

The Politicization of Carbon Domestication I

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1 Introduction

Carbon may be a commonly occurring element but it has an uncommon place in human and environmental history. This is because it is a central component in the vital energy transfers that facilitate the survival of all plants and animals. For organisms other than humans, the exchange of carbon with the atmosphere and between organisms involves the manufacture of food through photosynthesis, the transfer of food energy in food chains, and respiration. These functions and relationships can be described as passive insofar as the objective is maintenance and survival of the species. In contrast, for most of their history humans have sought to improve their lot by actively manipulating and harnessing carbon transfers to provide not only food energy but also fuel energy. This process can be considered as domestication (Mannion, 2005a) and it has been achieved through scientific and technological innovations. Carbon appropriation has always been political and most of politics concerns carbon! This is because resource manipulation, especially that of food, wood and fuel energy, has been strategic in the development, internal operation and international influence of any tribe, group or nation. The availability and abundance of food, wood and fuel has always conferred considerable advantage to human groups throughout prehistory and history. The command of carbon has generated and continues to generate political pre-eminence; carbon security thus tends to equate with political security, power and influence. In modern times the importance of carbon-based resources has led to institutionalization and politicization worldwide. This has occurred at national, regional and international levels. This paper and its companion (Mannion, 2005b) provide a brief survey of some of the major instruments of carbon control beginning with the establishment of the concept of national parks in the late 1800s and emphasizing the ‘globalization’ of carbon politics in the post World War II era. Part I considers the initiatives of the late nineteenth and early twentieth centuries using examples from North America, notably the establishment of national parks and the precedent they set for the designation of the many national parks which now exist worldwide. It also examines the international efforts of the United Nations in the wake of World War II, especially the Food and Agriculture Organization (FAO), the World Conservation Centre (IUCN), the emergence of Green politics and Green political parties, the petropolitics of the oil crisis of the late 1970s, and the development of non-governmental organizations (NGOs) between the 1960s and the 1980s. Part II (Mannion, 2005b) examines further efforts of the United Nations, notably the United Nations Environment Programme (UNEP), its environmental agency as well as the Earth Charter, international initiatives on the atmosphere and climate, the politics of biodiversity, and a synopsis on the role of trade in world carbon manipulation.

1.1 Background

While little can be stated with certainty about the carbon politics of human groups in the distant past, it is axiomatic that carbon availability, as food and wood, was a major advantage; its acquisition almost certainly featured in the development of co-operation and group consumption. As Lewin and Foley (2004) have discussed, scavenging, hunting and food sharing have loomed large in the debate about what it is to be human. The ramifications of early hominid food acquisition/sharing, especially in relation to meat, include roles in human evolution and the social organization of human groups. Indeed, food procurement was so important that it culminated in the domestication of animals and plants and the beginning of agriculture c. 10,000 years ago. Why it came about remains enigmatic but it must have been expedient politically for reasons which include population maintenance and the generation of commodities for trade.

The expansion of Europe beginning in the 1500s was undoubtedly political; power and resource acquisition underpinned a movement of people and resources that changed the world. Much of that change involved carbon appropriation as biomass resources and the exchange of crops, animals and agricultural practices. Carbon flows to Europe constituted a powerful force in European development. That there were concerns about environmental change and degradation is illustrated by the efforts of William the Conqueror (1066-1087) and his successors to enforce protection for designated ‘forest’

land and the planting of forests by the Tudor kings. Such concerns were also voiced in the publications of the English countryman John Evelyn (1620-1706) in the mid-1600s who was also concerned about the dearth of trees. Two centuries later, John Muir (1838-1914) was extolling the virtues of Nature in North America, especially in his beloved Rocky Mountain environments. By 1872, against a backdrop of predictions of a timber famine in the USA based on rapid clearance rates in the 1800s, the first national park, that of Yellowstone, was created; by 1907 the number of forest reserves had increased to 159 (see review in Mannion, 1997). Not only did this promote conservation, and thus maintenance of the carbon store, but it also preserved the wildlife and environment for the emerging and now burgeoning industry of tourism. Similar concerns about timber resources were being aired in Britain and forest protection organizations were established in some colonies, e.g. Dehra Dun in India. Following World War I, when the increased need for wood had highlighted the dearth of forest resources, the Forestry Commission was established in 1919 to manage forests and forestry at home. Thus a policy of afforestation commenced. These developments reflect the increasing role of government, and hence of politics, in environmental management. Subsequently, national parks or their equivalent have been established worldwide and forest management at national level is now generally controlled by governments.

However, the political engagement of the modern conservation/environmental movement has more recent origins. In the years immediately following World War II two major institutions were created: the Food and Agriculture Organisation in 1945, an agency of the United Nations, and the World Conservation Union (IUCN, originally the International Union for the Protection of Nature – IUPN). Both were concerned with assessing resources, improving management practices worldwide, and monitoring change. However, it was during the 1970s that more substantial change in relation to the role of the environment as a political issue occurred. First, there was the founding of formal Green political parties in the early 1970s. Thus the environment, as a primary focus, entered mainstream politics just before the oil crisis of 1973 which highlighted the significance of so-called petropolitics, one of the many components of globalization. Second, two internationally important pressure groups came into existence: Friends of the Earth (FoE) and Greenpeace (GP), both formed in 1971 in the UK and Canada respectively.

Many non-governmental organisations (NGOs) have also been established; some are essentially lobbyists and politically activist while others are research-based organisations. The World Wide Fund for Nature (formerly known as the World Wildlife Fund) was one of the earliest NGOs to be formed. It was established in 1961, has close links with the IUCN and is based in Switzerland. Other examples include the Worldwatch Institute (WWI) and World Resources Institute (WRI); both are based in the USA. The former, founded in 1974, is another product of the growing environmental movement of the 1970s. The WRI was founded in 1982. Both are independently financed, produce publications with a statistical basis with wide appeal and have educational programmes.

2.1 Initiatives 1860 to 1939

A major reason for focussing on the history of ecosystem (carbon) management in the USA and its relationship with conservation is because it is well documented and because it reflects the far-sightedness of its founding people. The transition from exploitation to management of forests and woodlands in the USA occurred relatively rapidly when compared with Europe. This is because of the speed of colonization in the early nineteenth century from east to west, not least because it was more or less contemporaneous with the advent of the railways (see Mannion 2005c) which contributed to the spread of agriculture and facilitated the transport of lumber. Certainly, the forests of the eastern seaboard suffered onslaught as initial colonization occurred and, in keeping with contemporary philosophies, this peopling was consciously or unconsciously an attempt at conquering or subjugating Nature for human advancement. Given the rapid rate of forest destruction which accompanied this wave of settlement, fears were expressed at government level about the future of the new nation's forests which were perceived primarily as economic commodities, notably as sources of much needed lumber and fuel.

Precedents were set, not with Yellowstone which is accorded the status of the first US National Park,

but with Yosemite in California. According to Mackintosh (2000) various public figures persuaded the government to designate the area for public use. Accordingly, an act of congress, signed by President Abraham Lincoln was passed in 1864 to give the state of California control over the area; the land was to “be held for public use, resort, and recreation.....inalienable for all time”. In contrast Yellowstone was designated as a national park under federal legislation because the administrative units in which it is located, Wyoming and Montana, had not yet received statehood. President Ulysses S. Grant signed the act in 1872 and some 2 million acres were “dedicated and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people”. Control of the park was placed in the hands of the Secretary of State for the Interior and thus the federal system of national parks was born. Today there are 388 national parks, some of which are monuments or historic sites rather than true parks; they are administered by the National Park Service (NPS) which is a federal agency. The role of the NPS is to manage the parks, especially to preserve wildlife habitats, to ensure responsible recreation and tourism and to provide an educational resource. The NPS also manages any construction or resource extraction and engages in conservation work. In terms of carbon, perhaps the greatest role of the national parks has been the preservation of vast areas of forests by restricting farming and settlement.

Not all the public forests of the USA were or are managed by the NPS. In 1905 congress passed the Transfer Act which allowed the transfer of forest reserves from the Department of the Interior to the Department of Agriculture to create the US Forest Service. This occurred mainly through the efforts of Gifford Pinchot who became the first head of the USDA Division of Forestry. The mission of the newly formed service was stated as “In the administration of the forest reserves it must be clearly borne in mind that all land is to be devoted to its most productive use for the permanent good of the whole people; and not for the temporary benefit of individuals or companies” (reproduced from a memo from James Wilson, Secretary of Agriculture but written by Pinchot and his assistant Olmsted (Roth and Williams, 2003)). In 1907 the forest reserves were redesignated as the national forests of which there were c. 63 million acres. Pinchot and his successors inaugurated research programmes to add an additional dimension to forest management. Today, the Forest Service is responsible for 155 national forests and 20 national grasslands. Its mission is “to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations”, a mission in keeping with the concept of sustainable development (see WCED, 1987). The production of wood and wood products is a major role of the Forest Service through their management of public forests which contribute to the USA’s substantial lumber industry.

Table 1 gives the main objectives of the Forest Service. Although admirable overall in its aspirations, the Forest Service has in the past been accused of sanctioning unsustainable forest exploitation. For example, in the 1980s, the continued cutting of old growth forests in the northwest with leases being given to Japanese companies for felling and export, came in for much criticism. Nevertheless the Forest Service has achieved sustainable yields in many forests and is thus achieving a high success rate for sustainable forestry.

Table 1: The objectives of the US Forest Service (from USDA Forest Service, 2004).

<p>To advocate a conservation ethic in promoting the health, productivity, diversity, and beauty of forests and associated lands.</p> <p>To listen to people and to respond to their diverse needs in making decisions.</p> <p>To protect and manage the National Forests and Grasslands so they best demonstrate the sustainable multiple-use management concept.</p> <p>To provide technical and financial assistance to State and private forest landowners, encouraging them to practice good stewardship and quality land management in meeting their specific objectives.</p> <p>To provide technical and financial assistance to cities and communities wishing to improve their natural environment by planting trees and caring for their forests.</p> <p>To provide international technical assistance and scientific exchanges to sustain and enhance global resources and to encourage quality land management.</p> <p>To assist States and communities to use the forests wisely in the promotion of rural economic development and a quality rural environment.</p> <p>To develop and provide scientific and technical knowledge aimed at improving the ability to protect, manage, and use forests and rangelands.</p> <p>To provide work, training, and education to the unemployed, underemployed, elderly, youth, and disadvantaged in pursuit of the Forest Service mission.</p>

Canada's Forest Service (CFS) has a similar history. It was established before the European settlers could inflict irreversible damage on the nation's vast forest reserve. From c. 1780 uncontrolled logging took place, beginning in the Atlantic Provinces as waves of settlers arrived and carved out farms; by the mid 1800s logging was making inroads into the forests of the Pacific coast. Concerns about this and the ravages of forest fires resulted in legislation at local and province level to control fires and by 1899 a federal approach was adopted with the formation of the Dominion Forest Branch, the forerunner of the Canadian Forest Service. Its objectives were "conservation and propagation through fire fighting, tree planting and forest reserves" (Canadian Forest Service, 2004). Today the CFS considers itself to be a leader of global forest sustainability, a role which reflects not only the importance of forests to Canada's economy but its prominence in research and its willingness to cooperate with external bodies. Canada houses c. 10 per cent of the world's forests and is thus a major carbon store. It is the world's largest exporter of wood and wood products and this sector is the greatest source of Canada's external income. The mission of the CFS is "To promote the sustainable development of Canada's forests and the competitiveness of the Canadian forest sector for the well-being of present and future generations of Canadians". Like its US counterpart the CFS engages in conservation, restoration, afforestation, education, recreation, research, and forest technology.

Given that wood was such an important resource throughout the history of the UK, it is surprising that formalised control or investigation into forests and forestry did not begin until the early twentieth century. Indeed, this did not begin in the UK but in India where concerns were expressed about declining forests and associated landscape change. So great was this concern that the Indian Forest Service was founded in 1864 and the first Forest Research Institute was established at Dehra Dun in 1906. Subsequently courses on forestry were established at Oxford University with the establishment

of the Institute of Forestry. However, during the years of World War I the paucity of national wood resources were highlighted and the need for institutionalised control of forests became evident. In 1919 the Forestry Act was approved by parliament and so the Forestry Commission was set up. Its objectives focussed on promoting forestry, developing afforestation, producing timber and making grants to private landowners for forestry enterprise (Forestry Commission, 2004a). Its mission was to “rebuild and maintain a strategic timber reserve”. Limited resources only allowed the purchase of land in marginal upland areas for afforestation and the facility to offer grants to individuals for 25 per cent of the costs of tree planting. However, by 1929 some 600,000 acres were being managed in 152 forests and 138,000 acres had been planted, with a further 54,000 acres having been planted in the private sector using grant aid.

By 1934 the total acreage had reached 900,000 and almost doubled again by 1970. In the intervening period forests were heavily exploited during the years of World War II. Thereafter the Forestry Commission acquired derelict and depleted woodlands nationwide to continue to improve the UK’s forest resources with an additional impetus deriving from tax incentives available to the private sector. Although commendable, the FC’s work attracted criticism. First, there was reliance on conifers, especially alien species such as Sitka spruce, Norway spruce and lodgepole pine, which were planted in vast monocultural stands. This is far from being in character with the UK’s native mixed woodlands but the relatively fast-growing conifers provided a harvest within 25 to 30 years. Moreover, in both positive and negative terms these conifers will grow well in inhospitable terrain; the positive aspect is the capacity to produce a crop from land which has little productive value in the conventional sense but the negative aspect is the loss of habitats to afforestation and thus the loss of wildlife habitats such as peatlands. Here, one store of carbon is sacrificed by drainage to produce another store of carbon! More recently, the Forestry Commission has broadened its remit. It now actively plants hardwoods, encourages practices that favour wildlife, engages in recreational and educational activities and has a research programme. *Table 2* gives data on forest type and extent of Forestry Commission land. The Forestry Commission is responsible for contributing to the rebuilding of the UK’s forest resource and thus its carbon store; there is now considerably more carbon in UK forests than in 1919.

Table 2: Data on UK forests in 2004 (from the Forestry Commission, 2004b).

Forestry Commission Land	Conifers x 10³ ha	Broadleaves x 10³ ha	Total Woodland x 10³ ha
England	154	52	206
Wales	98	11	110
Scotland	440	25	781
Non Forestry Commission Land			
England	217	693	910
Scotland	64	112	176
Wales	611	254	865
Total UK Woodland	1583	1148	2731

While the beginning of the National Park movement in the USA and the establishment of the Forestry Commission in the UK are examples of primarily national institutions, the 1930s witnessed the beginning of international organizations. The International Council for Science (ICSU) was founded in 1931 and was one of the first international NGOs. Its objective was, and remains, the promotion of scientific activity and collaboration internationally for the benefit of society (see ICSU, 2004). Its current mission statement is given in *Table 3*. In relation to the politicization/institutionalization of carbon the ICSU has instigated global initiatives (often with scientific partners) and acts, on

invitation, as scientific adviser to the UN and its international conferences which focus on environment. This focus is reflected in its past and current projects such as the International Biological Programme (IBP) which was in operation between 1964 and 1974. Current projects include the International Geosphere-Biosphere Programme (IGBP), the World Climate Research Programme (WCRP), DIVERSITAS which is an integrated programme of biodiversity science and the International Human Dimensions Programme on Global Environmental Change (IHDP). Brief details are given in *Figure 1*.

Table 3: The ICSU mission statement (from ICSU, 2004).

<p>In order to strengthen international science for the benefit of society, ICSU mobilizes the knowledge and resources of the international science community to:</p> <p>Identify and address major issues of importance to science and society.</p> <p>Facilitate interaction amongst scientists across all disciplines and from all countries.</p> <p>Promote the participation of all scientists—regardless of race, citizenship, language, political stance, or gender—in the international scientific endeavour.</p> <p>Provide independent, authoritative advice to stimulate constructive dialogue between the scientific community and governments, civil society, and the private sector.</p>
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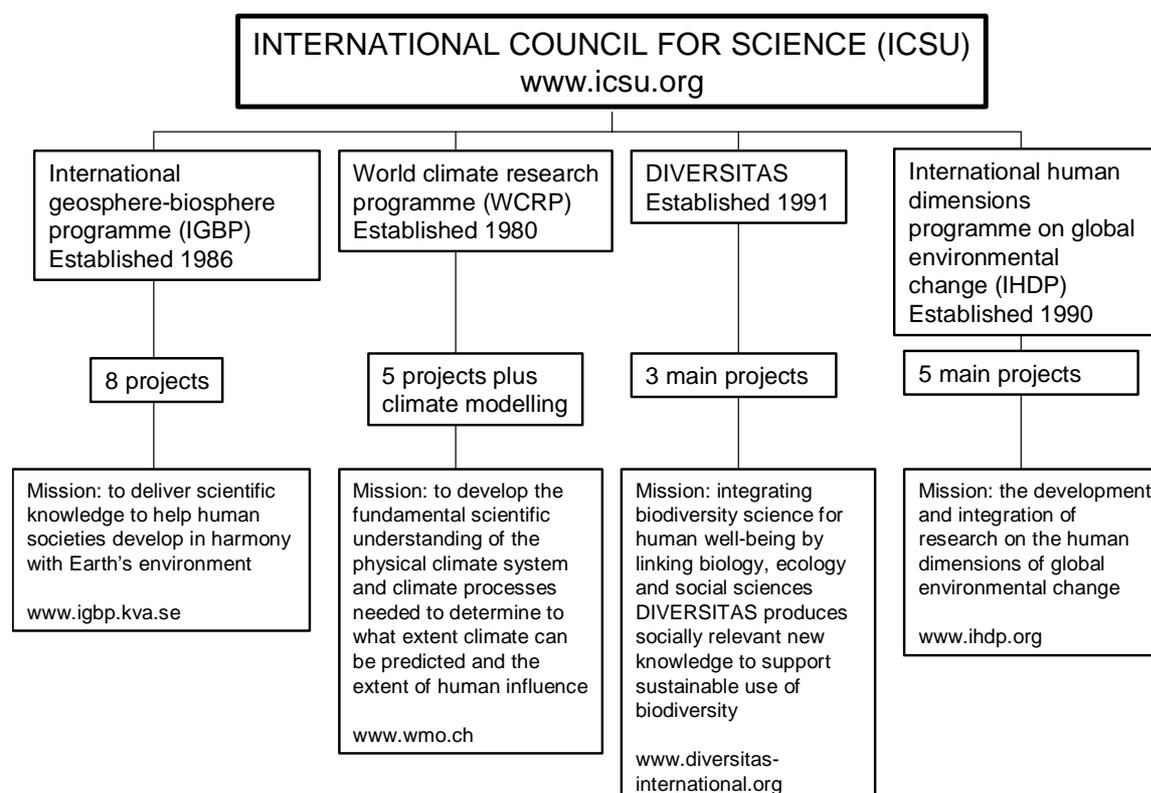


Figure 1: Programmes of the ICSU (from ICSU, 2004).

The IGBP was established in 1986 and is an ongoing project with the objective of understanding the dynamics, i.e. the related physics, chemistry and biology, of the biosphere. It currently comprises eight linked projects with six focusing on the ocean, land and atmosphere and two dealing with the temporal element of global change. The WCRP focuses on the dynamics of the climate system and climatic change, including human-induced change. DIVERSITAS comprises three main projects which focus on the assessment and monitoring of biodiversity, the examination of ecosystem services and the formulation of strategies for accommodating sustainable biodiversity use and development. The aim of the IHDP is to describe, analyse and understand the human dimensions of global environmental change through research, capacity building and networking.

2.2 Initiatives 1945 to the early 1970s

In the years immediately after World War II, a political form of globalization was started with the formation of the United Nations to maintain world peace and to encourage international co-operation. At the same time came recognition that famine, hunger and poor nutrition were widespread and that the world's flora and fauna were disappearing at an alarming rate. To counter these trends at international level, the Food and Agriculture Organization (FAO) and the International Union for the Protection of Nature (IUPN), now the World Conservation Union (IUCN), were established.

The Food and Agriculture Organization emerged from discussions in 1943 which involved 44 governments. The new agency was inaugurated in 1945 as an organ of the newly created United Nations and in 1951 its headquarters were moved to Rome. The FAO's stated policy is "to raise levels of nutrition and standards of living, to improve agricultural productivity, and to better the condition of rural populations" (FAO, 2004). It operates "by leading international efforts to defeat hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information. We help developing countries and countries in transition modernize and improve agriculture, forestry and fisheries practices and ensure good nutrition for all. Since our founding in 1945, we have focused special attention on developing rural areas, home to 70 percent of the world's poor and hungry people". These objectives are achieved through education programmes, ensuring that information about best practice and policy is disseminated, by providing a vehicle for information exchange and ensuring that knowledge is passed to farmers. FAO has been responsible for many high-profile international conferences, such as the World Food Summit in 1996, and codes of practice, such as the *Codex alimentarius*, which set international food standards in 1962. FAO espouses the concept of sustainable development (see WCMC, 1987) and fosters good practice in agriculture, fisheries and forestry. It keeps valuable statistics and provides technical assistance in the field as well as educational programmes in the field. FAO also promotes safety in food production and involves itself in international legislation, e.g. pesticide regulation and the use of genetically-modified crops etc.

The IUCN – the World Conservation Centre – originated from an international conference at Fontainebleau, France, in 1948. It was originally named the International Union for the Protection of Nature (IUPN); in 1956 it became the Union for the Conservation of Nature and Natural Resources (IUCN) and in 1990 it was renamed the IUCN – the World Conservation Centre (IUCN, 2004). Its mission is "to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable". Thus the IUCN's objectives combine conservation with the recognition that many people depend on natural resources for their livelihoods. Finance comes from five sources: Government aid agencies, voluntary contributions e.g. from the World Wildlife Fund (WWF, see Section 2.5) and the US Department of State, bilateral contributions e.g. the Spanish Ministry of Environment and the UK's Department for International Development, multilateral contributions e.g. the Asian Development Bank and the European Union, and foundations such as the Ford Foundation (USA). The IUCN has an international membership comprising members from 140 countries. It is

A World Conservation Congress is held every three years at which the organisation's policy and programme are decided. The practical programme is the responsibility of six commissions which comprise expert volunteers as well as IUCN staff. Details of the commissions are given in *Table 4* and reflect the diverse range of activity which characterizes the IUCN. Each commission provides guidance, knowledge of conservation matters, policy and technical advice. National, regional offices administer field projects of which some 500 projects are in operation worldwide. This broad remit incorporates what the IUCN describes as a 'green web' to facilitate partnerships, the dissemination of knowledge, innovation and action.

Table 4: The commissions of the IUCN (based on IUCN, 2004).

Commission	Role
Species Survival Commission (SSC)	7000 members advise on technical components of species conservation and draw attention to threatened species.
World Commission on Protected Areas (WCPA)	1300 members promote the establishment of a network of sites representing terrestrial and marine protected areas worldwide.
Commission on Environmental Law (CEL)	800 members formulate new legal concepts and instruments and encourage societies to devise and apply environmental laws.
IUCN Commission on Education and Communication (CEC)	600 members promote the use of communication and education for conservation purposes, including the empowerment of communities through knowledge acquisition.
Commission on Environment, Economic and Social Policy (CEESP)	500 members provide advice on social and economic factors which affect natural resource use and advise on sustainable resource use.
Commission on Ecosystem Management (CEM)	400 members provide guidance on integrated ecosystem approaches to ecosystem management.

The IUCN also stimulated international legislation to curtail trade in endangered species. The outline proposal for the Convention on International Trade in Endangered Species of Wild Fauna and Flora

(CITES) was established at a meeting of IUCN members in 1963. Following lengthy deliberations the text was finally agreed in 1973 and CITES came into force in 1975. According to CITES (2004), the convention is an international but voluntary agreement between Governments to ensure that trade in specimens of wild animals and plants does not threaten their survival. The convention operates through the provision of licenses for specimens of selected species before they can be traded, i.e. imported, exported or re-exported. The species safeguarded by CITES are listed in three appendices which reflect the degree of protection needed. Appendix I includes species threatened with extinction. Trade is permitted only in exceptional circumstances; Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order not to compromise their survival; and Appendix III contains species which are protected in at least one country and for which other CITES Parties have been asked for assistance. The IUCN and UNEP-WCMC (see below) continue to have an input to CITES, including international conferences and the updating of appendices.

Linked with the IUCN and the International Wildfowl Research Bureau (IWRB), that was founded in 1954, is the Ramsar Convention on Wetlands. This was an international agreement signed in Ramsar, Iran, in 1971 following an international conference on wetlands. The convention came into operation in 1975 and its business is handled by the Ramsar Bureau based in Switzerland. Ramsar was the first multinational convention and is the sole convention to address a specific ecosystem type. It provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Originally signed by 18 countries, there are currently 142 Contracting Parties to the Convention, with 1398 wetland sites, totalling 122.8 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. Its mission is given below (see Ramsar, 2004).

The Ramsar Convention's mission is the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world

The IUCN also helped to establish the World Conservation Monitoring Centre (WCMC) which originated as an office of IUCN in 1979 in Cambridge, UK, to monitor endangered species. In 1988 this was formally established as the WCMC by the IUCN, WWF and UNEP. In 2000 it became an integral part of UNEP as its vehicle for biodiversity assessment and policy implementation; it is an important intergovernmental environmental organisation (see UNEP-WCMC, 2004). UNEP-WCMC has five major roles. It assesses and analyses global biodiversity, determines trends and threats to biodiversity and informs relevant government bodies and non-governmental organizations. It provides support for policy, action plans and agreements at national and international levels as well as facilitation of conservation through the provision of expertise and information. It also makes information widely available and encourages information sharing through networks etc.

2.3 Green politics

The 1960s and 1970s were decades of considerable importance for so-called green politics. This was a period of growing awareness about environmental issues and a period of political activism generally, especially by student bodies in the developed world. Support for the environment, a major component of carbon politics, led to the formation of political parties which focussed on the environment as a central theme. Mainstream green parties adopt principles called the four pillars. These are: ecology (ecological sustainability), justice (social responsibility), democracy (appropriate decision-making) and peace (non violence). Such parties promoted themselves as alternatives to mainstream political parties in New Zealand, Australia, Canada, UK and Germany. At the same time many mainstream political parties began to adopt 'green issues' in their manifestos. What follows is an introduction to

the Green parties and does not include, due to limitations of space, reference to the 'green' aspects of established political parties.

Several green parties were founded in 1972. These included the United Tasmania Group which formed in Hobart, Australia and the Small Party which formed in the Atlantic provinces of Canada. The first national green party, the Values Party, was inaugurated in May 1972 in Wellington, New Zealand and that in the UK was founded in 1973 with the title of People. It was subsequently renamed as the Ecology Party and in 1985 it became the Green Party. It was the first national green party in Europe though it was the German Green Party which first adopted the word 'green' when it was formed in 1980 as '*Die Grünen*'. The Green party in the USA is a relative newcomer having been founded in 2001 from the older Association of State Green Parties which was established in 1996. There are many other green parties worldwide as listed by Global Greens (2004). Some examples are given in *Table 5*.

National green parties are also linked in federations, such as the European Federation of Green Parties, and participate in international conferences. These are called 'global gatherings', the first of which was in Canberra in 2001 when a 'green charter' was established. Their tenets are all based on the four pillars (see above) but the principles in each manifesto vary. For example the US Green Party lists ten values: grassroots democracy, social justice and equal opportunity, ecological wisdom, non-violence, decentralization, community-based economics and economic justice, feminism and gender equality, respect for diversity, personal and global responsibility, and future focus and sustainability. These values reflect equality amongst people and respect for environment.

Table 5: Examples of green parties
(based on Global Greens, 2004, and European Green Parties, 2004).

Country	Party Name	Date Founded	Comments
Japan	Rainbow& Greens	1999	138 politicians in local government
Mongolia	Mongolian Green Party	1990	6000 members; has been in coalition with governing party
Somalia	Somalia Green Party	1990	
Benin	Les Verts du Benin	?	
Taiwan	Green Party Taiwan	1996	Has representatives in National Assembly
Bulgaria	Bulgarian Green Party	1989	Has representatives in National Assembly
Malta	Alternattiva Demokratika Malta	Late 1980s	Strong in European Union elections
Belgium	Ecolo Groen	1980	First green party to have members elected to national parliament

As discussed by Burchell (2002) some green parties have participated in national politics through direct election to national parliaments or assemblies or through the forging of coalitions with traditional political parties. The best known example of the latter is that of the German Green Party

which was founded in 1983 and which has been allied with the Social Democratic Society. This alliance was instrumental in the government's decision to end reliance on nuclear power. Both green parties of Belgium (Groen and Ecolo) and the Green Party of Finland have taken part in national government. Currently (2004), there are 169 members of European national parliaments who represent green parties and 33 Green MEPs out of a possible total of 624 members in the European Union parliament (European Green Parties, 2004). Greater success has been achieved in local politics but overall green influence is increasing, not least through campaigning, lobbying and setting agendas which influence the green components of traditional parties. It has been argued that implementation of sustainable practices is most important at local level (O'Riordan, 2004) and thus Green politicians may play a vital role in these 'grassroots' constituencies with which they are most familiar given that most green parties originated at local level.

2.4 Petropolitics and oil crises

Petropolitics is concerned with the interplay between politics and oil/petroleum. It is thus an aspect of politics concerned almost entirely with carbon. The term was coined in the early 1970s when a major international oil crisis occurred and which highlighted the close, almost perilous, relationship between oil availability and international politics. The ownership of oil deposits confers power and advantage in an oil-fuelled world; lack of it confers disadvantage. Since oil is necessary for industrial/economic development it becomes a direct political instrument. The other factors to which oil is related, such as war, climate and poverty, also contribute to petropolitics. Indeed, the issue of global climatic change has rapidly developed a focus in international politics, as discussed in Mannion (2005b). According to Wikipedia (2004), four distinct oil crises can be identified as summarized below.

In 1973 the Arab members of the Organization of Petroleum Exporting Countries (OPEC) decided to discontinue oil exports to nations which supported Israel in its conflict with Egypt, i.e. the Yom Kippur War. Such nations included the USA and much of Western Europe. To counteract the falling value of the dollar, following devaluation and as a show of strength, OPEC members also caused the price of oil to rise dramatically to four times its 1970 value. Many OPEC nations also resented the influence of multinational companies, many based in the USA, Japan and Western Europe, over their resources and indeed OPEC itself was formed to provide a united front against such exploitation. Thus OPEC nations wielded considerable advantage over industrialized nations requiring oil imports. The effects were substantial, including inflation, job losses, fuel shortages and significant declines in share prices on stock markets. Petrol/gasoline was rationed in some countries and people were forced to queue to purchase it. The immediate crisis was short lived and following the Washington Conference in March 1974 OPEC members lifted the embargo. They too needed income. The effects were, however, longer term through inflation and unemployment with some positive aspects involving the instigation of research into alternative fuels and fuel efficiency. Since the mid-1970s, OPEC's influence has declined; this is partly due to internal disagreements and partly because new oil producers have emerged.

Several more recent oil crises have occurred which have had notable economic and political effects. In 1979 the change of government in Iran following the overthrow of the Shah and the installation of a theocratic Islamic government resulted in a deliberate reduction in oil production. Oil shortages once again occurred in the USA. Eventually price controls on oil were removed by the US government. Oil production from Iran and Iraq was also curtailed in 1980 due to the Iran – Iraq war and this too served to increase world oil prices. Yet another crisis occurred in 1990 because of the invasion of Kuwait by Iraq which triggered the Gulf War. A coalition led by the USA ensured that the war was short lived but oil prices rose due to fears of shortages not least because of the deliberate release of 11 million barrels of oil into the Persian Gulf and the deliberate firing of some 700 Kuwaiti oil wells as an act of sabotage or ecoterrorism (see Mannion, 2002 for details of the environmental impact).

Another oil crisis is occurring at present; once again this is the direct result of conflict due to the Iraq war of 2003 and subsequent unrest in Iraq which involves sabotage of oil pipelines etc. Oil prices have risen dramatically as oil output from Iraq has dropped and fears of wider sabotage of oil installations in the Middle East have intensified. Other factors have also conspired to cause rising oil

prices which have exceeded \$55 per barrel at times. These include increasing demands by industrializing nations, especially China and India, hurricane damage in oil-producing Caribbean nations, and social unrest in oil-producers in West Africa e.g. Equatorial Guinea. The impact has been considerable, including rising inflation and cost-of-living indices caused by increased costs of production and transport of goods and food. Petrol/gasoline prices for individual motorists are also at an all-time high. This crisis is ongoing.

The problems that fluctuating oil supplies generate at scales from the international to the local or individual person are well exemplified by the situations referred to above. In the event of a true shortage of oil as geological reserves are depleted, an inevitability sometime in the future (predictions vary widely), the crises of the past provide some indication of the impact on economic activity that such shortages would provoke if alternative energy sources were not to be available.

2.5 NGOs

Government or government-sponsored institutions have not been the only influences on carbon and its worldwide flows. Since the end of World War II many non-governmental organisations (NGOs) with environmental and holistic (involving a combination of people-environment-development) concerns have been founded. All are funded independently of governments and political parties; they embrace concerns about the environment and most not only provide information through research but also attempt to influence the environmental policies of governments worldwide. Examples include the World Wide Fund for Nature (WWF) founded in 1961 and the Club of Rome founded in 1968. These were followed in the early 1970s by two activist/lobbyist organizations, notably Friends of the Earth (FoE) and Greenpeace, while less confrontational organizations such as the World Watch Institute (WWI) and the World Resources Institute (WRI) were established for research, data compilation and education.

The WWF (see WWF, 2004) was founded in 1961 as the World Wildlife Fund which was changed to the Worldwide Fund for Nature in 1986 but with the retention of its well-known acronym and panda motif. Julian Huxley, the British biologist and the first Director General of UNESCO who also helped to found the IUCN (see above), went to Africa in 1960 on UNESCO business and discovered that habitat destruction and hunting were destroying landscapes and livelihoods. Huxley enlisted the help of Max Nicholson, Director General of the British Nature Conservancy, and with funding from the businessman Victor Stolon, the WWF was established as an international organization with its headquarters in Switzerland which it shared with IUCN (see Section 2.2). A fund-raising campaign was established at national level through national offices which are linked to the international centre. The WWF supports institutions, such as IUCN and the Charles Darwin Research Centre in the Galapagos Islands, and many large and small conservation projects worldwide. For example, it sponsors 350 projects under its forest programme.

The WWF also has a lobbying function insofar as it attempts to educate and influence government and public opinion about conservation issues. One resulting institution is that of the Trade Records Analysis of Fauna and Flora (TRAFFIC) which was set up to regulate and monitor trade in plants, animals and substances such as ivory. Today there are 17 TRAFFIC offices worldwide. In 1980 collaboration between the IUCN, WWF and the United Nations Environment Programme (UNEP, see Mannion, 2005a and b) resulted in publication of the 'World Conservation Strategy' which advocated the integration of development and conservation. Many nations have used this as a template for national conservation strategies. Another example of WWF's lobbying is the debt-for-nature swaps whereby a proportion of a nation's debt is converted into funds specifically for conservation. Such swaps began in the late 1980s and have benefited many developing countries. By 1990 the WWF had reformulated its mission with three objectives: "the preservation of biological diversity, promoting the concept of sustainable use of resources, and reducing wasteful consumption and pollution". The commitment to work closely with local people was renewed and in 1991 another landmark publication, 'Caring for the Earth: A Strategy for Sustainable Living' was launched. Its focus was on the actions that individuals could take to improve their lives and the environment. In the following year WWF, in its role as a pressure group, pressed governments to subscribe to the treaties agreed at

the United Nations Conference on Environment and Development (UNCED, also known as the ‘Earth Summit’) in Rio de Janeiro in 1992. In more recent years WWF has further publicized the state of the Earth and its rapid changes due to human action in its ‘Living Planet Reports’ (see Mannion, 2005a for further detail).

Another influential NGO was formed in 1968. This was the Club of Rome which describes itself as a global think tank with a mission “to act as a global catalyst of change that is free of any political, ideological or business interest”. It is concerned with innovation for the common good and thus its activities are not solely focussed on the environment or carbon. The Club of Rome states that “it brings together scientists, economists, businessmen, international high civil servants, heads of state and former heads of state from all five continents who are convinced that the future of humankind is not determined once and for all and that each human being can contribute to the improvement of our societies”. Many of the Club of Rome’s reports reflect an holistic approach to development and thus place importance on environment and sustainable resource use. Like the WWF, it comprises national associations which are linked through the international headquarters in Hamburg, Germany. The Club of Rome contributed to the environmental debates in the 1970s and continues to promote environmental sustainability.

Perhaps the most high-profile NGOs with environmental and thus carbon-based foci are the Friends of the Earth (FoE) and Greenpeace (Gp), both founded in 1971. The FoE was started by David Brower who left the Sierra Club, an influential environmental group in the USA which was founded in 1892 with John Muir, the famous naturalist, as its first president (Sierra Club, 2004). This occurred in 1969 and by 1971 FoE had become an international organization. It is primarily a campaigning organization (see FoE International, 2004) which is a federation of national groups co-ordinated through FoE International and an international secretariat; the national groups themselves comprise local ‘grassroots’ groups. Efforts focus on local and national issues specific to members’ interests but the mission reflects global sustainability. The overall mission objectives are listed in *Table 6*. These reflect the political and lobbying roles of FoE though the organization does commission research to boost these activities. There are currently 68 national groups and a worldwide membership of more than one million people.

Table 6: Objectives of the Friends of the Earth

<p>To protect the Earth against further deterioration and repair damage inflicted upon the environment by human activities and negligence;</p>
<p>To preserve the Earth's ecological, cultural and ethnic diversity;</p>
<p>To increase public participation and democratic decision-making. Greater democracy is both an end in itself and is vital to the protection of the environment and the sound management of natural resources;</p>
<p>To achieve social, economic and political justice and equal access to resources and opportunities for men and women on the local, national, regional and international levels;</p>
<p>To promote environmentally sustainable development on the local, national regional and global levels.</p>

Greenpeace is another activist organization whose main objective is to publicize environmental injustices (see Weyler, 2001 for a brief history and Greenpeace, 2004). It was founded in 1971 and its first campaign was to draw attention to US nuclear underground testing in Amchitka, an island off the

Alaskan coast. A group of activists set sail from Vancouver and headed north in the belief that individuals could indeed make a difference.

Greenpeace is an independent, campaigning organisation that uses non-violent, creative confrontation to expose global environmental problems, and force solutions for a green and peaceful future.

Greenpeace's goal is to ensure the ability of the Earth to nurture life in all its diversity.

More than thirty years later, Greenpeace is well known and an effective campaigning organization. Its mission statement is given above. Now international, Greenpeace has its headquarters in Amsterdam, the Netherlands, offices in 41 countries and a worldwide membership of 2.8 million. These supporters and various foundations provide its finance so it remains entirely independent of governments, industry etc. in order to maintain objectivity and credibility. Its ship, the *Rainbow Warrior*, has become a symbol of protest, especially against nuclear testing, whaling and sealing. The current ship is named after the original *Rainbow Warrior* which gained notoriety because it was sunk in Auckland Harbour, New Zealand, by the French Secret Service in 1985 following protests about nuclear testing in the Pacific. FoE also developed the concept of environmental space whereby every nation would have equitable access to resources which include water, food etc. Both Friends of the Earth and Greenpeace have waged many successful campaigns and have been responsible for raising the general environmental awareness of people everywhere. They not only campaign about current environmental issues such as biodiversity loss and climatic change but also against globalization.

There are many other NGOs engaged in environmental education, information dissemination and publicity. The Worldwatch Institute and the World Resources Institute are two such organizations. The former was established in 1974 by Lester Brown (Worldwatch Institute, 2004). It is funded through the sale of its publications, such as the series entitled *State of the World*, *Worldwatch*, *Signposts* and *Vital Signs*, as well as by donations from individuals and foundations.

The Worldwatch Institute is an independent research organization that works for an environmentally sustainable and socially just society, in which the needs of all people are met without threatening the health of the natural environment or the well-being of future generations.

By providing compelling, accessible, and fact-based analysis of critical global issues, Worldwatch informs people around the world about the complex interactions between people, nature, and economies. Worldwatch focuses on the underlying causes of and practical solutions to the world's problems, in order to inspire people to demand new policies, investment patterns and lifestyle choices.

Its mission is given above as one focussed on the compilation of data on environmental characteristics and their analysis, with an emphasis on people/environment relationships through an examination of ecological/economic relationships. These publications are widely read and quoted, reflecting a belief in the work of the WWI which is based in Washington DC, USA. The World Resources Institute (WRI) provides a similar service to that of the WWI insofar as it collates and disseminates information about the state of the environment. Its publications, such as the *World Resources* series, provide data on resource production and consumption e.g. fossil-fuel energy, food, fisheries, water, as well as population data. WRI has also established '*Earth Trends*', an online data base comprising freely accessible environmental data in various formats. Its mission is given below.

World Resources Institute is an independent non-profit organization with a staff of more than 100 scientists, economists, policy experts, business analysts, statistical analysts, mapmakers, and communicators working to protect the Earth and improve people's lives.

WRI has four main objectives: to protect Earth's living systems, to increase access to information, to create sustainable enterprise and opportunity and to reverse global warming. WRI was founded in 1984 as an environmental charity funded by individual donations and foundations. Based in Washington DC, a major aim of the WRI is to influence environmental policy through the provision and analysis of information.

3. Conclusion

Although there is a record of resource depletion, notably wood, from at least the 1400s, the politicization of carbon and its management has gathered pace since the mid-1800s. The establishment of the national parks of the USA and Canada, and associated forest management services in the mid-1800s and the foundation of the UK Forestry Commission set precedents for other nations to protect and manage their natural resources, not only through governmental intervention but also through regulated private enterprise. There are now national parks and/or protected areas for conservation in most countries throughout the world. In the 1930s the first international organizations to research and monitor carbon, as manifest in environmental resources and biogeochemical transfers, were established, one of the first being the ICSU which sponsors a range of programmes including research on climate and biodiversity.

The post World War II period witnessed an escalation of international activity, especially through intergovernmental co-operation with the inauguration of the United Nations. The formation of the FAO, for example, recognized the need for international co-operation in agricultural research and education as well as nutrition and food-related trade. A few years later the World Conservation Union (IUCN) was founded with an emphasis on shared conservation goals worldwide. The post World War II period also witnessed the emergence of green politics; environmental issues began to infiltrate traditional political parties and new political parties, with environmental issues as core tenets, emerged. Today, these Green parties have a presence in local and national politics in many nations.

During the period 1960 to 1985 numerous non-governmental organizations were founded. Amongst the first was the World Wide Fund for Nature, a major agency for the promotion of conservation. The Club of Rome generates debate on a range of topics including the environment while Friends of the Earth and Greenpeace are proactive campaigning organizations with local memberships and international agendas. Organizations with a research focus were also established, amongst which the Worldwatch Institute and the World Resources Institute produce several widely-used publications with statistical data on the production and consumption of resources and support a range of research programmes. This period also witnessed the emergence of petropolitics; oil producers and oil consumers were in conflict creating worldwide tensions which highlighted the political significance of oil-based energy resources.

The environment, and its subtext of carbon manipulation, has thus become the focus of a range of political activity. Other aspects of this politicization are examined in Mannion (2005a and b). They include the increasing role of the United Nations in environmental issues through its environment programme (UNEP) and the Earth Charter movement and internationally-based initiatives on biodiversity and climate/atmosphere. World trade, much of which involves carbon appropriation and exchange, is an additional and substantial political issue.

4. References

- Burchell, J. 2002. **The Evolution of Green Politics. Development and Change within European Green Parties.** Earthscan: London.
- Canadian Forest Service (CFS). 2004. **Over a Century of Innovative Solutions.** www.nrcan.gc.ac
- Club of Rome. 2004. **Organization.** www.clubofrome.org
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). 2004. **Discover CITES.** www.cites.org
- Food and Agriculture Organization. 2004. **What is FAO?** www.fao.org
- Forestry Commission (UK) 2004a. **History of the Forestry Commission.** www.forestry.gov.uk
- Forestry Commission (UK) 2004b. **Forestry Facts and Figures.** www.forestry.gov.uk
- Friends of the Earth International (FoEI). 2004. **A Short History of FoEI.** www.foei.org
- Global Greens. 2004. **Green Party History.** www.globalgreens.info
- Greenpeace. 2004. **History.** www.greenpeace.org
- International Council for Science (ICSU). 2004. ICSU's mission. www.icsu.org
- IUCN – the World Conservation Centre. 2004. **Overview.** www.iucn.org
- Mackintosh, B. 2000. **The National Parks: Shaping the System.** www.cr.gov
- Mannion, A.M. 1997. **Global Environmental Change.** 2nd Edition. Longman: Harlow.
- Mannion, A.M. 2002. **Dynamic World. Land-cover and Land-use Change.** Arnold: London
- Mannion, A.M. 2005a. **Carbon and its Domestication.** Springer: Dordrecht.
- Mannion, A.M. 2005b. The politicization of carbon domestication II. Department of Geography, University of Reading *Geographical Paper* No. 176, pp.20.
- Mannion, A.M. 2005c. Environmental impact of the railways. In Hillstrom, K. and Hillstrom, L.C. (Eds.), **Industrial Revolution in America. Iron and Steel, Railroads, Steam Shipping.** ABC-Clio: Santa Barbara, California, in press
- O’Riordan, T. 2004. Environmental science, sustainability and politics. *Transactions of the Institute of British Geographers* NS 29, 234-247.
- Ramsar. 2004. **The Ramsar Convention on Wetlands.** [www.ramsar.org](http://www Ramsar.org)
- Roth, D. and Williams, G.W. 2003.** The Forest Service in 1905. www.fs.fed.us
- United Nations Environment Programme - World Conservation Monitoring Centre (UNEP-WCMC). 2004. **UNEP World Conservation Monitoring Centre.** www.unep-wcmc.org
- Sierra Club. 2004. **Sierra Club History.** www.sierraclub.org
- United States Department of Agriculture (USDA) Forest Service. 2004. **Mission.** www.fs.fed.us
- Weyler, R. 2001. **Waves of Compassion. The Founding of Greenpeace. Where are They Now?** www.utne.com
- Wikipedia. 2004. **Oil Crises.** www.en.wikipedia.com
- World Commission on Environment and Development (WCED) 1987. **Our Common Future** (also known as the Brundtland Report). Oxford University Press: Oxford.
- World Resources Institute. 2004. **A Brief History of WRI.** www.wri.org
- Worldwatch Institute. 2002. **Vital Signs 2002.** W.W.Norton: New York.