

The Role of International Organization in Addressing the Climate Change Issues and Creation of Intergovernmental Panel on Climate Change (IPCC)

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Received: November 15, 2017 | Published: February 09, 2018

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Introduction

Paper describes historical account of international organizations that has played significant role in fostering the climate science and the creation of the Intergovernmental Panel on Climate Change (IPCC). Further, paper outlines the creation of the IPCC as a consequence of the World Climate Program and the Villach expert group, indicating the role of the Secretariats of UNEP and the World Meteorological Organization, as well as the input from non-governmental organizations.

Every country needs help solving transnational problems. Examples seen in the current environment include global terrorism, the fight against the transnational drug problem and the fight to minimize HIV and AIDS, none of which can be resolved by single. International organizations can create powerful tools to solve a particular problem, which helps to increase their power, access and authority through collaborative efforts, mutual agreements and policy formation [1-3]. This situation creates a favorable environment for formulating new regimes, where solutions can be contemplated. The IPCC is a good example of international regime formation on climate change because, based on the outcomes of its first four assessment reports, it is creating global agreement on how climate change may hamper the life of the planet. This demonstrates the climate change issue is scientific fact, and the alarming rate of climate change is caused by anthropogenic activities (IPCC, 2007). In this paper, briefly examine the formation of international organization, their role in the global scenario, the early science-based organizations, as well as the need and the grounds for the IPCC formation.

The history of the international organizations

There is a long history of international organization formation. Broadly, this can be traced from Greek civilization (Plato, Aristotle), although they have flourished mostly since the Enlightenment era. However, empirical studies show that the scientific study of international organizations does not begin until the 19th century. The modern form of international organizations began with the treaty in Utrecht, the Netherlands in 1713 and Vienna, Austria in 1815 with the outlining of the peace treaty principles. There is not much historical literature available on how international

organizations were formed and how their expansion occurred beyond state borders prior to 1900. However, we do know the internationalization or formalization of organizations beyond state borders was aimed primarily at securing the political and legal security of the state. Another goal of formalizing organizations was to build cooperation between nations and citizens for their welfare and the exchange of business commodities. Traditionally, international organizations have been mostly established by the states to fulfill political goals [4].

Historically, the study of international organizations examines the formal organizations and their roles to address the particular issue of areas of international cooperation from the political perspective. According to Archer [4], the term "international organization" was first used by Professor James Lorimer of England in 1867. Archer does not provide details regarding how and in which context Lorimer used the term. In this respect, Pitman Potter [5] has done extensive research about the origin of the term, confirming that Lorimer was the first lawyer who used the term in his lecture before the Royal Academy in Edinburgh on May 18, 1867 on the heading of "On the application of the principle of relative or proportional, equity to international organization." According to Potter, Lorimer again used the term in his publication in 1971. Following Lorimer, Thomas Willing Balch used the term in 1874 [5].

Political scientists examine international organizations in terms of international relations, governance and power dynamics. To examine society, they use various historical perspectives (developed by ancient and classical social thinkers) such as power and authority (rewards and punishment) and the political community (including nationalism). Power and authority notions were developed first by Plato, and further explanations developed by Bodin continued to be built upon by the classical organizational theorists (Weber, Taylor, Simon, etc.). Likewise, another perspective is to see the world in terms of mathematical order (quantitative approach) [6,7]. Archer[4] examines these perspectives in two major classifications i.e. (i) traditional and (ii) revisionist. Traditional perspective considers international organization as a part of institutionalized relationship between

states and government. This perspective is state centric, which only focuses on governmental international organizations. The traditional school of thought (which covers both realist and neo-realist school of thought) is developed mostly by the lawyers who primarily study organizations such as League of Nations and United Nations, NATO, European Union etc. who contribute to the formation of international government. They examine international organizations' role in global legal policy formation. Likewise, revisionists also focus on the state centric approach to study international organizations; however, they do not discard the roles of non-governmental international organizations in world politics [4].

There is no empirical evidence to state when international organizations began their formal roles. According to Archer [4] the rise of modern international organizations began in 1919 at the Versailles Peace Conference. The participants at Versailles were the representatives of victorious powers ready to write a peace treaty, including many national interest groups and international non-governmental organizations (INGOs) wanting to advance public health, the lot of workers, the cause of peace, or the laws of war [4]. This conference was influenced by the previous Hague Conferences in 1899 and 1907, which formed the grounds for the creation of the League of Nations [1,8-10]. The League of Nations could not generate a consensus on world politics, as demonstrated by World War II. Therefore, world leaders were looking for a new international organization that could bring the world's nations together to manage permanent peace across the globe. The foundation of the United Nations was the outcome of that effort. There have been debates about the role of the United Nations, its usefulness and its power dynamics [11,12]. However, the role of the United Nations to guide international society to resolve global geo-politico-socio-economic and most recently, environment problems is unavoidable [4]. One of the United Nations roles is to also bridge the gap between the states and nongovernmental organizations. However, the trend and field of international organizations has been broadening since the World War I. As Kratochwil [13] states, international organizations can be conceived of as the investigation of the various organizational forms that populate the international arena. This leads to the conclusion that the study of international organizations does not just cover the international organizations but includes all forms of organizations having international influences or relationships. On the basis of Kratochwil's notion, the study of international organizations covers NGOs, nation-states, international regimes, security alliances, multinational corporations, economic classes and democratic forms of governance, nationalisms, ethnicities and cultures [14]. In this context, international organizations cannot be the sole concern of political science but become matters for multidisciplinary investigation.

Theoretically, organizational research broadly examines (1) producing units and what factors determine organizational effectiveness or productivity and (2) sets of individuals whose well-being is affected by the terms of organizational membership and whose motivation to continue that membership depends on their assessment of its comparative contribution to their well-being (Kahn, 1990:3). This notion can be applied to investigating the role of international organizations because they follow more complex formalities than domestic formal organizations. The roles of organizations depend upon the motives behind why, how and for what purpose organizations were formed [1,8-10].

To understand the international organizations, it is essential to investigate what criteria make an organization international. The Year Book of International Organizations (1976/1977), published by the Union of International Associations (UIA), broadly states eight major criteria: (1) The aims must be genuinely international with the intention to cover at least three states. (2) Membership must be individual or involve collective participation, with full voting rights, from at least three states and must be open to any individual or entity appropriately qualified in the organization's area of operations. Voting must be arranged so that no one national group can control the organization. (3) The constitution must provide for a formal structure giving members the rights to periodically elect governing bodies and officers. Provision should be made for continuity of operation with a permanent headquarters. (4) Officers should not all be the same nationality for more than a given period. (5) There should be a substantial contribution to the budget from at least three states and there should be no attempt to make profits for distribution to members. (6) Those with an organic relationship with other organizations must show they can exist independently and elect their own officials. (7) Evidence of current activities must be available. And there are some negative criteria: (8) size, politics, ideology, fields of activity, geographical location of headquarters, and nomenclature are irrelevant in deciding whether a set-up is an "international organization" or not (as cited by Archer, [4]). UIA provides a clear picture of how organizations should be categorized and evaluated.

Several authors have tried to define international organizations along the same lines as these suggested by the UIA (1976/1977) (1992); however, they depend on disciplinary orientations. An international organization as permanently expressing a juristic will be distinct from that of its individual members [15]. It works as a legal body of bureaucratic structure. In the contemporary world, the impact of international organizations can be found in every sphere of the political, social, economic and environmental arenas. The political function of international organizations is to provide the means of cooperation among states in areas in which cooperation provides advantages for all or a large number of nations. Their social function is to try to reduce social inequality. Their economic function can be to reduce inequality on a global scale, and their environmental function can be to make collaborative efforts to overcome global environmental problems [3,16].

International organizations can be grouped according to their objectives and their functions. There are three major categories of organizations: inter governmental organizations (IGOs) e.g. United Nations agencies, United Nations Environment Program (UNEP), Intergovernmental Panel on Climate Change (IPCC), etc., International non-governmental organizations (INGOs) e.g. International Union for Conservation of Nature (IUCN), World Wildlife Fund (WWF), The Flora and Fauna International (FFI), etc. and multinational corporations (MNCs) e.g. World Bank, Regional Development Banks, etc. IGOs are based on a formal instrument of agreement between the governments of nation states, including three or more nation states as parties to the agreement; and possessing a permanent secretariat performing ongoing tasks. INGOs are defined and classified as in the United Nations Economic and Social Council (ECOSOC) definition of INGOs; they should be international NGOs in terms of aims, members, structure, officers, finance, autonomy and activities, all of them taking place in three or more countries. To be considered multinational enterprises,

organizations should have the products and services in more than three countries. In this paper, focus will be on INGOs, those established to attain certain goals, and their relationship with certain organizational theories (please see footnote for detail) according to niche and demands. These INGOs are considered as non-state actors and have significant influence on socio-economic and human services delivery (education, health and human and women's rights), economic development (agriculture, microcredit and infrastructures), environment conservation and world politics. There are many varieties of INGOs and they have a long history of their products and services delivery. For example, the International Red Cross Society is the one of the oldest INGOs and was established in February 1863 in Geneva, Switzerland, with the purpose of treating war victims and delivering health services. Fauna & Flora International was established in 1903 as the world's first international conservation organization with the purpose of conserving flora and fauna; it was instrumental in establishing much of today's global and local conservation infrastructure, including organizations such as the IUCN, WWF, the Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES), and conservation instruments such as the Red List of endangered species.

The regulatory bounded treaties, conventions and science behind international organizations formation

The Congress of Vienna was held November 1, 1814 through June 8, 1815, and is considered the first internationally binding treaties, where European nations agreed to settle the future boundaries of the continent. This is also considered the foundation of the peace treaty agreement and origin of international governmental organizations (IGOs). The Vienna Congress created the new web in European politics in terms of balance of power. This was represented by both governments and the general public lobbying to develop a concrete peace keeping policy. The Vienna Congress approved the provision of civil rights for Jews in Article XVI [17]. Reinalda [17] elaborates this also introduced the multilateral conference as instruments, consultation as a process of learning, diplomatic relation regulation and change and also acknowledged the role of the press. The outcome of the Congress was well distributed and published by the journals. From 1815 to 1899, twenty-seven multinational security conferences were held in Europe [17]. The agreement on freedom of navigation in Rhine was begun in 1815, which materialized with the development of the central commission for the navigation in 1919, illustrated in the article of Treaty of Versailles 354-62. Another milestone of that era was the civil rights and anti-slavery citizen's movements and the beginning of the NGO issue on human health. In a conference in Geneva in October 1863, 16 states approved the foundation of private national societies, funded by private donations. The International Committee of the Red Cross (ICRC) was founded in 1863 in Geneva, Switzerland by Henry Dunant, with the primary goal to aid wounded soldiers (Red Cross 2010). This era also gave birth to formal international organizations like the International Telegraphic Union founded in 1865, (in its first convention on International Telegraph concluded on May 17, 1865, twenty states signed the agreement). ITU is now the United Nations agency for information and communication technology issues, which has 191 country members, 554 sector members and 144 associate members (ITU 2010). ITU is unique in the sense that

NGOs dealing with the communication sector can be members (membership dues apply).

Similarly, the Vienna Congress contribution was the foundation of the Universal Postal Union. The Union was founded through the conference in Berne on September 15, 1874, which was attended by twenty-two nations; today all countries in the world are members. The UPU is an intergovernmental body and a specialized agency of the United Nations since July 1, 1948. The UPU maintains particularly close ties with United Nations agencies such as:

- International Telecommunications Union (ITU);
- International Civil Aviation Organization (ICAO), established April 4, 1947;
- International Labor Organization (ILO), established in 1919 as part of the Treaty of Versailles;
- World Trade Organization (WTO), established in 1995, one of the second youngest of the international organizations;
- International Air Transport Association (IATA), established in Havana, Cuba in April 1945;
- International Organization for Standardization (ISO), established on February 23, 1947
- World Customs Organization (WCO), active since 1953;
- International Police Organization (INTERPOL), established in 1923;
- United Nations Development Program (UNDP), established in 1965 in the field of postal development;
- United Nations Drug Control Program (UNDCP), established in 1997, the youngest Un agency; and
- United Nations Environment Program (UNEP), established in 1972 to increase awareness for the environment among Posts (IPU, 2010).

The fall of the Vienna Congress and the foundation of the League of Nations

The Vienna Congress and the various security related conferences of Europe could not normalize the power dynamism and competition of European nations, and could not stop WWI or WWII. However, that period established the arbitration and international law as normative power in international relations; the Alabama case and the treaty of Washington on arbitration 1871 (between UK and USA); the creation of private institute of international law in 1873 and the international law association of 1873; the establishment of the inter-parliamentary union in 1889 and the activation of the permanent court on arbitration in 1900 in Hague were very important steps toward the establishment of international law and order [17]. More important, this time also helped flourish the role of civil society organization and citizen's movement for human rights and women rights. Despite the peace building efforts, 1899 through 1914 was a time of anxieties and fear of war, with war breaking out in 1914 and ending in 1918.

The second regulatory bounded form of an intergovernmental international organization was the League of Nations, which was

founded in 1919–1920 as a result of the Treaty of Versailles in an effort to stop future wars. (The Treaty of Versailles was one of the peace treaties signed at the end of World War I. It ended the state of war between Germany and the Allied Powers. It was signed on June 28, 1919). By February 23, 1935 the League of Nations had fifty-eight members. The overall goals of League were upholding the new-found Rights of Man such as the rights of non-whites, women, and soldiers; disarmament; preventing war through collective security; settling disputes between countries through negotiation; diplomacy and improving global quality of life [17]. United States' President Woodrow Wilson was the main proponent of the League but never joined because of the nonalignment motives of American citizens, particularly with Europe. From 1920 to 1940, the League managed to make thirteen agreements in the economic field; fifteen agreements in communication and transportation; six agreements on human health; and nine agreements in the social well being of the citizens of the members' countries. The World Health organization, which was founded in 1922 with the name of Health Organization, is one example of collaborative works resulting from these agreements.

Likewise, the League of Nations had a scientific and knowledge production body, namely the League of Nations Committee on Intellectual Cooperation, sometimes known as The International Committee on Intellectual Cooperation or League of Nations Committee on Intellectual Cooperation. It was founded in 1922 with an office in Geneva, where it could not operate well because of the lack of funding. It moved to Paris in 1926 with French funding with a slightly different name; "International Institute for Intellectual Cooperation" and began to function properly. The members of this committee were the most distinguished figures of the twentieth century, including Henri Bergson (French philosopher; Nobel Prize Winner on literature in 1927); Albert Einstein (Physician, Nobel Prize Winner on Physics in 1921); Marie Curie (physicist and chemist, Nobel Prize winner in both fields); Béla Bartók (one of the greatest composers of the 20th century); Thomas Mann (German novelist, short story writer, social critic, philanthropist, essayist and 1929 Nobel Prize laureate); Salvador de Madariaga (Spanish diplomat, writer, historian and pacifist); and Paul Valéry (French poet, essayist and philosopher). The role of the International Institute for Intellectual Cooperation was to promote international cultural/intellectual exchange between scientists, researchers, teachers, artists and other intellectuals. This organization continued its work until 1946, when its role was taken over by The United Nations Educational, Scientific and Cultural Organization (UNESCO)[17].

During the League of Nations era, knowledge producing NGOs were flourishing through the academic institutions. Prior to the League's formation, there was the International Association of Academies (IAA), which continued its knowledge production from 1899 to 1914, and from 1919 to 1931, there was International Research Council (IRC). The works of the previous council was taken over by the International Council for Science (ICSU) in 1931. The ICSU has a dual membership system such as the National Scientific Members and International Scientific Unions. The ICSU deals with the scientific issues that cannot be solved alone by the national or international scientific unions. The ICSU works collaboratively with UN agencies and other national and international scientific agencies. The major international scientific ICSU member organizations include European Science Foundation (ESF), Inter-academy Council (IAC), Inter-academy

Medical Panel (IAMP), Inter-academy Panel (IAP), International Association of Universities (IAU), International Council for Engineering and Technology (ICET),

International Council for Philosophy and Humanistic Studies (CIPSH), International Group of Funding Agencies for Climate Change Research (IGFA), International Social Sciences Council (ISSC), International Union of Technical Associations and Organizations (UATI), Organization for Economic Cooperation and Development (OECD), International Union for Conservation of Nature (IUCN) and World Federation of Engineering Organizations (WFEO) (ICSU 2010).

Despite the many efforts to avoid war through various agreements among the League of Nations member countries, it could not obtain its goal of peacekeeping, and World War II occurred because of power struggles between European nations. From the humanitarian perspective, there was no victory for any nation; the entire world was defeated by the war. However, the League of Nations' failure demonstrated war could not achieve peace for all and provided an experimental ground for the collective security, which was adopted in the United Nations charters.

The fall of the League of Nations and foundation of the United Nations (UN)

Just as President Woodrow Wilson proposed for the League of the Nations, on January 1, 1942 President Franklin D. Roosevelt coined the name "United Nations," where twenty-six World War victims' countries were present. In 1945, 50 countries' representatives met in San Francisco at the United Nations Conference on International Organization, to draw up the United Nations Charter, and all 50 countries signed the charter on June 26, 1945, which framed the United Nations. Poland signed the charter later and became the 51st original charter signing state. In October 24, 1945, the United Nations officially came into existence, when the Charter was ratified by China, France, the Soviet Union, the United Kingdom, and the United States and by a majority of other signatories. Currently, almost all 192 countries of the world are members of the UN. Only Kosovo, which was declared independent from Serbia in 2008, Taiwan (China claims it is a part of China) and the Vatican City, which was founded in 1929, have not felt it necessary to join the UN.

The UN has four major purposes: (1) to maintain international peace and security; (2) to develop friendly relations among nations; (3) to cooperate in solving international problems and in promoting respect for human rights; and (4) to be a center for harmonizing the actions of nations. In the contemporary world, the UN is visible in every aspect of social, economic, environmental and political issue including peacekeeping and development through its forty plus affiliated organizations (UN, 2010). In addition to closely working with member governments, the UN also has a tradition of establishing new agencies to address emerging issues; however, sometimes it also works collaboratively with other IGOs or INGOs on the global or the transboundary issues and with NGOs if an issue is related to a particular nation. The UN also has a body to collaborate with NGOs and INGOs through the Economic and Social Council (ECOSOC) and the Non-Governmental Liaison Service (NGLS). The UN also provides observer status to IGOs who can participate in the sessions and the work of the General Assembly, some of which have permanent mission offices in New York. The international organizations

who have permanent mission offices include the African Union; Caribbean Community (CARICOM); Central American Integration System; Commonwealth Secretariat; Cooperation Council for the Arab States of the Gulf; European Union; International Criminal Police Organization (INTERPOL); International Union for the Conservation of Nature and Natural Resources (IUCN); League of Arab States; International Red Cross; regional development banks, etc. There are 25 intergovernmental organizations of this kind and 50 other organizations that do not have mission offices in New York but have observer status in the UN system (UN 2010).

In addition to the directly affiliated agencies, the UN also collaborates with all kinds of governmental, nongovernmental organizations, academic institutions, private business associates, public sector organizations, national and international organizations, etc. through the Global Compact Network Forum (UN 2010).

The UN Global Compact Participants

The UN Global Compact is the world’s largest corporate citizenship and sustainability initiative. Since its official launch on 26 July 2000, the initiative has grown to more than 7700 participants, including over 5300 businesses in 130 countries around the world. It is a network-based initiative with the Global Compact Office and six UN agencies at its core. The Global Compact involves all relevant social actors: companies, whose actions it seeks to influence; governments, labor, civil society organizations, and the United Nations, the world’s only truly global political forum, as an authoritative convener and facilitator. Source: The overview of the UN Global Compact (UN 2010)

This indicates that in its 65 years, the UN’s involvement and the role for the healthy planet became omnipresence in every aspect of the contemporary world including global environmental change.

Environmental change: Public concern and actions

“Up to our own day American history has been in a large degree the history of the colonization of the Great West.... [The frontier produced] a man of coarseness and strength... acuteness and inquisitiveness, [of] that practical and inventive turn of mind... [full of] restless and nervous energy... that buoyancy

and exuberance which comes with freedom.... The paths of the pioneers have widened into broad highways. The forest clearing has expanded into affluent common wealths. Let us see to it that the ideals of the pioneer in his log cabin shall enlarge into the spiritual life of a democracy where civic power shall dominate and utilize individual achievement for the common good” -- Frederick Jackson Turner in 1893.

The concern about the global environment change is not a new phenomenon. The first assertions that humans are responsible for the Earth came through the book by George Perkins Marsh published in 1864 entitled *Man and Nature*. In the 1874 revised edition, Marsh changed the title to “*The Earth as Modified by Human Action: Man, and Nature*” where he stated that “We are not passive inhabitants of Earth.... We give Earth its shape and form. We are responsible for Earth”. This was most likely the first book on ecological problems, which created a path for scientific research on anthropogenic cause on global environment. When humans were recognized as being responsible for global environmental change, people began to think about “how such issues could be solved.” It was also determined environmental problems were not endemic, or a single nation’s problem. As a matter of fact, different countries began to work together through mutually binding and non-binding treaties of cooperation and collaboration [18].

There have been several agreements to address the environmental issues. According to R. B. Mitchell (2009), there are 1538 Bilateral Environmental Agreements; 1000 Multilateral Environmental Agreements; 259 Other (non-multi, non-bi) Environmental Agreements; 213 Bilateral Environmental Non-Binding Instruments (non-agreements); 228 Multilateral Environmental Non-Binding Instruments (non-agreements) and 100 Other (non-multi, non-bi) Environmental Non-Binding Instruments (non-agreements), listed so far. The first such agreement was proposed by the Swiss in 1872 as an international commission to protect migratory birds. The first Convention for the Preservation of Animals, Birds and Fish in Africa was signed in 1900 in London by the European colonial powers with the intent to protect African game species, particularly to limit the export of ivory, which was leading to severe hunting pressure on the African elephant (see annex 1 for detailed list of the environment related major agreements from 1872 to 2009).

Annex 1: The major environmental agreements.

<ul style="list-style-type: none"> • 1872: The Swiss government proposed an international commission to protect migratory birds.
<ul style="list-style-type: none"> • 1900: Convention for the Preservation of Animals, Birds and Fish in Africa, which was signed in London by the European colonial powers with the intent to protect African game species, particularly to limit the export of ivory which was leading to severe hunting pressure on the African elephant.
<ul style="list-style-type: none"> • 1900: European littoral states sign treaty to regulate transportation of toxic substances on the Rhine River.
<ul style="list-style-type: none"> • 1906: Convention concerning the Equitable Distribution of the Waters of Rio Grande for Irrigation (US-Mexico water treaty)
<ul style="list-style-type: none"> • 1909: Canada-US Boundary Waters Treaty
<ul style="list-style-type: none"> • 1911: The North Pacific Fur Seal Commission was established by USA, Canada, USSR and Japan to regulate harvest of seals in North Pacific.
<ul style="list-style-type: none"> • 1918: US-Canada negotiate and sign the Migratory Bird Treaty Act, designed to protect bird species--particularly waterfowl--that seasonally migrate between the two nations.

<ul style="list-style-type: none"> • 1923: Convention for the preservation of the habitual fishery of the Northern Pacific Ocean and the Bering Sea
<ul style="list-style-type: none"> • 1931: First international convention to discuss the regulation of commercial whaling, eventually led (in 1946) to the International Convention for the Regulation of Whaling and the establishment of the International Whaling Commission, a permanent body responsible for negotiating & setting policy re- the harvest and preservation of whales.
<ul style="list-style-type: none"> • 1940: Convention on Nature Protection and Wildlife Conservation in the Western Hemisphere.
<ul style="list-style-type: none"> • 1946: Founding of the United Nations and World Bank, centerpieces for an international effort to promote world peace and post-war reconstruction. These institutions subsequently played leading roles in international environmental cooperation, through the World Bank, UN-IMCO, FAO, UNDP, WHO, and later, UNEP and UNESCO.
<ul style="list-style-type: none"> • 1946: International Convention for the regulation of Whaling
<ul style="list-style-type: none"> • 1950: International Convention to Protect Birds
<ul style="list-style-type: none"> • 1951: International Plant Protection Convention
<ul style="list-style-type: none"> • 1954: International Convention for the Prevention of Pollution of the Sea by Oil, signed in London, the culmination of 28 years of negotiations by Western European and North American nations.
<ul style="list-style-type: none"> • 1958: International Maritime Consultative Organization (UN-IMCO) established, assuming principal responsibility for negotiating international agreements on ocean pollution.
<ul style="list-style-type: none"> • 1959: Antarctic treaty
<ul style="list-style-type: none"> • 1963: Treaty Banning Nuclear Weapon Tests in the Atmosphere, in outer space and under water
<ul style="list-style-type: none"> • 1964: Agreed measures on the conservation of Antarctic flora and fauna
<ul style="list-style-type: none"> • 1962/69: Amendments to the International Convention on Oil Pollution.
<ul style="list-style-type: none"> • 1971: RAMSAR Convention on Wetlands of International Importance Especially as Waterfowl Habitat.
<ul style="list-style-type: none"> • 1972: UNESCO-sponsored Convention for the Protection of World Cultural and Natural Heritage, which designates World Heritage Sites.
<ul style="list-style-type: none"> • 1972: Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft.
<ul style="list-style-type: none"> • 1972: Great Lakes Water Quality Agreement (US - Canada).
<ul style="list-style-type: none"> • Key agreements on marine pollution in the North Sea and East Atlantic.
<ul style="list-style-type: none"> • 1972: Stockholm-United Nations Conference on the Human Environment.
<p>Outputs:</p>
<ul style="list-style-type: none"> • Stockholm Declaration of the UN Conference on the Human Environment: 26 principles, intended as a foundation for future developments in international environmental cooperation. • Action Plan for the Human Environment: consisting of 109 recommendations for governmental and intergovernmental action across the full range of environmental policy issues, ranging from species conservation, forests and atmospheric and marine pollution, to development policy, technology transfer and impact of environment on trade. • Resolved to establish United Nations Environment Program (UNEP) and the Environment Fund.
<ul style="list-style-type: none"> • 1972: London Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (restricts toxic & nuclear waste dumping at sea).
<ul style="list-style-type: none"> • 1973: International Convention for the Prevention of Pollution from Ships (MARPOL) (restricts release/dumping of oil, garbage, sewage, ballast waters, etc.).
<ul style="list-style-type: none"> • 1974: Paris Convention for the Prevention of Marine Pollution from Land-based Sources intended to control land-based pollution to the North Sea.

<ul style="list-style-type: none"> • 1974: Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea.
<ul style="list-style-type: none"> • 1975/80: Mediterranean Action Plans: control marine and land-based pollution.
<ul style="list-style-type: none"> • 1973: Convention on the International Trade of Endangered Species (CITES).
<ul style="list-style-type: none"> • 1974/84: First and Second UN Population Conferences: contentious events that, nonetheless, helped to focus attention and coordinate support for implementation of family planning programs in many countries.
<ul style="list-style-type: none"> • 1979: Convention on Long-Range, Transboundary Air Pollution (LRTAP). Negotiated between Canada, the US and European countries primarily in response to concerns about acid rain, this was the first major international effort to regulate air pollution.
<ul style="list-style-type: none"> • 1980: World Conservation Strategy. Coordinated by IUCN/WWF/UNEP, this was a major effort sponsored by non-government agencies to promote national conservation programs in LDCs.
<ul style="list-style-type: none"> • 1982: UN Conference on the Law of the Sea (UNCLOS). Established 200 mile territorial jurisdictions over coastal waters.
<ul style="list-style-type: none"> • 1982: Whaling moratorium adopted by IWC.
<ul style="list-style-type: none"> • 1983: International Tropical Timber Agreement (formation of ITTO: Int. Tropical Timber Organization)
<ul style="list-style-type: none"> • 1985: Helsinki Protocol on the Reduction of Sulphur Emissions.
<ul style="list-style-type: none"> • 1985: Vienna Convention for the Protection of the Ozone Layer, established initial targets for gradual reductions in CFC production.
<ul style="list-style-type: none"> • 1987: Montreal Protocol (London Amendments, 1990) on Substances that Deplete the Ozone Layer, established specific time-tables for reductions and phase-out of CFC's by the turn-of-the-century, and established financial mechanism (Ozone Fund) to assist LDCs and former Soviet Bloc nations in phase-out.
<ul style="list-style-type: none"> • 1987: Our Common Future published (Report of the World Commission on Environment & Development/Brundtland Commission)
<ul style="list-style-type: none"> • 1988: Intergovernmental Panel on Climate Change formed by UNEP & WMO.
<ul style="list-style-type: none"> • 1989: Basel Convent on Control of Transboundary Movements of Hazardous Wastes and Their Disposal.
<ul style="list-style-type: none"> • 1990: Kingston Protocol on Specially Protected Areas and Wildlife in the Caribbean
<ul style="list-style-type: none"> • 1991: Protocol on Environmental Protection of Antarctica, established a moratorium on mineral and related exploration and development for 50 years.
<ul style="list-style-type: none"> • 1991: Canada-US Air Quality Agreement, reducing emissions that cause acid rain
<ul style="list-style-type: none"> • 1991: European Union: Major progress on international environmental efforts, with 280 items of environmental legislation ranging across a range of policy areas, including toxics, water quality, waste management, air pollution, wildlife protection and noise pollution.
<ul style="list-style-type: none"> • 1992: Rio-United Nations Conference on Environment & Development.
<p>Outputs:</p>
<ul style="list-style-type: none"> • Rio Declaration: statement of key principles for environment & development • Agenda 21: detailed list of recommendations • Statement of Forest Principles (scaled down from Forest Convention) • Biodiversity Convention (signed by 153 countries, but not US) • Climate Change Convention • Global Environment Facility (GEF) • Established UN Commission on Sustainable Development to review progress of Rio efforts

<ul style="list-style-type: none"> • 1993: North American Commission for Environmental Cooperation, established as side agreement to North American Free Trade Agreement with the intent of addressing environmental problems and arbitrating related conflicts that arise through international trade between Mexico, US and Canada.
<ul style="list-style-type: none"> • 1994: UN Convention to Combat Desertification (particularly in Africa).
<ul style="list-style-type: none"> • 1994: 3rd International Population Conference, Cairo, established broad consensus over need to make women’s issues--health, education, employment, rights & empowerment--as central to concerns of family planning, fertility management and social development.
<ul style="list-style-type: none"> • 1995: Beijing International Conference on Women & Development
<ul style="list-style-type: none"> • 1996: Protocol to the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter
<ul style="list-style-type: none"> • 1997: International agreement to reduce the production, storage and use of land mines.
<ul style="list-style-type: none"> • 1997: Kyoto Protocol on the Reduction of Greenhouse Gases: Established first binding, numerical targets for reducing greenhouse gases.
<ul style="list-style-type: none"> • 1998: Rotterdam Convention on Prior Informed Consent for Trade in Hazardous Chemicals and Pesticides
<ul style="list-style-type: none"> • 1999: World Trade Organization meeting in Seattle crashed by environmental protests.
<ul style="list-style-type: none"> • 1999: Canada-US Pacific Salmon Treaty renewed
<ul style="list-style-type: none"> • 2000: Ozone Annex to the 1991 Canada-US Air Quality Agreement, reducing emissions that cause smog (especially NO-x)
<ul style="list-style-type: none"> • 2001: Cartagena (Bio-Safety-GMO) Protocol to UN Convention on Biological Diversity
<ul style="list-style-type: none"> • 2001: UN-Stockholm Convention on Persistent Organic Pollutants (DDT, PCBs, dioxin, furans)
<ul style="list-style-type: none"> • 2001: Bonn Framework Agreement for the Kyoto Protocol of the UN Convention on Climate Change
<ul style="list-style-type: none"> • 2002: Rio + 10: UN World Summit for Sustainable Development, Johannesburg
<ul style="list-style-type: none"> • 2005: Kyoto Protocol of 1997 comes into force
<ul style="list-style-type: none"> • 2005 Bali Strategic Plan for Technology Support and Capacity Building adopted by UNEP Governing Council mandating national level support to developing countries
<ul style="list-style-type: none"> • 2005 Millennium Ecosystem Assessment highlights the importance of ecosystems to human well-being, and the extent of ecosystem decline
<ul style="list-style-type: none"> • 2005 World Summit agrees to explore a more coherent institutional framework system for international environmental governance
<ul style="list-style-type: none"> • 2006: Asia-Pacific Partnership on Clean Development and Climate
<ul style="list-style-type: none"> • 2007: UNFCCC-Bali Conference on Climate Change: post-Kyoto road-map
<ul style="list-style-type: none"> • 2009: COP 15 Copenhagen
<p>Sources: Various including UNEP 1992; Reinalda 2009; Mitchell 2010, and http://www.mta.ca/faculty/socsci/geograph/genv4111/International%20laws.pdf (accessed on 03/11/2010)</p>

As a consequence, Fauna and Flora International (FFI) was founded in 1903, which is the world’s first international conservation organization. The fauna and floras major focus in the beginning was to protect the wildlife in Africa and still continues. There is long gap of INGO foundation after the inception of FFI. After forty-five years, the International Union for Conservation

of Nature (IUCN) was founded at Fontainebleau, France in 1948, with the support of the newly-formed United Nations Educational, Scientific and Cultural Organization (UNESCO). There were 18 governments, 7 international organizations, and 107 national nature conservation organizations with a group of individual scientists and lawyers as participants. The participants all agreed

to form the institution and signed a “constitutive act” with the name of International Union for the Protection of Nature (IUPN), now IUCN, with its headquarters located in the Lake Geneva area in Gland, Switzerland. It was founded during the same period in which the international community created the United Nations and its agencies (IUCN, 2010; [1,8-10].

IUCN is typically listed as an NGO in Switzerland and USA, though it occasionally describes itself as a GONGO. It has observer status at the United Nations and consultative status with UN Economic and Social Council (ECOSOC), FAO and UNESCO (MacDonald, 2005:2). In the United States, IUCN’s legal status is as an International Organization, designated by Executive Order No. 12986 (January 18, 1996), and IUCN is supported in the United States by charitable organization (IUCN-US) established under 501(c) 3 statuses. 501(c) is a provision of the United States Internal Revenue Code (26 U.S.C. § 501(c)), listing 26 types of non-profit organizations exempt from some federal income taxes.

“What is IUCN? IUCN, the International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges. It supports scientific research, manages field projects all over the world and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy, laws and best practice. IUCN is the world’s oldest and largest global environmental network - a democratic membership union with more than 1,000 government and NGO member organizations, and almost 11,600 volunteer scientists in more than 154 countries. IUCN’s work is supported by over 1,000 professional staff in 60 offices and hundreds of partners in public, NGO and private sectors around the world. The Union’s headquarters are located in Gland, near Geneva, in Switzerland” (source: <http://www.iucn.org> accessed on 03/11/2016).

The IUCN has been playing a major role in bringing science and conservation together through its hybrid membership system. IUCN is one of the major international organizations developing strategies and policy for global environment (World Conservation Strategy, 1980); after the publication of Our Common Future known as Brundtland report in 1987, the 1983 General Assembly passed Resolution 38/161 in 1983, IUCN published *Caring for the Earth: A Strategy for sustainable living* in 1991, which is considered one of the major milestones for the sustainable development policy formation.

IUCN capitalized on the subsequent burst of environmental activity in governments around the world, particularly the establishment of departments or ministries of environment. It was also allowed to play a key role in the preparations for the first United Nations Conference on the Human Environment in Stockholm in 1972. This conference led directly to the creation of the United Nations Environment Program (UNEP); with the intention of strengthening the environmental dimensions of the UN. But IUCN staff prepared background papers and acted as consultants and, as governments developed reports for the conference, they turned to people who were associated with IUCN (MacDonald, 2005:8). The IUCN was the key player for Convention on the International Trade in Endangered Species (CITES); on the conservation of wetlands of international importance (RAMSAR);

and on the conservation of the World Heritage (World Heritage Convention) (MacDonald, 2005:8;)[1]. Particularly from the 1972 Stockholm Conference, IUCN has been positioning its stand in most of the global conventions or conferences held in the world including Rio 1992, Durban 2002, Bali 2007 and Copenhagen 2009. IUCN does not work against any government or agency; it plays the collaborative role to develop mutual understanding to address global environmental issues including climate change. As noted above, IUCN was one of the INGOs who played a role to establish the ENEP and works closely with the UN agencies including IPCC and The World Meteorological Organization (WMO) to address the climate change issue. World Wildlife Fund for Nature (WWF) was formed within the IUCN in 1961 to raise the fund but later became a different organization. At present, most of the big international conservation organizations are member of IUCN, including intergovernmental, NGOs around the world, who are working to address the environmental issue. One of the IUCN’s major programs are to address the climate change, including policy lobbying to program implementation in the ground (IUCN, 2010;)[1].

The United States: A pioneer to address the environment

Because the United States was the main player in establishing the League of Nations, followed by the United Nations, it also has pioneered facilitating the public and private sector’s ability to address the environmental and climate change issues.

The National Oceanic and Atmospheric Administration (NOAA) traces back to the United States’ Coast Survey established in 1807, the United States Weather Bureau established in 1870, and the United States Commission of Fish and Fisheries established in 1871. One of the major missions of NOAA is to conduct atmospheric and climate research.

The vision statement states:

Climate Research: “NOAA Research, the research and development arm of NOAA, conducts research to provide the nation with better weather forecasts, earlier warnings for natural disasters, and an overall greater understanding of our oceans, climate, and atmosphere. This research helps prepare the nation for the new challenges of tomorrow as society and natural surroundings continue to change....“NOAA scientists continually strive to understand and describe climate variability and change to enhance society’s capacity to anticipate and respond to climate change....Integration of research across existing disciplines is a central theme of NOAA’s future climate research. The links among the land, ocean, polar ice, atmosphere, and biosphere must be further explored, bolstering our nascent understanding of the complex interrelationships that comprise the global climate system” (NOAA, 2010).

Similarly, the first in the United States and the largest grassroots environmental organization was the Sierra Club, founded on May 28, 1892. The first president of the Sierra Club, Mr. John Muir, was one of the major players to establish the world’s first National Park, “Yellowstone National Park,” in 1872. It was the same year the Swiss Government proposed the conservation of migratory birds in the world. The Sierra Club first started the conservation campaign to defeat a proposed reduction in the boundaries of

Yosemite National Park. By 1920, the Club became a very powerful organization in the United States and opposed a plan to build dams in the Park. Since its inception, the Yellowstone model has been copied in national parks throughout the world. At the union level, the American Forestry Association was founded in 1875, Appalachian Mountain Club was founded in 1876, the Smoke Prevention Association of America was founded in 1907, and the Environment Defense fund was established in 1867 (Brulle, 2000). Similarly, at the government level, broader environment conservation was also initiated in the United States.

However, the sole body to tackle environmental and climate change came in 1970 under the name of Environment Protection Agency (EPA) through the firm influence of Rachel Carson's *Silent Spring*, which was published as a column in the *New York Times* and as a book in 1962 (Lewis, 1985). The book's mission and "what we do" section states:

The EPA leads the nation's environmental science, research, education and assessment efforts. The mission of the Environmental Protection Agency is to protect human health and the environment. Since 1970, EPA has been working for a cleaner, healthier environment for the American people (EPA, 2010).

There have been very positive impacts of the United States' environment management system on the rest of the world. This system is based on the National Environmental Policy Act of 1969 (NEPA); the Clean Air Act 1970 (CAA); the Clean Water Act 1977 (CWA); the Endangered Species Act 1973 (ESA); and the International Environment Protection Act of 1983, as well as others acts. These acts forced the formulation of the policy for environmental reform in the United States. U.S. policies also insisted first to the Western World and then to the rest of the world to examine their position and incorporate similar types of policies for environment management. The German Environmental Action Program of 1970 is another similar early program (Rehbinder 1976). I believe these acts play significant roles in addressing the global environmental crisis.

Back to the United Nations: The UNEP and WMO, the founder of IPCC

As we noted in the second section of this chapter, United Nations brought together some of the exiting international organizations founded prior to its inception and established several other with specific roles and responsibilities. However, there are overlaps in the programs and policies among the UN agencies. For example, WHO, UNDP, UNEP and FAO all have the environmental program and policies? However, UNEP, WMO, UNFCCC are the specific agencies responsible for addressing climate change and global environment. WMO is the core scientific body of the UN. The major role of the WMO is to facilitate, help or establish the meteorological observations stations and provide the training and research platform to member countries (there are 189 members), whereas UNEP has several roles including climate research and facilitations.

The UNEP was founded by the UN General Assembly resolution 2997 (XXVII) of December 15, 1972. This was recommended by the first UN Conference on Human Environment, held in Stockholm, Sweden, from June 5-16, 1972, where 113 countries

representatives, 19 inter-governmental agencies, about 400 IGOs' and NGOs' leaders were participants. The Stockholm Conference is considered to be the foundation of the modern political and public awareness of global environmental problems. The UNEP has played a pivotal role in achieving its primary mission.

The mission of the UNEP is "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" [19].

And further, according to the UNEP Organization Profile (2009: 3)

UNEP is the United Nations system's designated entity for addressing environmental issues at the global and regional level. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action. The mandate and objectives of UNEP emanate from:

1. UN General Assembly resolution 2997 (XXVII) of 15 December 1972;
2. Agenda 21, adopted at the UN Conference on Environment and Development (UNCED: the Earth Summit) in 1992;
3. The Nairobi Declaration on the Role and Mandate of UNEP, adopted by the UNEP Governing Council in 1997;
4. The Malmö Ministerial Declaration and the UN Millennium Declaration, adopted in 2000; and
5. Recommendations related to international environmental governance approved by the 2002 World Summit on Sustainable Development and the 2005 World Summit.

The role of UNEP is to implement the mandate given by the governing council. At these conferences, such as UNCED (Rio), the Nairobi declaration and Malmö (Sweden), the WSSD assigned more responsibility to UNEP for coordinating with the governments and other organizations working for the environmental field. The UNEP has major roles in the environmental movement, which is highly appreciated by world leaders. For example, the Malmö declaration number 22, on page 5 notes that:

Governments and UNEP have to play a major role in the preparation for the 2002 review of UNCED at the regional and global levels and ensure that the environmental dimension of sustainable development is fully considered on the basis of a broad assessment of the state of the global environment. The preparations for the conference should be accelerated (UNEP 2000).

Similarly, in the Nairobi declaration:

"The role of UNEP, as the principal UN body in the field of the environment, should be further enhanced. Taking into account its catalytic role, and in conformity with Agenda 21 and the Nairobi Declaration on the Role and Mandate of UNEP, adopted on 7 February 1997, UNEP is to be the leading global environmental authority that sets the global environmental agenda, promotes

the coherent implementation of the environmental dimension of sustainable development within the UN system, and serves as an authoritative advocate for the global environment" (UNEP-New York, 2010).

And in UNCED declaration:

"UNEP played a pivotal role in coordinating the UN system's preparations for UNCED, held in Rio de Janeiro in June 1992. The Designated Official on Environmental Matters (DOEM) regularly reviewed the collective environmental work of UN bodies and agencies in preparation for UNCED and was involved in discussions on post-UNCED institutional arrangements. UNCED in adopting Agenda 21, reaffirmed UNEP's coordinating role, stating that, "in the follow-up to the Conference, there will be a need for an enhanced role for UNEP and its Governing Council. The Governing Council should, within its mandate, continue to play its role with regard to policy guidance and coordination in the field of the environment, taking into account the development perspective". Agenda 21 further stipulated that UNEP should concentrate, inter alia, on "promoting international cooperation in the field of environment and recommending, as appropriate, policies to this end" (UNEP-New York, 2010).

Regarding the role of UNEP, former UN secretary general Kofi A. Annan states:

UNEP has served as an expert 'watchdog', monitoring the state of ecosystems and species worldwide. It has been, and remains, the environmental conscience of the United Nations. UNEP has played an instrumental role in the adoption of international environmental conventions and treaties aimed at preserving the ozone layer, conserving biological diversity, coping with climate change, protecting the oceans and seas, controlling the movement of toxic wastes and controlling the trade in endangered wildlife species (Annan, 1997).

UNEP is small in terms of budget, human resources and program function in comparison to other UN agencies e.g. UNDP, FAO, UNESCO, etc. However, as an intergovernmental agency it has been playing a critical role in the formation of environmental institutions. The prefunding role for the foundation of Intergovernmental Panel on Climate Change (IPCC) was an example of this kind.

The Intergovernmental Panel on Climate Change (IPCC) establishment

Post-World War II advances in basic atmospheric science that led to greatly increased understanding of the mechanisms of the large-scale circulation of the atmosphere; Initiation of a number of new geophysical observations (especially the Mauna Loa measurements of atmospheric carbon dioxide) during the 1957 International Geophysical Year; Recognition of the potential meteorological observing capabilities of Earth-orbiting satellites; The advent of digital computers; and The willingness of countries, even in the developing Cold War environment, to use the institutions of the United Nations System for cooperation in addressing important global problems (John W Zillman 2009).

The grounds for foundation of the IPCC goes back to several scientific conferences held on the climate change and global environmental issues in various times and locations. The most important such conference was the First World Climate Conference held in Geneva from February 12-23, 1979 sponsored by the WMO, in collaboration with UNESCO, FAO, WHO, UNEP, ICSU and other scientific partners. More than 300 experts from over 50 countries participated in this conference (Weart 2004). The conference concluded that the climate change was a serious problem declaring that (a) to take full advantage of man's present knowledge of climate (b) to take steps to improve significantly that knowledge; and (c) "to foresee and prevent potential man-made changes in climate that might be averse to the well-being of humanity" (emphasis added) (UNEP, 1990). This conference was the major breakthrough in advancing climate change knowledge, which also founded the World Climate Program (WCP), a major body of Climate Research under WMO.

"World Climate Program is the lead agency and coordinator, the purpose of which is to provide an authoritative international scientific voice on climate change and to assist countries in applying climate information and knowledge to sustainable development and the implementation of Agenda 21. It was started in 1979 as a successor to Global Atmospheric Research Program (GARP) with the major objectives of determining to what extent climate can be predicted and the extent of man's influence on climate. The four major components of WCP are the World Climate Data and Monitoring Program (WCDMP), the World Climate Applications and Services Program (WCASP), the World Climate Impact Assessment and Response Strategies Program (WCIRP) and the World Climate Research Program (WCRP)" (Baum, 1997; WMO, 2010) .

UNEP, WMO and ICSU, through the WCP, coordinated a series of meetings and workshops between 1980 and 1985. The first international assessment was about the CO₂ issue; an expert meeting held in Villach, Austria, in November 1980 (World Climate Program, 1981; Agrawala 1998). In October 1982, the WCP (WMO/UNEP/ICSU) meeting in Geneva recommended that continuing assessments of CO₂, believed to be responsible for global warming, be held every five years, starting from the first meeting in 1980. Following that meeting, an Interim Assessment was prepared (Morrissey 1998). These series of meetings concluded that climate change was a serious problem caused by the anthropogenic activities and also decided to arrange another international conference in Villach, Austria in 1985.

As a consequence, the joint UNEP/WMO/ICSU Conference was convened in Villach (Austria) from October 9-15, 1985 and attended by scientists from 29 countries, reached the following conclusions and made these recommendations:

1. Many important economic and social decisions are being made today on long-term projects major water resource management activities such as irrigation and hydro-power, drought relief, agricultural land use, structural designs and coastal engineering projects, and energy planning all based on the assumption that past climatic data, without modification, are a reliable guide to the future.

This is no longer a good assumption since the increasing concentrations of greenhouse gases are expected to cause a significant warming of the global climate in the next century. It is a matter of urgency to refine estimates of future climate conditions to improve these decisions.

2. Climate change and sea level rises due to greenhouse gases are closely linked with other major environmental issues, such as acid deposition and threats to the Earth's ozone shield, mostly due to changes in the composition of the atmosphere by man's activities. Reduction of coal and oil use and energy conservation undertaken to reduce acid deposition will also reduce emissions of greenhouse gases, a reduction in the release of chloro-fluorocarbons (CFCs) will help protect the ozone layer and will also slow the rate of climate change.
3. While some warming of climate now appears inevitable due to past actions, the rate and degree of future warming could be profoundly affected by governmental policies on energy conservation, use of fossil fuels, and the emission of some greenhouse gases (WMO 1986).

The conference also made the recommendation stating that the UNEP, WMO and ICSU should establish a small task force on green- house gases, or take other measures, to:

- i. Help ensure that appropriate agencies and bodies follow up the recommendations of Villach 1985.
- ii. Ensure periodic assessments are undertaken of the state of scientific understanding and its practical implications.
- iii. Provide advice on further mechanisms and actions required at the national or international levels.
- iv. Encourage research in developing countries to improve energy efficiency and conservation.
- v. Initiate; if deemed necessary, consideration of a global convention (WMO 1986).

The collaborative research between UNEP, WMO and ICSU was broken because of the international policy of the United Nation system. ICSU as a nongovernmental scientific organization was not responsive to any government (Agrawala 1998); however, the scientists and the scientific organization members of ICSU had been playing important roles to foster the climate change research.

Following the Villach conference, the World Meteorological Congress held in Geneva in May 1987 attested to the outcome of the Villach Conference. Prior to the conference, "Our Common Future," the World Commission on Environment and Development (the Brundtland Commission Report), was already published. The report, which showed the seriousness of the global environment, states that:

Failures to manage the environment and to sustain development threaten to overwhelm all countries. Environment and development are not separate challenges; they are inexorably linked. Development cannot subsist upon a deteriorating environmental resource base; the environment cannot be protected when growth leaves out of account the costs of environmental destruction. These problems cannot be treated

separately by fragmented institutions and policies. They are linked in a complex system of cause and effect (emphasis added: no 40; Our Common Future 1987).

The report was also based on the Villach findings in highlighting global warming as a major threat to sustainable development (WCED 1987; Zillman 2009). The WMO executive council authorized the Secretary General to discuss the matter with the UNEP executive director and to form the Intergovernmental Panel on Climate Change (IPCC). The 70th UN general assembly of December 6, 1988, also recognizes the Villach outcome. The resolution states:

Recalling also the conclusions of the meeting held at Villach, Austria, in 1985, which, inter alia, recommended a program on climate change to be promoted by Governments and the scientific community with the collaboration of the World Meteorological Organization, the United Nations Environment Program and the International Council of Scientific Unions (UN 1988).

The issue of the global climate change has been in discussion in the National and international forum; however, until 1988, there was no intergovernmental international authority who could collaborate with the world research centers and produce the global report on climate change. To fulfill this gap, the UN General Assembly Resolution 43/53 on December 6, 1988; under the title of "Protection of global climate for present and future generations of mankind" in resolution number (5) states:

"Endorses the action of the World Meteorological Organization and the United Nations Environment Program in jointly establishing an Intergovernmental Panel on Climate Change to provide internationally coordinated scientific assessments of the magnitude, timing and potential environmental and socio-economic impact of climate change and realistic response strategies, and expresses appreciation for the work already initiated by the Panel (UN 1988).

Further, in resolution 43/53 number (10) the UN general assembly gives the following mandate to the Executive Directors of the WMO and UNEP:

Requests the Secretary-General of the World Meteorological Organization and the Executive Director of the United Nations Environment Program, through the Intergovernmental Panel on Climate Change, immediately to initiate action leading, as soon as possible, to a comprehensive review and recommendations with respect to:

1. The state of knowledge of the science of climate and climatic change;
2. Programs and studies on the social and economic impact of climate change, including global warming;
3. Possible response strategies to delay limit or mitigate the impact of adverse climate change;
4. The identification and possible strengthening of relevant existing international legal instruments having a bearing on climate;
5. Elements for inclusion in a possible future international convention on climate;

The IPCC's immediate task was to prepare a comprehensive review and recommendations with respect to the state of knowledge of the science of climate change; social and economic impact of climate change, possible response strategies and elements for inclusion in a possible future international convention on climate (IPCC 2010). The role of the IPCC 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. Review by experts and governments are an essential part of the IPCC process. The Panel does not conduct new research, monitor climate-related data or recommend policies. It is open to all member countries of WMO and UNEP" (IPCC 2004).

At the outset, the IPCC elected Bert Bolin, a professor of meteorology from Sweden, as the first chair, a position in which he served until 1997, covering the first two IPCC assessments. Bolin's book (2007) is a thorough insider's view of the processes followed by the IPCC, using his perspectives. Although it focuses primarily on the substantive issues, it includes considerable detail on the procedural elements of the IPCC work.

In its initial organization, the respective secretariats played a key role. The IPCC set up three working groups dealing respectively with science, impacts and responses on the basis of a suggestion, according to Bolin, of Mostapha Tolba, the Executive Secretary of UNEP. Tolba, having been a negotiator at UNCED, was well aware of how multilateral negotiations took place. In the early period, the secretariats of UNEP and WMO were active in ensuring the IPCC would be set up to be effective. However, in doing so they decided to maintain a remarkably low profile, restricting their activities to providing the administrative services necessary for the IPCC to function, and essentially leaving the governance to the members themselves.

The three working groups were intended to draw on slightly different scientific constituencies because impact and responses would require factoring in research outside the physical sciences and would touch on political issues. Working Group I would be dominated by climate scientists, while Working Groups II and III would have a wider participation, including, as time went on, economists and other social scientists. Each working group issued its own report and there was no common synthesis. As has been the case throughout, the Working Group I report was considered most important because it established the scientific basis for political negotiations. It also included a summary for policy makers that reflected a consensus of the different drafters.

As a given mandate the IPCC adopted its first assessment report on August 30, 1990 in Sundsvall, Sweden; in 1992, it published the Supplementary Reports; in 1994, the Special Report; in 1995, the Second IPCC Assessment Report; in 2001, the Third IPCC Assessment Report; and in 2007, the Fourth IPCC Assessment Report. The IPCC flyer for fourth assessment report states that for the 2007 report there were 2500+ Scientific Expert Reviewers, 800+ Contributing Authors and 450+ Lead Authors from 130+ Countries. This demonstrates that the IPCC has a major role in climate change knowledge production.

Conclusion

This paper briefly discusses the origin of international organizations with the specific focus on international governmental organizations. The history of international organizations is moderately long; however, the environmental discourses are relatively new. The role of the international organizations in the beginning of 20th century, were mostly surrounded around the security issues. However, the Congress of Vienna, the League of Nations and the United Nations also paved the way for scientific development to address the global environment. At the government level, the United States and Switzerland were the pioneers for environment conservation. In terms of research and development, the United States is the leading country in natural resource management throughout history. Similarly, the historical account also shows that INGOs and NGOs also played critical roles in raising the awareness on global environment. Of the UN agencies, the Flora and Fauna International, the International Union for Conservation of Nature (IUCN), World Wildlife Fund, ICSU and several others played important roles in obtaining government commitments to address the global environment issues. As a result, thousands of international binding or non-binding convention treaties are in force. The foundation of IPCC is one of the best examples of a governmental scientific body providing the science base knowledge to global communities.

Acknowledgement

First of all, I would like to thank to reviewer panel for insightful and thoughtful comments. I would also like to thank to Profs. Steven R. Brechin, John Mathiason, Keshav Bhattarai and Ms. Prajita Bhandari for their insightful thoughts and comments on the paper, without their support this research was impossible. Special thanks to Prajita, Manaslu; Prameya and Kelsey who read this paper several times, provided their feedbacks and edited the language. I express my thanks to Ms. Tatjana Capar of Ology Journals, Kft., for her support in the publication process. Thanks to all readers as well.

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Footnotes

- i. According to Clive Archer notes that "Lorimer was a Professor of Law at the University of Edinburgh. The Gazetteer for Scotland gives the following information about him: James Lorimer (1818 – 1890) Lawyer and political philosopher. Born in Aberdalgie (Perth and Kinross). Lorimer became an advocate and was appointed Regius Professor of Public Law at the University of Edinburgh (1862). He was an expert on international law and was noted for two publications; namely 'The Institutes of Law: A treatise of the principles of jurisprudence, as determined by nature' (1872) and 'The Institutes of the Law of Nations: A treatise of the jural relations of separate political communities' (1884). In these he deprecated utilitarianism and both have been criticized for their elitism and support for imperial colonialism, which was reaching its zenith at that time. I follow what Pitman Potter says about the term, though I would distinguish between International Organizations and International Institutions" (Archer1992).
- ii. "However Archer (1992) provides a foundation history of international organization, where he cites Speerhaert (1957:xiii) and notes that 509 international organizations were founded during 1693 to 1914, which reached 666 by 1915 to 1944 and 803 by 1945 to 1954. This clearly shows that formal organization must have begun in 17th century and gradually increased. It also gives a chance to pose the alternative argument that formation of international organizations might not only influenced by politics. It might be religion or social motive which enforced to establish organizations at international level.
- iii. "The League of Nations was founded in 1919 as a result of the Treaty of Versailles and the end of World War I. Woodrow Wilson had personally represented the United States at the Versailles peace conference, and he arrived in Paris intent upon establishing a collective security organization that would prevent another world war from ever happening again. The league and its covenant were the ultimate expression of that vision, and President Wilson submitted the treaty to the Senate confident that he could persuade enough of its members to vote for ratification" <http://www.nps.gov/archive/elro/glossary/league-of-nations.htm> "In order to promote international cooperation and to achieve international peace and security by the acceptance of obligations not to resort to war, by the prescription of open, just and honorable relations between nations, by the firm establishment of the understandings of international law as the actual rule of conduct among Governments, and by the maintenance of justice and a scrupulous respect for all treaty obligations in the dealings of organized peoples with one another; Agree to this Covenant of the League of Nations" Conference Article of League of Nations (Geneva 15, November 1920) <http://cyberschoolbus.un.org/unintro/unintro3.htm> (accessed on 03/15/2016)
- iv. "The name 'United Nations,' coined by United States President Franklin D. Roosevelt, was first used in the 'Declaration by United Nations' of 1 January 1942, during the Second World War, when representatives of 26 nations pledged their Governments to continue fighting together against the Axis Powers. States first established international organizations to cooperate on specific matters. The International Telecommunication Union was founded in 1865 as the International Telegraph Union, and the Universal Postal Union was established in 1874. Both are now United Nations specialized agencies. In 1899, the International Peace Conference was held in The Hague to elaborate instruments for settling crises peacefully, preventing wars and codifying rules of warfare. It adopted the Convention for the Pacific Settlement of International Disputes and established the Permanent Court of Arbitration, which began work in 1902. The forerunner of the United Nations was the League of Nations, an organization conceived in similar circumstances during the First World War, and established in 1919 under the Treaty of Versailles "to promote international cooperation and to achieve peace and security." The International Labour Organization was also created under the Treaty of Versailles as an affiliated agency of the League. The League of Nations ceased its activities after failing to prevent the Second World War. In 1945, representatives of 50 countries met in San Francisco at the United Nations Conference on International Organization to draw up the United Nations Charter. Those delegates deliberated on the basis of proposals worked out by the representatives of China, the Soviet Union, the United Kingdom and the United States at Dumbarton Oaks, United States in August-October 1944. The Charter was signed on 26 June 1945 by the representatives of the 50 countries. Poland, which was not represented at the Conference, signed it later and became one of the original 51 Member States. The United Nations officially came into existence on 24 October 1945, when the Charter had been ratified by China, France, the Soviet Union, the United Kingdom, the United States and by a majority of other signatories. United Nations Day is celebrated on 24 October each year (Extracted from: Basic Facts about the United Nations 2000, Sales No. E.00.I.21. <http://www.un.org/aboutun/history.htm>). (accessed on 03/15/2016)
- v. "Yearbook of International Organizations": The Union of International Association was founded one hundred years ago, in 1907, by Henri La Fontaine (Nobel Peace Prize laureate of 1913), and Paul Otlet, a founding father of what is now called information science. It is a non-profit non-governmental organization registered under Belgian law as an AISBL. It has consultative status with ECOSOC (since 1951)

- and UNESCO (1952) <http://www.uia.be/homepage> (accessed on 03/15/2016).
- vi. "The first avenue by which non-governmental organizations took a role in formal UN deliberations was through the Economic and Social Council (ECOSOC). 41 NGOs were granted consultative status by the council in 1946; by 1992 more than 700 NGOs had attained consultative status and the number has been steadily increasing ever since to 3,052 organizations today. Article 71 of the UN Charter opened the door providing for suitable arrangements for consultation with non-governmental organizations. The consultative relationship with ECOSOC is governed today by ECOSOC resolution 1996/31, which outlines the eligibility requirements for consultative status, rights and obligations of NGOs in consultative status, procedures for the withdrawal or suspension of consultative status, the role and functions of the ECOSOC Committee on NGOs, and the responsibilities of the UN Secretariat in supporting the consultative relationship. Consultative status is granted by ECOSOC upon recommendation of the ECOSOC Committee on NGOs, which is comprised of 19 Member States." <http://www.un.org/esa/coordination/ngo/> (accessed on 03/15/2010)
- vii. scientific management or management as science, classical school (1910s); human relation (1920s): focuses on attitude; bureaucracy (1940s): order, system, rationality, uniformity, and consistency, lead to equitable treatment for all employees by management; Group dynamics (1940s) individual participation in decision-making; Leadership(1950s): the importance of groups having both social task leaders; Decision theory(1960s) individuals "satisfies" when they make decisions; Socio-technical school(1960s): Called for considering technology and work groups when understanding a work system; Environment and technology system (1960s) mechanistic and organic structures and stated their effectiveness with specific types of environmental conditions and technological types; Systems theory-(1970s): organizations as open systems with inputs, transformations, outputs, and feedback; systems strive for equilibrium and experience equifinality; Contingency theory (1980s): organization processes and characteristics of the situation; called for fitting the organization's structure to various contingencies.
- viii. "International organizations, whether governmental or non-governmental, use any of an extensive range of terms in their official titles. These may include terms such as union, association, office, agency, centre, or alliance. There is a great deal of confusion associated with the meanings to be attached to such terms in practice. It is therefore not usual to attempt to classify an organization on the basis of whether it is a "union," a "confederation," a "committee," or a "league," for example. A "centre" may in fact resemble an "association" more than it resembles most other "centers"; equally an "association" can be more like what is commonly understood to be a "centre." The range of terms can be usefully ordered by relating the organizations in question to the meetings by which they were established or through which they work. This brings out the strengths and limitations of this seemingly obvious approach to classifying organizations" (UIA Classification: Yearbook of International Organizations, Paul Taylor and A J M Groom (London, Frances Pinter, 1977; New York, Nichols Publishing Company, 1978).
- ix. <http://www.fauna-flora.org/aboutus.php> (homepage) (accessed on 03/15/2016)
- x. The Red Cross Now: The Movement is made up of almost 97 million volunteers, supporters, and staff in 186 countries. It has three main components: (1) The International Committee of the Red Cross (ICRC) (2) The International Federation of Red Cross and Red Crescent Societies and (3) National Red Cross and Red Crescent Societies. Its major goals are: Reduce the number of deaths, injuries and impact from disasters; Reduce the number of deaths, illnesses and impact from diseases and public health emergencies; Increase local community, civil society and Red Cross Red Crescent capacity to address the most urgent situations of vulnerability; Promote respect for diversity and human dignity, and reduce intolerance, discrimination and social exclusion.
- xi. Source: The International Red Cross and Red Crescent Movement (2010) http://www.ifrc.org/who/movement.asp?navid=03_08&gclid=CISk-fekrKACFWV75QodJWHXbQ (accessed 03/10/2016).
- xii. The ITU mission: bringing the benefits of ICT to all the world's inhabitants; <http://www.itu.int/net/about/mission.aspx> (accessed on 03/09/2010)
- xiii. The UPU as a specialized agency of the United Nations http://www.upu.int/about_us/en/the_upu_as_a_un_specialized_agency.html (accessed on 03/09/2016)
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