the clean development mechanism may also be traded. An overview of carbon trading etc. has been compiled by Hasselknippe (2003).

On the world stage, carbon trading began in 2004. According to CO₂e (2004) the first legally-binding transaction in October involved the purchase of Clean Development Mechanism (CDM) Certified Emission Reductions (CERs) by a European company. The collective CERs from three Brazilian electricity generating stations run on waste from sugar cane, i.e. a renewable resource, were purchased by an unnamed but leading European country. CO₂e were also involved in an earlier arrangement between Chilean, Japanese and Canadian companies. The Chilean company developed a new treatment for pig manure which facilitates the efficient capture and use of methane, generating CDM

credits which were traded with two leading electricity generation companies in Canada and Japan. Already several companies have been established to facilitate carbon trading, e.g. Point Carbon, which describes itself as “the leading global provider of independent analysis, news, market intelligence and forecasting for the emerging carbon emission markets” (Point Carbon, 2004).

2.3 The politics of biodiversity

The use, misuse, monitoring and preservation of biodiversity have become mainstream foci of political interest since the UNCED in 1992 though biodiversity has always been political because it is a resource which has facilitated human development. Moreover many countries had formal systems for nature conservation in place long before UNCED in 1992. However, concerns about the loss of natural ecosystems, especially forests (see Mannion, 2002), high rates of species extinction and the recognition that climate and world ecosystems are closely linked, culminated formally in the Convention on Biological Diversity (CBD) signed at UNCED in 1992 (see *Table 2*). This was the first international treaty to address conservation of biological diversity worldwide. It was signed by 150 government leaders with the prime objective being the implementation of Agenda 21. It stresses that to stem the losses of biodiversity three major factors must be considered: the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits derived from its use (for details see Convention on Biodiversity, 2004). An important element of the CBD is the Protocol on Biosafety which was signed in 2000 at Cartagena. Its objective is to protect biological diversity from the potential risks posed by living modified organisms created through applications of modern biotechnology. One aspect of the protective framework involves the adoption of the precautionary principle through the use of the ‘advance informed agreement’ (AIA) procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms. A further aspect is the establishment of a Biosafety Clearing-House as a forum for the exchange of information on living modified organisms and to facilitate the implementation of the Protocol through the provision of information.

The Conference of the Parties (COP) has established seven thematic programmes with 16 cross-cutting issues, as listed in *Table 6*. These reflect endangered environments and their organisms in conjunction with issues which influence most, if not all, of these environments and which reflect connections between them. In terms of action, programmes operate at national level with responsible bodies filing reports to the CBD (these are available at CBD, 2004). The goals are stated in the strategic plan, the primary objective of which is to curtail the loss of biodiversity.

Table 6: Details of the Convention on Biological Diversity (based on CBD, 2004).

THEMATIC PROGRAMMES:

1. Agricultural biodiversity
2. Dry and sub-humid lands biodiversity
3. Forest biodiversity
4. Inland waters biodiversity
5. Island biodiversity
6. Marine and coastal biodiversity
7. Mountain biodiversity

CROSS-CUTTING ISSUES:

1. Access to genetic resources & benefit sharing
 1. Alien species
 2. Traditional knowledge, innovations and practices
 3. Biological diversity & tourism
 4. Climate change & biodiversity
 5. Economics, trade & incentive measures
 6. Ecosystem approach
 7. Global strategy for plant conservation
 8. Global taxonomy initiative
 9. Impact assessment
 10. Indicators
 11. Liability & redress
 12. Protected areas
 13. Public education & awareness
 14. Sustainable use & biodiversity
 15. Technology transfer & co-operation

The mission statement is given below. The targets and indicators identified in the CBD are based on material prepared by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and the COP, including the deliberations of a meeting on the ‘2010 Global Biodiversity Challenge’ in 2003 in London.

Parties (are required to) commit to a more effective and coherent implementation of the three objectives of the Convention, to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth.

The UNCED in 1992 also prompted new initiatives on conservation by individual governments. In the EU, for example, the UNCED principles of sustainable development were adopted within existing conservation strategies which focus on the Birds Directive of 1979 and the Habitat Directive of 1992, and new goals were established through Natura 2000. This is the creation of an EU-wide network of sites for protection, called Special Protection Sites (SPAs) and Special Areas for Conservation (SACs) which are considered to be ‘type’ sites for specific natural features. In the UK, for example, some 237 SPAs have been designated, amounting to 1.25 million hectares, along with 567 SACs, amounting to 2.16 million hectares (Department for Environment Food and Rural Affairs (DEFRA), 2004). In the EU seven biogeographic zones have been designated with the Continental and Atlantic zones being the most extensive. According to Europa (2004) recent developments involve “the decision to include more than 7,000 nature sites in the Atlantic and Continental regions of the EU in the network. The 197 animal species, 89 plant species and 205 habitats covered are scientifically considered of European importance. This means that their protection must be enhanced to preserve valuable biodiversity in Europe. Species such as the wolf, the otter, the salmon as well as certain coastal lagoons and river systems are part of the lists, which cover most of the EU’s territory (France, Germany, Belgium, the Netherlands, Italy, UK, Sweden, Austria and Denmark)”.

The Statement on Forest Principles made at the UNCED in 1992 (see *Table 2*) also concerns biodiversity. While this statement (see UN, 1992, for the full text) recognizes the right of individual nations to exploit their own forest resources they are urged to develop sustainable use, trade and conservation policies. Such policies should include afforestation and tree planting. The statement also recognizes the universal value of forests in environmental processes, heritage, history and culture and that the sustainable use of forests will require sustainable patterns of production and consumption at a global level. However admirable these principles are, forest demise continues at alarming levels and the UNCED declaration is more a statement of good will or advice than a mechanism for conservation.

2.4 Trade

Since prehistoric communities exchanged resources, trade has always been important as an instrument of carbon domestication. Moreover, the spread of agriculture and the expansion of Europe stimulated trade, much of which involved carbon-based commodities such as crops and animal products. More recently, trade in coal, oil and natural gas represents substantial flows of carbon worldwide. Consequently, the economics of trade influence carbon flows and the economics of trade are determined to a large extent by trading agreements at regional, national or international level. While a full appraisal of past and present trade arrangements and agreements is beyond the scope of this book, it is nevertheless important to consider some of the practices in operation today. Not only do such practices influence carbon flows worldwide but they also influence overall development through the placing of controls on the flows of cash. Amongst the most recent and important trade agreements are the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO). There are also a number of regional trading arrangements such as those of the European Union and the North American Free Trade Agreement (NAFTA).

The GATT came into existence in the years immediately after World War II through the desire of governments to liberalize trade. It was first signed in 1947 and came into effect in 1948. Efforts to create an International Trade Organization (ITO) from the more informal GATT in the 1960s and 1970s failed, leaving GATT as the major international agreement on trade. It provides a forum for the promotion of trade and a mechanism for resolving disputes between nations about trade. The former emphasizes free trade through the regulation and reduction of tariffs on traded goods. Since its inception there have been eight rounds of talks, the last and biggest being the Uruguay round between 1986 and 1994. The outcome of these, often acrimonious, deliberations included the reduction of many tariffs by 40 per cent. At the last meeting, which involved 123 countries, the WTO came into existence at the beginning of 1995 to take the place of GATT (see WTO, 2004). Whereas GATT was concerned with trade in goods, the WTO also covers trade in services and intellectual property. The WTO, which is based in Geneva, has adopted rules drawn up under the GATT and since 1994 it has negotiated further agreements. The WTO states that “At its (WTO’s) heart are the WTO agreements, negotiated and signed by the bulk of the world’s trading nations. These documents provide the legal ground rules for international commerce. They are essentially contracts, binding governments to keep their trade policies within agreed limits. Although negotiated and signed by governments, the goal is to help producers of goods and services, exporters, and importers conduct their business, while allowing governments to meet their social and environmental objectives”. Today there are 148 members, of which almost 100 are developing nations.

The scope of the WTO is immense since it deals with trade in all carbon-based commodities to telecommunications and finance. However, there are several underpinning principles on which the WTO operates. These are given in *Table 7*.

Table 7: The principles governing the World Trade Organization (based on WTO, 2004)

<p>TRADE WITHOUT DISCRIMINATION This comprises two components: most-favoured-nation and national treatment. The most-favoured-nation concept requires equal treatment among trading partners e.g. one customs duty for all. National treatment: Imported and locally-produced goods/services should receive equal treatment once the former have entered a country.</p>
<p>FREER TRADE THROUGH NEGOTIATION Lowering trade barriers, such as duties/tariffs and quotas or bans, is a priority.</p>
<p>PREDICTABILITY THROUGH BINDING AND TRANSPARENCY The clear statement and maintenance of trade conditions is important because it provides a stable and predictable trading environment. WTO negotiates ‘bindings’ i.e. commitments to trade specific commodities under clearly stated conditions such as ceilings on customs tariffs. The Uruguay talks increased considerably the number of binding agreements. In agriculture 100% of products have bound tariffs and thus a more secure trading environment for producers and consumers is created.</p>
<p>PROMOTING FAIR COMPETITION WTO’s rules promote fair trade which may not always be free trade (see most-favoured-nation etc above). They also cover dumping , i.e. low cost export to win markets, for which compensation may be required.</p>
<p>ENCOURAGING DEVELOPMENT AND ECONOMIC REFORM The stability and predictability of trade encourage liberalization which contributes to development. For developing nations there is a transitional period to implement WTO rules and ‘special’ trading conditions may be implemented to assist developing nations.</p>

The WTO has received much criticism, and attempts to disrupt its meetings have been made by protesters against globalization. It is accused of not encouraging global justice because of the special pleading and lobbying by powerful nations to operate protectionist policies.

There are also a number of regional trading blocs which are essentially customs unions. The objective, like that of the WTO, is to stimulate trade and thus assist development. There are four types of trading blocs, brief descriptions of which are given in *Table 8*.

Table 8: Types of trading blocs (based on BizEd, 2004).

<p>FREE TRADE AREAS Constituent sovereign nations trade freely with each other, so all have favoured-nation-status (see text on WTO) but they exercise individual trade barriers with nations outside the free trade area. Example: North American Free Trade Agreement (NAFTA)</p>
<p>CUSTOMS UNIONS Constituent nations do not have complete control over trade policy but are bound by some level of common policy. They have a common external tariff with nations outside the agreement. The European Union (EU) is a customs union.</p>

<p>COMMON MARKETS Common markets are customs unions plus unrestricted movement of capital and labour between members. Mercosur, comprising Argentina, Brazil, Paraguay and Uruguay is an example.</p>
<p>ECONOMIC UNIONS Economic unions are common markets with more integration and common policies such as the Common Agricultural Policy (CAP) of the EU. There is also a common currency and exchange rate for most members.</p>

There are many different trade blocs, as documented by the World Bank (2001) but the largest and most influential are the European Union (EU), the North American Free Trade Agreement (NAFTA), the Mercado Comun del Cono Sur (MERCOSUR) also known as Southern Common Markets (SCCM), and the Association of Southeast Asian Nations (ASEAN). A more comprehensive list is given in *Table 9*.

Table 9: The major trade bloc groups (based on World Bank, 2001).

Andean Community (CAN)
Asia-Pacific Economic Cooperation (APEC)
Association of Southeast Asian Nations Free Trade Area (AFTA)
ASEAN + 1 (Mainland China) Free Trade Area
Caribbean Community and Common Market (CARICOM)
Central European Free Trade Agreement (CEFTA)
Closer Economic Partnership Arrangement (CEPA) between Hong Kong, Macau and Mainland of the People's Republic of China
East African Economic Community (EAEC)
Economic Community of West African States (ECOWAS)
European Economic Area (EEA)
European Free Trade Association (EFTA)
European Union (EU), formerly the European Community
Mercado Comun del Sur (MERCOSUR or MERCOSUL)
Mercado Comun Centro Americano (MCCA)
North American Free Trade Agreement (NAFTA)
South Asian Association for Regional Cooperation (SAARC)
Southern African Development Community (SADC)

There are also proposals for others; for example the former prime minister of Spain has advocated a formal trade agreement, to be known as the Atlantic Economic Association, between Atlantic nations (Aznar, 2004/5). World trade and thus carbon flows are complicated by the financial and development prospects generated by such associations. Add to this the various governmental and non-governmental institutions which influence the use, conservation and trade of all types of biological resources and the picture of carbon movement worldwide is indeed complex.

3. Conclusion

This and its companion publications (Mannion, 2005a and b) show that from a fairly slow start some 150 years ago both the appropriation of carbon and its politicization have increased substantially. In particular there has been considerable development of international and national politicization through governmental and non-governmental agencies. This has followed the recognition of environmental and socio-economic problems created by the use of carbon in its many forms, but especially wood, fossil-fuels and food. In this respect the politicization has been reactive rather than proactive, especially in relation to carbon management and conservation. The use of carbon-based resources locally and nationally has given rise to numerous environmental problems which are global/international in their impact and importance. Their management thus requires international action which is only possible through political consensus. The UN-based programmes represent frontline recognition of such problems and their urgency as well as the wherewithal for assembling expert teams to find solutions. Trade necessitates links within the world community and because so many resources are carbon-based it represents carbon flows and their economic consequences with wealth generation and for some but disadvantage for others.

Overall, the domestication of carbon and its environmental impact are highly political and are becoming increasingly politicized. Is there any other way to tackle the global environmental problems created by the domestication of carbon?

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