Climate Change and Environmental Ethics

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Climate Change, Developing Countries, and Human Rights: An International Law Perspective

Ved P. Nanda

A broad consensus exists in the scientific community about the reality of climate change. The Intergovernmental Panel on Climate Change (IPCC) has concluded that the concentration of greenhouse gases in the atmosphere has significantly increased globally as a result of human activities in the last 150 years. The more recent appraisal by scientists in several countries is that we may be reaching the "tipping point" and experts warn that climate change could lead to "ecological catastrophes." And the adverse impact will be felt mostly by developing countries without the wherewithal to mitigate these impacts and take the necessary adaptation measures. The international law response has been the 1992 Framework Convention on Climate Change (FCCC) and the subsequent Kyoto Protocol. The Parties to the FCCC failed to reach an accord on a successor treaty at the Copenhagen conference in December 2009. A market-based, flexible approach devised under the Kyoto Protocol to assist the developing countries is the Clean Development Mechanism, which is aimed at reducing carbon emissions and assisting developing countries in achieving sustainable development while allowing advanced industrialized countries flexibility in complying with their emission reduction targets. Several international efforts are underway to link human rights and climate change and to explore legal bases for accountability and state responsibility for global warming.

I. The Challenge

A. Scientific Evidence for Global Warming

A broad scientific consensus exists that climate change is real and has accelerated. In May 2010, the leading scientific organization in the

United States, the National Academy of Science's National Research Council affirmed the reality of climate change, which it said is driven largely by human activities, especially the burning of fossil fuels that release carbon dioxide (CO_2) and other heat-trapping greenhouse gases into the atmosphere, and deforestation (America's Climate Choices 2010). The report, requested by the US Congress, encompassed three comprehensive studies—*Advancing the Science of Climate Change*; *Limiting the Magnitude of Future Climate Change*; and *Adapting to the Impacts of Climate Change.* The requested report

> examines the status of the nation's climate change research efforts and recommends steps to improve and expand current understanding. The report reviews what the scientific community has learned about climate change and its interactions with human and natural systems in 12 areas of interest to decision makers .... (National Academy of Sciences 2010, *Advancing the Science of Climate Change, Report in Brief*).

It makes specific recommendations on how to mitigate or adapt to climate change, which include the creation of a carbon pricing system.

In June 2010, the US National Oceanic and Atmospheric Administration (NOAA) released a report, *State of the Climate in 2009*, documenting the weather and climate events in 2009 from around the world and putting them into an "accurate historic perspective, with a particular focus on unusual or anomalous events" (Arndt 2010, S14). The report, compiled by more than 300 scientists from every continent and from more than 160 different research groups, states: "Global average surface and lower-troposphere temperatures during the last three decades have been progressively warmer than all earlier decades, and the 2000s (2000-09) was the warmest decade in the instrumental record" (Arndt 2010, S12). The head of climate monitoring at the United Kingdom's Met Office, one of the collaborating institutions, said: "The whole of the climate system is acting in a way consistent with the effects of greenhouse gases. The fingerprints are clear. The glaringly obvious explanation for this is warming from greenhouse gases" (Harvey July 2010).

Earlier, in November 2007, the Intergovernmental Panel on Climate Change (IPCC), which was established through a collaboration of the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO), and is comprised of a group of prominent international scientists, unequivocally presented its assessment reports on climate change, concluding that atmospheric concentrations of four long-lived greenhouse gases (GHGs)—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and halocarbons (a group of gases containing

fluorine, chlorine, or bromine)—have significantly increased globally as a result of human activities in the last 150 years (IPCC 2007, 37).

The IPCC stated with more than 66 percent assessed probability of occurrence that human activities related to agriculture, fossil fuel use, and land-use are primarily responsible for this change. In the Panel's assessment, advancements since 2001, when the IPCC issued its last assessment report, show that the human impact extends beyond average temperature to temperature extremes and wind patterns, as well (IPCC 2007, 40).

A year later, in October 2008, a report to the government of Australia predicted that CO_2 emissions will continue to rise by more than three percent per year until 2030 (Garnaut 2008). The significance of this prediction is that a growth rate of two percent is the IPCC's median scenario, on which most government projections are based, and its worst-case scenario is that global CO_2 levels would rise by more than two percent per year.

A critical issue to consider in addressing the impact of climate change is how people around the world are likely to be affected. Kemal Dervis, Administrator of the United Nations Development Program (UNDP) and Achim Steiner, UNEP Executive Director, make the point that the poorest and most vulnerable communities have already begun to suffer from its effects. They state in UNDP's *Human Development Report 2007-2008*:

> The effect that increased droughts, extreme weather events, tropical storms and sea level rises will have on large parts of Africa, on many small island states and coastal zones will be inflicted in our lifetimes ... [F]or some of the world's poorest people, the consequences could be apocalyptic (UNDP 2008, v).

They add: "In the long run climate change is a massive threat to human development and in some places it is already undermining the international community's efforts to reduce extreme poverty" (UNDP 2008, v).

The UNDP Report's warning is ominous:

> The early warning signs are already visible. Today, we are witnessing at first hand what could be the onset of major human development reversal in our lifetime. Across developing countries, millions of the world's poorest people are already being forced to cope with the impacts of climate change ... [I]ncreased exposure to drought, to more intense storms, to floods and environmental stress is holding back the efforts of the world's poor to build a better life for themselves and their children (UNDP 2008, 1).

The Report's unequivocal message is that climate change could lead to "ecological catastrophes" as we are edging toward "tipping points" (UNDP 2008, 2). The outcome could be that the Millennium Development Goals (U.N. Millennium Development Goals 2008) will not be met, which, in effect, means that the world's poor would not be able to satisfy their basic human needs and hence would suffer from widespread violation of the fundamental human rights enshrined in the International Covenant on Economic, Social and Cultural Rights (ICCPR 1966).

In the IPCC's Fourth Assessment Report, which was mentioned earlier, its Working Group II brought to the world's attention the nature of future impacts on developing countries. According to the report, between 75 million and 250 million people in Africa are projected to suffer increased water stress caused by climate change by 2020 (Working Group II, 13). It is also projected that agricultural production, including access to food, will be severely compromised in many African countries, which will adversely affect food security and exacerbate malnutrition. An additional projection is that the sea level will rise, which will affect low-lying coastal areas with large populations (Working Group II, 13). The report further projects that in Asia, glaciers will melt and recede in the Himalayas, which will increase flooding and affect water resources within the next two to three decades. Consequently, more than a billion people could be adversely affected by the 2050s because of the projected decrease of freshwater availability due to climate change, which also will cause an increase in deadly diseases (Working Group II, 13).

As to the impact of global warming on Latin America, the report projects that there will be a risk of significant biodiversity loss in many areas, increased risk of flooding in low-lying areas because of sea level rise, and significant adverse effect on water availability due to changes in precipitation patterns and the disappearance of glaciers (Working Group II, 14). The report notes that small islands located in the tropics or at higher latitudes are especially vulnerable to the effects of climate change, extreme events, and sea level rise (Working Group II, 15). This could affect local resources such as fisheries and exacerbate inundation, storm surges, and erosion; by mid-century, reduction of water resources on many small islands, such as those in the Caribbean and Pacific, will be such that they will become insufficient to meet the population's demand during periods of low rainfall (Working Group II, 15).

B. Appraisal

Scientific evidence for global warming keeps mounting. However, climate change skeptics continue to argue that: temperature measurements are distorted; or while global warming is occurring, it is not attributable to human activities, as was suggested in the various studies mentioned above, and that natural forces are at work, such as solar activity, causing climate change; or global warming has positive consequences, in the form of increased productivity or the increased range of agriculture (Rahmstorf 2004). Many skeptics also accuse some prominent IPCC climatologists of muzzling the voices of opposition and manipulating research, as they point to the leaked emails that surfaced in 2009 that they believe show these scientists to be distorting and hiding data to prove the accuracy of their theories on global warming. They also point to the flaws in the IPCC report on the potential disappearance of the Himalayan glaciers in twenty-five years.

After five different reviews by the British Royal Society, UK House of Commons, the University of East Anglia, in Britain, and Pennsylvania State University of the leaked email exchanges, the accused scientists have been vindicated, as the panels found no reason to dispute the scientists' "rigor and honesty" (McCarthy 2010; *New York Times* 2010). However, the scientists were asked to be more open. The lead scientist at the University of East Anglia's Climate Research unit, Professor Phil Jones, said, "We have maintained all along that our science is honest and sound and this has been vindicated now by three different independent external bodies. There are lessons to be learned from this affair . . . ." (McCarthy 2010).

Although most skeptics have tempered their criticism, skepticism on the warming issue still persists. However, with temperatures on land and sea on the rise, the sea levels also rising, and the declining of the arctic ice sheet—among many other demonstrations of global warming—the scientific evidence on climate change seems to be beyond refute.

II. How Does International Law Address Global Warming?

A. Inadequacy of the Existing Norms of International Environmental Law to Provide the Answer

Two norms that could conceivably apply are Principle 21 of the Stockholm Declaration, which was adopted in 1972 at the UN Confer-

ence on the Human Environment in Stockholm, Sweden, and the concept of state responsibility, which was developed by the UN International Law Commission in 1996 in its Draft Articles on State Responsibility. Under these Draft Articles, responsibility does require fault (ILC State Responsibility 1996, 125), that is, a wrongful act or negligence.

Principle 21 of the Stockholm Declaration captures the tension between sovereignty and environmental protection as it states:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction (Stockholm Declaration 1972, 3).

The ILC also addressed environmental harm that is unintentional or occurs despite due diligence by establishing a parallel basis for remedies when there is no fault. The ILC called it "state liability" and gave it the title of "Draft Articles on International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law" [ILC Forty-First Session 1989, 222]. Thus, we have two alternative jurisprudential bases for rectifying harms to the environment—fault-based responsibility, and no-fault (strict or absolute) "liability." The latter means that a state act could give rise to liability even if it did not violate international environmental law.

As we examine the possible application of these norms to climate change, the conclusion is inescapable that neither the Principle 21 approach nor the ILC's liability approach is workable. The "no harm" rule embodied in Principle 21 of the Stockholm Declaration is inadequate to address the climate change problem for several reasons: To start with, it is not easy to trace climate change sources and to measure them, since they are widespread. As it is often states' combined activities that cause climate change, how is one to allocate responsibility among them? Second, while Principle 21 aims at balancing a state's responsibility to avoid harming other nations with its right to exploit its natural resources, most developing nations consider the latter right as their right to economic development according to their own environmental policies, which they consider their priority concern, taking precedence over their abstract responsibility to the international community. Furthermore, the time lag between GHG emissions and their adverse effects makes it impossible to allocate responsibility. In addition, few developing countries have the wherewithal to find alternatives to the fossil fuels on which

they are highly dependent. Thus applying the principles of common but differentiated responsibilities and intragenerational equity assumes a central role as we explore the means to respond to climate change. Finally, monetary damages are obviously not an adequate remedy once the damage is done.

The Special Rapporteur of the ILC's Draft Articles on Liability put it well when he stated that the liability approach is premised on state obligations, which presuppose

> an identifiable State of origin, affected State and identifiable harm ... The framework of the topic did not seem to be appropriate for dealing with harm to the human environment as a whole, when there were many States of origin and virtually the whole community of mankind was affected (ILC Fortieth Session 1988, 24).

B. The Alternatives: International Cooperative Measures – IPCC and the Kyoto Protocol and Beyond

Since neither of these approaches can deliver the goods, the focus has to be on international cooperation and prevention. This cooperation is reflected in the UN's efforts to establish a multilateral treaty to address the challenge of climate change. After years of studies, followed by acrimonious disputes between developing and developed countries, with the former blaming the latter for the problem, and after protracted negotiations on an international accord, the UN adopted the Framework Convention on Climate Change (UNFCCC 1992) (Climate Convention) in 1992. The Convention recognized climate change as a serious threat; it set an "ultimate objective [of achieving] stabilization of [GHGs] ... at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC 1992, art. 2). It accepted the principle of differential responsibilities among states, which means that industrial nations would assume greater responsibility to act than developing countries. Although the Convention established a goal of reducing GHG emissions to 1990 levels by the year 2000 (UNFCCC 1992, arts. 4(2)(a), (b)), it provided no concrete targets or timeframe for achieving that goal. Instead, it deferred development of any binding state targets and timetables for a later protocol.

Five years later, in 1997, at the Third Conference of the Parties to the Climate Convention (COP), held in Kyoto, Japan, the parties signed the Kyoto Protocol (Kyoto Protocol 1997), which was created as a framework for future action. The Protocol advanced the implementation process envisaged in the Climate Convention as it included commitments

by thirty-seven developed countries and the European Community to reduce GHG emissions, averaging 5.2 percent below the benchmark 1990 concentration levels over the 2008-2012 period (Kyoto Protocol 1997, art. 3(1) Annex B). It also included commitments by the developing countries and introduced market-based "flexibility mechanisms" for implementation, which will be detailed later. The United States did not sign the Protocol because China, India, and other major developing country emitters had failed to make firm commitments.

Selected developments since the Kyoto COP will be highlighted here. In 1998, in Buenos Aires, the Parties adopted a "Plan of Action," setting out a program of work on the operational details of the Kyoto Protocol (UNFCCC 2008). In 2001, the parties adopted the "Bonn Agreements," aimed at completing key issues under the Buenos Aires Plan of Action (UNFCCC 2008), and subsequently at Marrakech (UNFCCC 2002), the signatories to the Climate Convention agreed on rules for implementing the Kyoto Protocol, which came into force on February 15, 2005 (UNFCCC 2005). At Marrakech, a decision was also undertaken to establish an Adaptation Fund "to finance concrete adaptation projects and programmes in developing country Parties that are Parties to the Protocol, as well as [other specifically identified] activities" (UNFCCC 2001, op. para. 1). It was also agreed that the Adaptation Fund "shall be financed from the share of proceeds on the clean development mechanism project activities and other sources of funding" (UNFCCC 2001, op. para. 2). The Fund is governed by a board under the direction of the States Parties to the Protocol.

Further meetings of the COP and the Conference of the Parties, serving as the meeting of the Parties to the Kyoto Protocol (COMP), were held in 2005 in Montreal (UNFCCC COP 2005), in 2006 in Nairobi (UNFCCC COP 2006), and in 2007 in Bali (UNFCCC COP 2007). During the 2007 meeting in Bali, the Bali Roadmap for future negotiations and the Bali Action Plan were adopted (UNFCCC Bali Action Plan 2008, 3).

The Parties took several initiatives at Bali (UNFCCC Bali Action Plan 2008, 3-7). They recognized that "deep cuts in global emissions will be required to achieve the ultimate objective of the Convention and emphasiz[ed] the urgency to address climate change as indicated in the [IPCC's] Fourth Assessment Report" (UNFCCC Bali Action Plan 2008, 3). Key elements of the plan included the launching of a new negotiation process to be completed by the end of 2009 for adoption at the Climate Change Conference in Copenhagen. It is a two-track negotiating process, as the Parties established an Ad-Hoc Working Group on Long-Term Cooperative Action as a subsidiary body under the UNFCCC to

conduct the process of negotiating an agreement by 2009 on measures to be undertaken by developed as well as developing country Parties to the Convention. The goal is to establish the Parties' legally binding commitments beyond 2012, when the first commitments to mitigate climate change under the Kyoto Protocol end.

The Parties agreed on a

> shared vision for long-term cooperative action, including a long-term goal for emissions reductions, to achieve the ultimate objective of the Convention ... in particular the principle of common but differentiated responsibilities and respective capabilities, and taking into account social and economic conditions and other relevant factors" (UNFCCC Bali Action Plan 2008, op. para. 1(a)).

On the actions to be considered for mitigation of climate change, the plan contains two separate paragraphs—one for developed country considerations and one for developing countries. For developed countries, the paragraph includes "[m]easurable, reportable and verifiable nationally appropriate mitigation commitments or actions," and for developing countries, "[n]ationally appropriate mitigation actions ... in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner" (UNFCCC Bali Action Plan 2008, op. paras. 1(b)(i)-(ii)).

Along with defining the scope and content of the review of the Kyoto Protocol, the Parties decided to take enhanced action on technology development and transfer, and on the financing of climate change action. The Parties also decided that the Adaptation Fund is to finance concrete adaptation projects and programs that are country-driven. The Parties at Bali took a major decision to include the reduction of emissions from deforestation and forest degradation as one of the considerations during the negotiations to follow Bali (UNFCCC Bali Action Plan 2008, 8, Decision 2/CP.13). The Parties noted that "sustainable reduction in emissions from deforestation and forest degradation in developing countries requires stable and predictable availability of resources" (UNFCCC Bali Action Plan 2008, Preamble). The Program of Work is to be undertaken as related to "a range of policy approaches and positive incentives that aim to reduce emissions from deforestation and forest degradation in developing countries ..." (UNFCCC Bali Action Plan 2008, 9, op. para. 7).

Next, the Parties met in Poznań, Poland, from December 1 to December 12, 2008 to assess the progress since the Bali Conference.[2] The Ad Hoc Working Group, which had met at four sessions during 2008, reported that it had

> considered all of the elements of the Bali Action Plan at each session, taking into account the interlinkages among them ... by addressing a shared vision for long-term cooperative action, enhanced action on adaptation and its associated means of implementation, enhanced action on mitigation and its associated means of implementation, and delivering on technology and financing, including consideration of institutional arrangements (UN FCCC Long-Term Cooperative Action 2008, 2).

At the meeting, the Working Group also reported the ideas and proposals presented by the Parties to it on these elements of the Bali Action Plan (UNFCCC, Long-Term Cooperative Action 2009). The Group's work program for 2009 includes producing a negotiating text in June (UNFCCC Long Term Cooperative Action Work Programme 2009). Among other decisions, the Parties adopted rules of procedure of the Adaptation Fund Board and also its priorities, policies, and guidelines (UNFCCC Adaptation Fund Board 2008).[3] They also adopted the Global Environment Facilities Poznán Strategic Programme on Technology Transfer for Developing Countries, to be funded by €50 million from the UN Global Environment Facility (European Union 2008). They also provided further guidance related to the Clean Development Mechanism (UNFCCC CMP Further guidance 2008).[4] However, delegates made no further progress in advancing the Reducing Emissions from Deforestation and Forest Degradation Plan (REDD 2008).

As the parties met in Copenhagen from December 7 to December 19, 2009, where the negotiation process launched in Bali was to be concluded, the results were disappointing. The Copenhagen Accord (UNFCCC Copenhagen Accord 2009) was "without specific targets or a timetable as to when and how it will translate into a legally binding treaty . . ." (Nanda 2010). The next event was at Bonn—the UN Climate Change Talks—a two-week long session, at the conclusion of which the UNFCCC Executive Secretary stated: "A big step forward is now possible at Cancún, in the form of a full package of operational measures that will allow countries to take faster, stronger action across all areas of climate change" (de Boer 2010). The next UN Climate Change Conference is scheduled from November 29 to December 10, 2010, in Cancún, and will be led by the new UNFCCC Executive Secretary, Christiana Figueres, from Costa Rica.

B. Appraisal

Almost two decades of negotiations since the 1992 United Nations Framework Convention on Climate Change have failed to result in a binding treaty to significantly reduce emissions of greenhouse gases.

The new UN climate change chief, Christiana Figueres, candidly stated in an address to the delegates at the UN Climate Change Conference in Bonn in June 2010: "I do not believe we will ever have a final agreement on climate change, certainly not in my lifetime. [Addressing the issue successfully would] require the sustained effort of those who will be here for the next 20, 30, 40 years" (Harvey, June 2010).

What the outcome of the next climate change conference in Mexico, scheduled for December 2010, will be is hard to tell. However, undoubtedly the Kyoto Protocol's response to climate change has not worked, as most countries have fallen short of their targets. And even if they meet those targets, CO_2 emissions will continue to grow. The 2009 economic meltdown and the recession have further called into question the resolve of countries to take aggressive action to cut emissions.

The divide between rich and poor countries persists. Many developing countries are unwilling to commit to targets on reducing emissions without adequate and effective financial assistance and a transfer of appropriate technology on concessional terms from rich countries. Although an agreement was reached at the Bonn meeting on the short-term financing of $30 billion by 2012, and long-term assistance to the tune of $100 billion annually by 2020, unfulfilled pledges of help from rich countries to poor countries in the past have caused distrust.

It may be appropriate to consider alternatives for flexibility in parties' compliance, including the obligations by countries to meet a range of emissions targets determined by their circumstances, and to enable them to opt out on minor issues. Partial agreements on key elements are another possibility. An apt example is the widespread consensus on the Reduced Emissions from Forest Degradation and Deforestation (REDD) program, which was enthusiastically endorsed at the Bonn meeting. In pursuance of the program, Norway has pledged to pay Indonesia $1 billion to preserve large tracts of its forests (Creagh 2010). These variable commitments should be considered in the next phase of the process.

Another alternative is offered by a group of scientists, economists, and policy-makers brought together under the auspices of the London School of Economics and Oxford University. Finding the UNFCCC / Kyoto model as structurally flawed because they felt it misunderstood the nature of climate change as a policy issue, the group presented an alternative plan in May 2010 as a new direction for climate policy in the Hartwell Paper (Hartwell Paper 2010). The group contends that climate change poses a much more complicated challenge than other environ-

mental problems that we have earlier solved. Unlike acid rain or smog, for example, it is not "a conventional environmental 'problem,'" but is as much "an energy problem, an economic-development problem, or a land-use problem" (Hartwell Paper 2010, 15-16).

The Hartwell group proposes the adoption of three climate-related goals: ensuring affordable energy supplies for everyone; ensuring that economic development does not wreak environmental havoc; and ensuring that we are prepared to cope with whatever climate changes might occur (Hartwell Paper 2010, 12-14). It recommends pursuing a number of other worthy goals, such as adaptation, reforestation, encouraging biodiversity, and improving air quality. It seems appropriate to consider the alternatives mentioned here.

III. Addressing the Developing Countries' Concerns and Needs under the Climate Convention and the Kyoto Protocol

A. General

First, developing countries are required to assume mitigation obligations, although the commitment is voluntary, as no specific targets and timetables were set. Under Article 4, paragraph 1, of the Kyoto Protocol, all parties are to establish and report national programs which contain measures to mitigate climate change. Another provision of the Protocol reaffirms this obligation and further seeks to advance the implementation of the developing countries' commitments (UNFCCC 1992, art. 10). Second, the Protocol implicitly recognizes that developing countries are vulnerable to the adverse impacts of climate change as it requires developed countries to provide financial resources and transfer of technology to meet the developing countries costs' of implementing their obligations of emissions reduction (UNFCCC 1992, art. 4(3)).[5]

The Convention established the Global Environment Facility as the financial mechanism to fund developing countries' needs, which is also the entity of the financial mechanism of the Convention operating the Least Developed Countries Fund (Global Development Facility 2008).[6] These Kyoto Protocol provisions reflect application of the principle of common-but-differentiated responsibilities. It should be emphasized that the developing countries' commitments under the Protocol are voluntary and contingent upon the developed countries' assistance. Also, the Adaptation Fund has been established to assist developing countries in their adaptation activities.

B. The Clean Development Mechanism

One of the market-based flexibility approaches devised under the Kyoto Protocol is the Clean Development Mechanism (CDM).[7] The basic elements of the CDM are set out in Article 12 of the Kyoto Protocol and are further supplemented by the 2001 Marrakech Accords (FCCC Marrakech Accords 2002, 20-49), which articulated how this mechanism works. The CDM Executive Board oversees the process under the direction of the States Parties to the Protocol.

The CDM is aimed at reducing carbon emissions. It operates by allowing Annex 1 countries (comprising industrialized countries that were members of the Organization for Economic Cooperation and Development in 1992, as well as countries transitioning from socialist economies, including Russia, the Ukraine, the Baltic States, and several Central and Eastern European states) to earn credits either by governments or private parties in these countries as they engage in project-based activities in developing countries to assist them in reducing their emissions. The credits they earn in developing countries are called "Certified Emissions Reductions" (CERs). CERs are measured in metric tons of CO_2 equivalent and can be sold to buyers in industrialized countries. The CDM Executive Board issues CERs, registers and validates projects, and manages several panels and working groups. Thus, the twin purposes of the CDM are to assist developing countries in achieving sustainable development, and to allow Annex I countries flexibility in complying with their emissions reduction targets.

Electric power plants, wind-based power facilities, and afforestation and reforestation projects that reduce non-CO_2 industrial greenhouse gases illustrate CDM project activities. It should be specially noted that CDM emissions reductions are required to be supplemental to those that would have otherwise occurred without the project, and that a share of the proceeds from certified project activities is to be used to assist developing country parties to meet the cost of adaptation. It is also noteworthy that the only requirement on the part of the host government is that it must affirmatively endorse any CDM project occurring there.

Several potential benefits of the CDM include the reduction of GHGs, technology transfer to developing countries (Seres et al. 2007), and help for developing countries in their adaptation activities, since a percentage of transactions would be targeted for that purpose (UNFCCC 1992, art. 4). The cumulative effect is hoped to result in alleviation of poverty.

Although the CDM program was launched in November 2001, the first project was not registered until three years later, and the first CERs were issued in October 2005 (UNEP Yearbook 2008, 25). As of July 31, 2010, there were 2,307 registered CDM projects in more than sixty countries and more than 4,200 projects are in the registration pipeline (UNFCCC 2010). It is expected that the CDM will generate more than 2.9 billion tradable CERs when the first commitment of the Kyoto Protocol ends in 2012 (UNFCCC 2010, 1). UNEP's Executive Director, Achim Steiner, stated in October 2007 that "$100 billion of funds are [estimated] to flow from the North to the South as a result of the Clean Development Mechanism" (Steiner 2007, 4).

India (32 percent of registered projects), China (19 percent), and Brazil (13 percent) have dominated the CDM activity (UNEP 2008, 4). A continuing shift in investment from developed to developing countries is in evidence, as the share of new investment has grown from 13 percent ($1.8 billion) to 23 percent ($26 billion) in 2007, with China, India, and Brazil together accounting for 82 percent of this investment (UNEP 2008, 4). However, in terms of emission credits generated, China leads with 53 percent, followed by India with just 15 percent. By the end of 2007, $12.95 billion had been raised by carbon funds (UNEP 2008, 4).

A major challenge is to ensure that countries in Africa benefit from the CDM. To meet this challenge, then Secretary General Kofi Annan launched what is called the Nairobi Framework in 2006. Several UN and affiliated organizations—UNEP, the UN Development Program, the World Bank, African Development Bank, and the UNFCCC Secretariat—came together to implement the Nairobi Framework, with the UN Secretariat acting as catalyst and facilitator (UNFCCC Nairobi Framework 2006).[8] Its initial focus has been to assist six sub-Saharan African countries (Ethiopia, Kenya, Mauritius, Mozambique, Tanzania, and Zambia) in building their capacity to take advantage of the CDM process, with the governments of Spain, Sweden, and Finland contributing $1.5 million to the project.[9]

Although it has to be a matter of considerable concern that only twenty-seven of the 1,150 registered CDM projects were in Africa as of September 2008, cumulative CDM projects in the pipeline for African countries as of that date were seventy-one, including fifty-one for sub-Saharan Africa. However, as of March 2010, 122 CDM projects were either registered or in the pipeline for validation or registration in Africa (UFCCC Nairobi Framework 2010). The FCCC Secretariat reported in 2008 that "CDM is growing on the continent and is already estimated

to be stimulating several billion dollars' worth of capital investment in the seven African countries hosting projects. Market stakeholders and policy-makers are looking for ways to multiply these benefits" (UNFCCC Secretariat 2008). In October 2008, Yvo de Boer, then Executive Secretary of the UNFCCC and the UN's highest-ranking climate change official, exhorted African countries to participate in the current climate change negotiations, which present them "with a golden opportunity to change things for the better and design a Copenhagen deal that works for Africa. For this to happen, it is crucial that African Countries put their concerns on the table and push for solutions that respond to their specific problems" (UNFCCC Secretariat 2008).

C. Other Assistance to Developing Countries

In December 2006, UNEP and the UNDP launched a joint climate change initiative (UNEP Governing Council 2006). This partnership aims at further assisting countries to achieve sustainable development while they confront the changing climate. It extends to all least-developed countries and other developing countries, with a special emphasis on sub-Saharan Africa. Its two core objectives are:

1. Incorporate adaptation into national development plans and UN Cooperation Frameworks.
2. Enable countries to access carbon finance and cleaner technologies to stimulate sustainable development (UNEP Governing Council 2006, 5).[10]

Among several initiatives at the Eleventh Special Session of UNEP's Governing Council, ministers of the environment issued a declaration pledging their governments' commitment "to step up the global response to the major environmental and sustainability challenges of this generation" (UNEP Press Release 2010).

D. Appraisal

As mentioned earlier, the rich/poor divide continues, and there is a lack of trust on whether the rich will provide the necessary assistance to developing countries so that they can take effective steps toward mitigation and adaptation. Among the attempts at the UN, the CDM has come under criticism on its governing practices, environmental integrity, and contribution to sustainable development (Streck 2009). The CDM mechanism is also criticized for not adequately taking into

account its projects' adverse impacts upon the human rights of people or on conservation (Orellana 2009). A 2010 study by a UN Human Rights Council expert, Marcos Orellana, adds several more issues pertaining to CDMs for consideration: no requirement of prior informed consent; lack of equitable geographical distribution; equity; failure to promote sustainable development or green technology transfer; lack of access to remedies and jurisdiction; lengthy CDM process; and the lack of transparency (Orellana 2010, 21-23).

Notwithstanding these various criticisms, CDM has been a success story and should continue as a preferable market-based system after 2012. However, remedial action must be taken on the following issues: lack of transparency; lack of access to private parties to challenge executive board decisions; and lack of equitable geographical distribution, along with the lack of a human rights-based approach to CDM.

IV. Linking Climate Change and Human Rights

A. General

Several recent developments link climate change and human rights in light of the growing general awareness leading to broad agreement that climate change will negatively affect the enjoyment of human rights. These include several initiatives at the United Nations, adjudication of cases in various courts, an attempt to invoke the International Court of Justice, and a petition before an international organization.

B. Initiatives at the United Nations

On March 28, 2008, the U.N. Human Rights Council adopted a resolution entitled *Human Rights and Climate Change* (U.N. Human Rights Council 2008), in which the Council requested the Office of the UN High Commissioner for Human Rights (OHCHR) to conduct a "detailed, analytical study on the relationship between climate change and human rights" (U.N. Human Rights Council 2008, para. 1). In connection with the preparation for the requested study, the Australian Climate Justice Program, Climate Action Network Australia, and Friends of the Earth Australia submitted a report to the OHCHR (OHCHR 2008), in which they highlight climate change litigation in several countries.

Earlier, in November 2007, representatives of small island developing states adopted the Malé Declaration on the Human Dimension of Global

Climate Change (Malé Declaration 2007) at a meeting in Malé. They invoked the Universal Declaration of Human Rights, the Stockholm Declaration of the 1972 UN Conference on the Human Environment, the 1992 Rio Declaration on Environment and Development, Agenda 21, the 2002 Johannesburg Declaration on Sustainable Development, and the Plan of Implementation of the World Summit on Sustainable Development, and requested the COP of the UNFCCC to seek the cooperation of the OHCHR and the Human Rights Council in assessing the human rights implications of climate change (Malé Declaration 2007, op. para. 3). They also requested the OHCHR to conduct "a detailed study into the effects of climate change on the full enjoyment of human rights" (Malé Declaration 2007, Op. Para. 4).

In January 2009, the OHCHR released the requested report, in which it noted "broad agreement" on "generally negative effects" of climate change on the realization of human rights (UN Human Rights Council 2009, p. 69). The study detailed implications of climate change for human rights, both directly and indirectly. These were the right to life, adequate food, water, health, adequate housing, and self-determination (UN Human Rights Council 2009, pp. 21-41). It also described in depth the effects of climate change on "those segments of the population who are already in vulnerable situations due to factors such as poverty, gender, age, minority status, and disability," which it listed as women, children, and indigenous peoples (UN Human Rights Council 2009, pp. 42-54). After noting the impact of climate on human migration and on global peace and stability, it referred to some climate change lawsuits to pronounce that "[w]hile climate change has obvious implications for the enjoyment of human rights, it is less obvious whether, and to what extent, such effects can be qualified as human rights violations in a strict legal sense" (footnote omitted) (UN Human Rights Council 2009, p. 70). It provided the following rationale for this pronouncement:

> Qualifying the effects of climate change as human rights violations poses a series of difficulties. First, it is virtually impossible to disentangle the complex causal relationship linking historical greenhouse gas emissions of a particular country with a specific climate change-related effect, let alone with the range of direct and indirect implications for human rights. Second, global warming is often one of several contributing factors to climate change-related effects, such as hurricanes, environmental degradation and water stress. . . . Third, adverse effects of global warming are often projections about future impacts, whereas human rights violations are normally established after the harm has occurred (footnote omitted) (UN Human Rights Council 2009, p. 70).

However, the report did acknowledge that notwithstanding "whether or not climate change effects can be construed as human rights violations, human rights obligations provide important protection to the individuals whose rights are affected by climate change or by measures taken to respond to climate change (UN Human Rights Council 2009, p. 71).

After reciting the states' obligations, the report stated in its conclusions that the effects of climate change "on human rights can be of a direct nature, such as the threat extreme weather events may pose to the right to life, but will often have an indirect and gradual effect on human rights, such as increasing stress on health systems and vulnerabilities related to climate change-induced migration" (UN Human Rights Council 2009, p. 92). Among other conclusions, it stated that while climate change-related harm cannot easily be classified as a human rights violation, "addressing that harm remains a critical human rights concern and obligation under international law" (UN Human Rights Council 2009, p. 96). The report's final conclusion is significant: "International human rights law complements the United Nations Framework Convention on Climate Change by underlining that international cooperation is not only expedient but also a human rights obligation and that its central objective is the realization of human rights" (UN Human Rights Council 2009, p. 99).

At its next session, the Human Rights Council noted the contents of the report and welcomed the decision of its Special Rapporteur on adequate housing to "prepare and present a thematic report on the potential impact of climate change on the right to adequate housing" (UN Human Rights Council March 2009, Op. p. 3).

As the first major study by the U.N. on the linkage between human rights and climate change, the OHCHR report is likely to lead to further studies and discussion in relevant U.N. bodies, especially the Human Rights Council, whose resolution indicates its interest in further pursuing the topic.

C. Lawsuits

In the Nigerian case, *Gbemre v. Shell Petroleum Development Company of Nigeria* (Gbemre v. Shell 2005), a judicial division of the Federal High Court of Nigeria applied several articles of the African Charter on Human and Peoples Rights and the Federal Nigerian Constitution, which includes the right to a "poison-free, pollution-free and healthy environment." The Court held that the gas flaring by Shell and other major oil companies was a gross violation of the applicants' guaranteed rights to life and dignity. The applicants had sought a halt to gas flaring by these companies, which has caused more greenhouse gas emissions in Nigeria than in all other sources in sub-Saharan Africa combined and has also poisoned local communities.

A few U.S. cases will be cited here. In a case before a US federal court, the village of Kivalina, with an approximate population of 400 on the northwest coast of Alaska, filed suit on February 26, 2008, claiming that global warming is destroying the village, which must be relocated or be abandoned soon (Native Village of Kivalina v. ExxonMobil 2008). Relocation will cost hundreds of millions of dollars, and is estimated by the US Army Corps of Engineers and the US Government Accountability Office to range from $95 million to $400 million. The suit is for damages caused by twenty-four energy and utility companies as defendants, alleging that their activities contributed to global warming, which the plaintiffs claim is a nuisance causing severe harm to Kivalina. The defendants' alleged contribution is through their emission of large quantities of GHGs. The plaintiffs stated:

> Each of the defendants knew or should have known of the impacts of their emissions on global warming and on particularly vulnerable communities such as coastal Alaskan villages. Despite this knowledge, defendants continued their substantial contributions to global warming. Additionally, some of the defendants . . . conspired to create a false scientific debate about global warming in order to deceive the public. Further, each defendant has failed promptly and adequately to mitigate the impact of these emissions, placing immediate profit above the need to protect against the harms from global warming (Native Village of Kivalina v. ExxonMobil 2008, para. 5, 2).

The district court for the Northern District of California dismissed the plaintiffs' complaint on political question grounds and as lacking standing. The court concluded that "even accepting the allegations of the Complaint as true and construing them in the light most favorable to Plaintiffs, it is not plausible to state which emissions—emitted by whom and at what time in the last several centuries and at what place in the world—'caused' Plaintiffs' alleged global warming related injuries" (Native Village of Kivalina 2009, 20).

In Comer v. Murphy Oil USA, the United States Court of Appeals for the Fifth Circuit reversed a decision by the federal district court and held that the Plaintiffs, who were residents and owners of lands and property along the Mississippi Gulf Coast, could assert claims against oil, coal, and chemical defendants from property damages resulting from Hurricane Katrina. The Plaintiffs had alleged that the Defendants' operations

contributed to global warming through the emissions of GHGs, which caused rising sea levels, thus adding to the intensity of Hurricane Katrina. Subsequently, a majority of the nine Fifth Circuit judges voted in favor of rehearing this case, which was initially decided by a three-judge panel, *en banc*.

The Second Circuit Court of Appeals ruled in Connecticut v. American Electric Power Company, Inc., that two 2004 lawsuits, alleging that GHG emissions by six electric power companies created a public nuisance under federal common law, can proceed against those companies. Subsequently, on March 5, 2010, the Second Circuit denied the petition for rehearing and for rehearing *en banc* filed by American Electric Power Company, et al. (Connecticut v. American Electric Power Company 2009).

There have been some recent efforts to bring climate litigation issues before international tribunals. The tiny state of Tuvalu has tried to institute proceedings against Australia and the United States before the International Court of Justice. The effort is not likely to succeed because not only is there an issue of standing, but the consent requirement is likely to be a major hurdle. If Tuvalu, however, prefers to seek an advisory opinion from the ICJ, the only avenue open is for the UN General Assembly or the Security Council to seek such an opinion. With the potential US veto in the Security Council and the need to have a majority affirmative vote in the General Assembly, Tuvalu's task will not be easy. The other UN organizations authorized to seek an advisory opinion can do so only if the issue falls within their mandate; that will pose an equally formidable hurdle.

D. Petition Before an International Organization

The one case where a human rights petition was filed with an international organization is the petition by the Inuit Circumpolar Council (ICC), an international non-governmental organization representing nearly 150,000 Inuit in Alaska, Canada, Greenland, and Chukotka, Russia, before the Inter-American Commission on Human Rights (IACHR) (Inuit Petition 2005). The petition alleged accountability on the United States' part because the US is the world's largest emitter of GHGs. The ICC invoked the human rights of the Inuit as the basis for the petition. Notwithstanding the IACHR's refusal to review the petition, based upon the rationale that "the information provided does not enable us to determine whether the alleged facts tend to characterize a violation of

rights protected by the American Declaration" (George 2006)[11], the case has initiated greater awareness about the link between global warming and human rights and the likelihood that international organizations might consider legal bases for accountability and state responsibility for global warming.

IV. Conclusion

Climate change poses a formidable challenge for all countries, but its major impact will be on developing countries, especially the least developed countries, as they lack the resources, capacity, logistics, and wherewithal they need to fulfill their mitigation obligations and to undertake adaptation activities. Thus, the assistance of developed countries becomes imperative. International environmental law, as well as international human rights law, can play a robust role as appropriate mechanisms are crafted to support developing countries in their response to the adverse impacts of climate change. Linking human rights law to the ongoing debate on climate change will greatly assist decision-makers in being informed by a diversity of voices and perspectives on the climate debate and on the range of policies that they consider and ultimately adopt (Hunter 2009). Finally, the matter is urgent. Contrasted with the certainty of climate change is the uncertainty that the international community has the political will to take effective measures to combat it.

Notes

1. Currently, a two percent levy on carbon trading under the UN Clean Development Mechanism finances the Fund.
2. The Parties agreed on a plan of action and programs of work for the year 2008-09 relating to future commitments and actions. UNFCCC, *The United Nations Climate Change Conference in Poznan, COP 14,* November 11, 2008, available at http://unfccc.int/meetings/cop_14/items/4481.php. The second review of the Kyoto Protocol under its Article 9, which requires a periodic review of the treaty in the light of the best available scientific information on climate change and its impacts, as well as pertinent technical, social, and economic information, will also take place there. The capacity of Parties to participate in the CDM will also be reviewed.
3. For the Board's report to the Parties, see UNFCCC CMP (2008).
4. For the Annual report of the Executive Board of the clean development mechanism, see UNFCCC CMP Annual report (2008).
5. Under Article 4(7), implementation of developing countries' commitments depends upon the developed countries' funding and technology transfer.
6. The GEF is designed to fund developing countries' programs and projects that protect the global environment. Its programmatic focus is on: biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. The Parties provided further guidance for the operation of the Least Developed Countries Fund at the Poznan Conference. See UNFCCC Least Developed Countries Fund (2008).

7. Besides the Bubble Agreement contained in its Article 4, the Kyoto Protocol established three mechanisms for extra-territorial emissions reductions—emissions trading (under Article 17 of the Protocol), joint implementation (under Article 6), and the CDM.
8. The Nairobi Framework has five objectives as key priority targets:
   Build and enhance capacity of [Designated National Authorities] to become fully operational
   Build capacity in developing CDM project activities
   Promote investment opportunities for projects
   Improve information sharing/outreach/exchange of views on activities/education and training
   Inter-agency coordination
   (UNFCCC Nairobi Framework 2006).
9. During the first year of the Framework, Konrad von Ritter, Sector Manager for Sustainable Development at the World Bank Institute, noted:
   There has been notable increase in capacity-development resulting in a pipeline of 30 CDM projects. Of these, 14 have already signed emissions reduction purchasing agreements with World Bank carbon funds. While this is positive we all know that more needs to be done, and therefore the critical importance of the Nairobi Framework to scale up capacity development.
   (UNFCCC 2007)
10. The report makes a telling point:
    To date, the benefits of the Clean Development Mechanism have largely bypassed the Least Developed Countries. Only a handful of countries account for the bulk of registered CDM projects, and there are concerns that the types of CDM projects registered so far provide limited development benefits. To realize the full potential of the CDM as the financing mechanism for sustainable development, a key challenge for developing countries is to remove the institutional, legal and capacity barriers that limit their access to the flourishing and dynamic carbon finance market. To help developing countries address this challenge, UNDP and UNEP will increase their current collaboration in carbon finance, directly supporting the Nairobi Framework on Catalyzing the CDM in Africa agreed at COP12 by six agencies.
    (UNEP Governing Council Appendix 2, 2006:11-12).

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