Dialogue on Globalization

FES GENEVA

EXPOSED

THE HUMAN RIGHTS OF THE POOR IN A CHANGING GLOBAL CLIMATE

Thea Gelbspan

FRIEDRICH EBERT STIFTUNG

"The poor live below waiting for the river
to rise at night and take them to sea.
I've seen little cradles afloat, remains
of houses, chairs, and an august rage
of livid waters in which sky and terror are fused.
It's only for you, poor man, for your wife and offspring,
for your dog and your tools, so that you can learn to beg.
The water doesn't rise to the homes of the gentlemen…"

Pablo Neruda, "Canto General de Chile"[1]

Impressum

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Publisher:
Friedrich-Ebert-Stiftung,
Geneva Office
Chemin du Point-du-Jour 6bis
1202 Geneva
Switzerland

Layout and Design:
Judith Schwegler

[1] Pablo Neruda "Canto General", Translation by Jack Schmitt (CA : University of California Press, 1991)

Preface

Today almost half the population in developing countries survive on less than 2 USD a day. Those living in extreme poverty however are not just deprived access to an adequate income. They also do not enjoy human rights such as the right to an adequate standard of living including food and housing, and access to basic social services such as health, education, and water. They are often socially excluded and marginalized from political power and processes. Their right to effectively participate in public affairs is often ignored. The elimination of extreme poverty is not a question of charity, but a pressing human rights issue. States are legally obligated to realize human rights for all, prioritizing the most vulnerable which includes those living in extreme poverty. These legal obligations cover all civil, cultural, economic, political, and social rights.

The elimination of poverty has been one of the central concerns of the United Nations since its creation. Indeed, very few issues have received such continuous attention from the international community. The work on addressing climate change must take into account countries' legal obligations and political commitments on eradicating poverty.

Climate change disproportionately affects those living in extreme poverty, further undermining their ability to live their lives in dignity. Rising sea levels, increasing ocean and surface temperature and extreme weather events like storms, droughts and cyclones are felt most acutely in the poorest countries of the world and amongst the poorest and most marginalized.

People living in poverty are less able to prepare for, or adapt to, climate change and its effects on the accessibility and availability of food, drinking water, sanitation, adequate housing or health care. A growing number of people will face displacement and the loss of their homes and livelihoods, which may also result in increased social unrest.

Both climate change and extreme poverty are human rights matters. They seriously threaten the full realization of human rights for many. This Study identifies the particular effects of climate change on the human rights of people living in poverty and extreme poverty, as well as the ways in which internationally-recognized human rights standards may inform both domestic and international responses. Addressing both climate change and human rights communities it examines what states' obligations to respect, protect and fulfill human rights mean in terms of climate change using tools and concepts familiar to both fields. The Study emphasizes the need to ensure that responses to the climate crises are sustainable and do not further burden the poor. It strongly calls on the parties of the UNFCCC to recognize these legal obligations as guiding principles for any international agreement, as well as for domestic measures taken in response to climate change.

The author also asserts that the international and domestic actions required to address climate change represent an unparalleled opportunity for overcoming poverty, generating new levels of development, furthering the realization of human rights and building a more stable, balanced and robust global economy.

The Study was commissioned in collaboration between the Independent Expert and the Friedrich-Ebert-Stiftung who both strongly believe that those living in extreme poverty must be at the center of the agenda when addressing climate change.

Magdalena Sepulveda
UN Independent Expert on Human Rights and Extreme Poverty

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I) INTRODUCTION

Outline of the paper

This paper was commissioned in order to advise the Independent Expert on extreme poverty and human rights on the impacts of global climate change on her mandate.[2] It seeks to identify the particular effects of climate change on the human rights of people living in poverty and extreme poverty, as well as the ways in which internationally-recognized human rights standards may inform both domestic and international responses.

Section I begins with a brief background on global warming and introduces the value of applying a human rights perspective to the issue of climate change. Section II examines the impacts of climate change on the human rights of the world's poorest and most vulnerable people, including the right to life, right to food, right to health, a range of civil and political rights and the range of rights inherent in the right to an adequate standard of living. Section III discusses the obligations of states to respect and protect human rights, in both collective and individual responses to climate change. Section IV explores the opportunity that climate change presents to fulfill human rights and reduce poverty through sustainable development initiatives, particularly in terms of renewable energy systems and services. Lastly, Section V offers some conclusions and recommendations.

Background on climate change

With modern-day levels of carbon dioxide in the earth's atmosphere last reached some 15 million years ago,[3] the global climate is warming at an unprecedented rate; currently reaching the warmest average temperatures in the past 12,000 years. There is strong evidence that the process is accelerating. Over the past 100 years the Earth has warmed by an average of 0.7°C, and eleven of the twelve warmest years since 1850 occurred between 1995 and 2006.[4] According to the World Meteorological Organization, the first decade of the 21st century has been the hottest in the history of the 160 year record and that 2009 will most likely feature among the top ten warmest years.

The Intergovernmental Panel on Climate Change (IPCC) has established with high confidence that that climate change has been caused by human behavior – namely, the use of fossil fuels, which have powered national economies since the advent of the industrial era, for industry, transport and energy.[5] Most of the historic greenhouse-gas (GHG) emissions have come from countries which have now reached high levels of economic development, thanks to their use of a disproportionate share of the global carbon budget.[6] At the same time, the next pulse of global GHG emissions will come, in large part, from the rapidly

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[2] A/HRC/RES/8/11

[3] "Modern-day levels of carbon dioxide were last reached about 15 million years ago," quoting Aradhna Tripati, of UCLA's Department of Earth and Space Sciences, in "Just How Sensitive Is Earth's Climate to Atmospheric Carbon Dioxide? Scientific American, Oct. 8, 2009 found at: http://www.scientificamerican.com/article.cfm?id=how-sensitive-is-climate-to-carbon-dioxide

[4] IPCC: "Climate Change 2007: Synthesis Report. Summary for Policymakers." November, 2007

[5] *Ibid.*

[6] Baer, Paul, Tom Athanasiou, Sivan Karta and Eric Kemp-Benedict. "The Greenhouse Development Rights Framework: The Right to Development in a Climate-Constrained World." (Berlin, Germany: The Henrich Boll Stiftung, 2008)

industrializing countries of the developing world, who rely on a carbon-intensive development path to lift themselves out of poverty. In addition, 20% of current GHG emissions come from deforestation, most of which is currently occurring in the world's tropical regions where people are struggling to resist the downward pull of poverty.

In order to stabilize the climate, global emissions of greenhouse gasses (GHG) would need to be reduced to 85% of 1990 levels, by the year 2050, which would require that they peak no later than the year 2015, and decline rapidly after that point. In order to achieve this goal, a comprehensive and ambitious global agreement is required, which establishes clear and binding targets for the reduction of greenhouse gas emissions (GHGs) by all high-emitting countries and a robust funding mechanism which will enable developing countries to pursue a low-carbon economic growth path, as well as to adapt to the inevitable consequences of existing climate change. Anything short of this scope of an agreement will place the world on a path toward dangerous, potentially runaway, climate change. Evidence has indicated that the absorptive capacity of carbon sinks such as oceans and terrestrial ecosystems is already decreasing.[7] Without the existence of sinks, warming rates could accelerate dramatically in coming decades, increasing the possibility of a major collapse of parts of the Greenland or West Antarctic ice sheets. This would, in turn, result in several meters of sea level rise and the disappearance of a number of small island states and low-lying coastal areas, more erratic and violent weather, new diseases and the decimation of crops, clean water supplies and homes.

The urgency of the climate crisis has, to date, far overwhelmed the political will necessary to achieve serious, coordinated governmental responses with the scope and depth necessary to avert dangerous climate change. Global carbon emissions have been growing at 3.5% per year since 2000, up sharply from 0.9% per year in the 1990s. Looking, forward, the global population is projected to reach 9 billion by the year 2050; many of these people will live in the developing world and rely on a carbon-heavy development path for their economic futures.[8] Meanwhile, the earth continues to warm. As UN Secretary General Ban Ki Moon said, "[o]ur foot is stuck on the accelerator and we are heading towards an abyss."[9]

Even if the world does manage to keep global temperatures below 2°C over pre-industrial levels, existing and irreversible climate change will cause between 100 million and 400 million more people to face the risk of hunger; and between one and two billion more people may no longer have enough clean water.[10] Data has indicated a consistent increase in the number of weather-related disasters over past decades, as well as in the number of people affected.[11] These effects are particularly severe for the world's poorest and most vulnerable people. Changes and greater extremes in rainfall patterns cause farmlands to flood in some regions, and droughts in others. Infectious diseases, transported by climate-sensitive vectors, affect populations which have not previously been exposed and lack immunity. The urban poor, who often live in hazard-prone areas, suffer particularly high losses due to extreme weather events and secondary effects, such as landslides and flooding. These impacts pose real and direct threats to the ability of people to realize a life of dignity.

[7] "Closing the Gaps" (Stockholm, Sweden: International Commission on Climate Change and Development. 2009)
[8] "World Development Report 2010" (Washington, D.C.: World Bank, 2009)4 IPCC: "Climate Change 2007: Synthesis Report. Summary for Policymakers." November, 2007
[9] Statement by UN Secretery General at the World Conference on Climate Change, Geneva, 3 September, 2009
[10] World Bank, 2009
[11] "Annual Disaster Statistical Review: Number and Trends 2007" (Brussels: Centre for Research on the Epidemiology of Disasters 2008)

Human Rights in the Context of Climate Change

Fundamental human rights and freedoms are described in the Universal Declaration of Human Rights, as "freedom from fear and want." Among the essential rights guaranteed are "life, liberty and security of person, and "a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control." The Declaration further proclaims that "[e]veryone, as a member of society… is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.[12] The International Covenant on Economic, Social and Cultural Rights builds upon the Universal Declaration by recognizing "the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions," which requires, *inter alia,* freedom from hunger, access to the highest available standard of physical and mental health,[13] and a range of civil and political rights.

Human rights standards offer a valuable perspective with which to understand the impacts of climate change on the world's most vulnerable people. They help clarify the obligations of states, both collectively and individually, to minimize the damage that results from climate change and help vulnerable people and countries adapt to its inevitable effects. In a recent study on the relationship between climate change and human rights, The Office of the High Commissioner for Human Rights has established that "looking at climate change vulnerability and adaptive capacity in human rights terms high-lights the importance of analyzing power relationships, addressing underlying causes of inequality and discrimination, and gives particular attention to marginalized and vulnerable members of society."[14] Building off of this important study, this paper will further detail the impacts of climate change on a range of human rights, in particular, the vulnerability of people living in poverty.

Internationally recognized human rights standards suggest that continued "business as usual" emissions scenarios are unacceptable, given consequences that further warming will have on human rights. States have both moral and legal obligations to, in the words of the Chair of the IPCC, "ensure that we prevent by every means these abrupt and irreversible changes."[15] Anything less than decisive action to this end threatens to diminish the principles of human dignity and well-being enshrined in the UDHR and subsequent human rights treaties to the level of an abstract aspiration, rather than realizable goals implying duties that can, and must, be fulfilled.

Given the complex causal relationships between emissions and climate impacts, it is not possible to attribute any one natural disaster or extreme weather event to global warming, or to assign direct responsibility to any one state for the damages that occur. This complicates the application of the conventional viola-

[12] Universal Declaration of Human Rights
[13] International Covenant on Economic, Social and Cultural Rights (1976), Art. 129 Statement by UN Secretery General at the World Conference on Climate Change, Geneva, 3 September, 2009
[14] A/HRC/10/6 para. 81
[15] Statement by Dr Rajendra Kumar Pachauri, Chair of the Intergovernmental Panel on Climate Change at the World Conference on Climate Change, Geneva, 3 September, 2009

tions paradigm[16] to the issue of climate change; however, the duties of states under human rights law remain in effect. "Irrespective of 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."[17]

The obligations of states to respect, protect and fulfill human rights should be recognized as guiding principles for collective and individual responses to climate change. As stated by the Deputy High Commissioner for Human Rights, they "introduce an accountability framework that is an essential element of the promotion and protection of human rights itself, by holding governments, the duty-bearers, accountable to reducing the vulnerability of their citizens to global warming and assisting them in adapting to the consequences. A focus on human rights also means that the views of those who will be disproportionately affected by climate change – the poor, vulnerable and marginalized – must have to be taken into account in responses devised to address the causes and consequences of global warming."[18]

Any application of human rights principles first needs to establish the nature of the violation itself. The section that follows will detail the impacts of climate change, particularly for the world's most poor and vulnerable people, on a broad range of human rights.

[16] Maastricht Guidelines on Violations of Economic, Social and Cultural Rights (January 22-26, 1997)
[17] Office of the High Commissioner for Human Rights, 2009, para. 71
[18] "Climate Change and Human Rights", Address by Ms. Kyung-wha Kang, Deputy High Commissioner for Human Rights at the Conference of the Parties to the United Nations Framework Convention on Climate Change and its Kyoto Protocol, Bali, Indonesia, December, 2007

II) THE IMPACTS OF CLIMATE CHANGE ON PEOPLE LIVING IN POVERTY

Vulnerability, risk and a baseline of poverty

Any discussion about the human impacts of climate change must begin with a few definitions, as well as an assessment of that which the IPCC has called "the socio-economic conditions which determine vulnerability."[19]

Climate change affects levels of risk, which is defined as the magnitude of the impact combined with the probability of its occurrence.[20] Its effects will heighten the risk of "idiosyncratic shocks," (such as heat waves, new disease outbreaks and small-scale hazard events) which affect individual or households, as well as "covariate shocks," which affect localities or nations. Climate change can also make idiosyncratic risk covariate (for example, whereby localized hazard events accumulate into larger and more far-reaching disasters).[21]

"Vulnerability," in this context describes the degree to which people are susceptible to the adverse impacts of climate change; namely, their level of resilience and their capacity (or incapacity) to cope. Factors that contribute to vulnerability in the face of climate change include the magnitude of impacts (monetary or revenue losses or number of people affected by food or water shortages), the timing and abruptness of impacts, the persistence and reversibility of events (such as the emergence of near permanent drought conditions), the likelihood of occurrence and the potential for adaptation.[22] Certain groups or populations, particularly those who are marginalized or face discrimination, are particularly vulnerable to these impacts. More frequent natural disasters and dwindling water reserves will present new challenges to the daily efforts by millions of women to procure water and fuel and care for the ill. Indigenous people who largely depend on natural resources for their livelihood (and often lack control over their lands) are particularly vulnerable to localized ecological change. Persons with disabilities face particular challenges when infrastructure and transport is hindered due to weather extremes. The most destabilizing and damaging effects of climate change will fall hard on these groups.

Peoples' vulnerability is in great part determined by their position in a highly unequal world, and the "forces generated by climate change will be superimposed on a world marked by deep and pervasive human development deficits, and by disparities that divide the 'haves' and the 'have-nots.'"[23] Deep disparities in levels of nutrition and access to health care are already evident; with child death rates among the poorest one-fifth in the developing world falling at half the average rate of those for the richest one-fifth. The impacts of climate change will reflect these inequalities, as the

[19] Schneider, et al., 2007, p. 804
[20] Schneider, S.H., et. al: "Assessing key vulnerabilities and the risk from climate change." in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK
[21] ICCCD, 2009, p. 43
[22] Schneider, et al., 2007
[23] UNDP. "Human Development Report 2007/2008. "Fighting Climate Change: Human solidarity in a divided world," p. 25

burden falls most heavily on those least able to cope. Of the 262 million people affected by climate disasters annually from 2000 to 2004, over 98 percent were living in the developing world. In that time period, a person living in a developing country faced 79 times greater risk of being affected by a climate-induced disaster than a resident of an OECD country.[24]

Poverty remains a driver (as well as a consequence) of vulnerability. Almost half the population in developing countries survives on less than $2 a day. Poverty usually entails some combination of food insecurity, poor health, inadequate housing, lack of security, deficient or unreliable basic services and marginal political power. 1.6 billion people lack access to electricity,[25] and one in six people, at least 1.1 billion, lack minimal access to sufficient, clean water. Today, 700 million people in 43 countries in Africa, Asia and Middle East already experience chronic water scarcity; that number could reach 3 billion by 2050.[26] Around 10 million children under five die each year from preventable and treatable diseases such as respiratory infections, measles, and diarrhea.[27] Around 28 percent of all children in developing countries are estimated to be underweight or stunted and approximately 10 million children die each year before the age of 5, the vast majority from poverty and malnutrition.[28]

Many of the world's poorest people live in areas that are physically remote and beyond the reaches of basic services.[29] Between 70 and 75 percent of the world's one billion poorest people earning less than $1.25 a day live in rural areas.[30] The rural poor depend on agriculture, fish and natural resources for their livelihoods, all of which will face progressive degradation and depletion with climate change. The urban poor are also extremely vulnerable to the effects of climate change; many of whom live in informal dwellings which are located in zones with high risk of hazards. In addition, low-income urban consumers dedicate a high percentage of their family budgets to purchasing foods, which will grow more scarce, and more costly, as the planet warms.[31]

The World Food Programme has observed that climate change will make human rights challenges more extreme, "by altering the character and distribution of the vulnerabilities that cause them."[32] This occurs through the progressive degradation of lands, waters and natural resources, as well as the debilitating cumulative effects of multiple small-scale disasters. Repeated localized disasters such as disease outbreaks, local flash floods, and land degradation disrupt agriculture and economic activity and – if they occur again and again – prevent people from saving and building assets. In addition, climate change is predicted to intensify sequential extremes (for example, droughts, punctuated by heavy rains) and decrease the recovery time between disasters. Repeated, sequential and cumulative destructive events exhaust the coping mechanisms of the poor and affect their ability and motivation to recover often leading to deepening poverty and chronic food insecurity.[33] The frequency of small disasters has increased steadily since the early 1990s, and some 92% of these local events are weather-related – floods, storms, and landslides. More people have been exposed than ever before.[34]

[24] UNDP 2007/2008
[25] World Bank, 2009, p. 39
[26] UNDP. "Beyond Scarcity: Power, Poverty and the Global Water Crisis," p. 14
[27] World Bank, 2009, p. 39
[28] UNDP 2007/2008
[29] Bage, Lennart. "Climate change: a growing challenge for development and poverty reduction" found at: http://www.ifad.org/events/op/2007/commonwealth/climate.pdf
[30] International Fund for Agricultural Development, from: http://www.ifad.org/climate/facts.htm
[31] World Bank, 2009
[32] World Food Programme: Submission to UNHCHR Analytical Study on the Relationship Between Climate Change and Human Rights
[33] ICCCD, 2009 Annex #9: "Disaster Risk Reduction," p. 104
[34] ICCCD, 2009, p. 45

The cumulative effects of repeated small-scale disasters, and the accompanied costs of coping, have the potential to deepen poverty. Poor people have to resort to a number of coping strategies in order to ensure their survival in the face of a deteriorating climate. The costs of these strategies may well come at the expense of their own potential for development, or even their future basis for survival. Some examples of such "coping strategies" with their associated costs include joining the labor force at the expense of family food production; harvesting crops before they are ripe; de-foresting hillsides; rationing family food consumption; selling possessions and, in extreme cases, migration.[35]

"Freedom from hunger" and the right to food in a changing climate

The IPCC has established that climate change will "result in complex, localized negative impacts on small holders, subsistence farmers and fishers,"[36] constituting grave threats to the ability of poor people to realize the right to food. By 2020 almost 50 million additional people will be at risk of hunger, and an additional 132 million people could add the ranks of the hungry by 2050.[37] UNDP has estimated that, "[t]hrough its impact on agriculture and food security, climate change could leave an additional 600 million facing acute malnutrition by the 2080s over and above the level in a no-climate change scenario."[38]

The effects of climate change will fall most heavily on those regions where most of the world's poorest people live, and where hunger is a daily reality. According to the IPCC, crop yields in Africa and Latin America are particularly susceptible to the harmful effects of climate change. Yields of rain-fed crops in Africa could likely halve by 2020 and put 50 million more people worldwide at risk of hunger by the year 2050.[39] In low-lying coastal areas and small islands, salt water intrusion into soils, river deltas and groundwater reserves will threaten agriculture and wild vegetation. The increased acidification of ocean waters due to increased carbon dioxide in the atmosphere will also have severe impacts on coral reefs and fisheries and their ability to produce food for those who most depend on them for their subsistence.[40]

Small-scale agriculture will come under increased strain due to heat and weather extremes, flooding and erosion in some areas and more frequent and protracted droughts in others.[41] Climate change will enhance the survival and spread of pests, pathogens and weeds, which are estimated to cause a 42% loss in crop yields and stored grains, equal to about $300 billion of losses annually.[42] Poor rural producers usually lack climate-proof storage facilities with which to store food safe from moisture, pests or other damage. It is estimated that approximately ¼ of all agricultural production in poor countries is lost to pests and spoilage; with more erratic rainfall and extreme weather, the loss of food in storage is likely to increase.[43] The effects on mid-to larger-size farmers also affect the poor. Poor rural people often seek work as seasonal farm labor. When agricultural production declines, there are fewer jobs available in the fields.[44] Increasingly irregular growing seasons promise to deepen the debt of many small farmers: "seasonality can be bad for the poor

[35] Devereux, Vaitla and Swan "Seasons of Hunger: Fighting Cycles of Quiet Starvation Among the World's Rural Poor" (London, UK. Pluto Press, 2008)
[36] IPCC: "Climate Change 2007: Synthesis Report. Summary for Policymakers." November, 2007, p. 10
[37] International Fund for Agricultural Development
[38] UNDP 2007/2008
[39] Oxfam briefing paper: "Climate Wrongs and Human Rights" September, 2008
[40] Universal Periodic Review of Tuvalu, December 2008: Submission of Earthjustice http://www.earthjustice.org/library/legal_docs/upr_tuvalu_12-08.pdf
[41] IPCC: "Climate Change 2007: Synthesis Report. Summary for Policymakers." November, 2007, p. 13
[42] Pimentel, D. & Bashore, T. Environmental and economic issues associated with pesticide use. (Conference San Jose, Costa Rica: 1998)
[43] Devereux and Vaitla, 2008
[44] Devereaux and Vaitla, 2008, p. 26

but good for the rich… If the poor are buying grain, borrowing cash, hiring out their labour and selling their land, it is the rich who are selling grain, lending cash, hiring in labour and buying land."[45] In these and related ways, the impacts of climate change causes rural economies to slow and exacerbate local inequalities.[46]

The multiple effects of climate change on agriculture will cause food prices to rise considerably, which will impact both the rural and urban families which rely on the market to obtain their food. The urban poor are highly vulnerable to increased hunger as a result of climate change, given "their extreme exposure to food price increases. Since food is a major expenditure, this group's overall consumption falls with rising prices, pushing them below the poverty threshold of consumption."[47] The World Bank has estimated that the share of total expenditure on food by the urban poor ranges from 41% to 67%. Any rise in food prices, which will likely result from damaged crop yields due to climate-induced weather phenomena, will have a sharp impact on real income and intensify poverty.

Climate change will also reduce the quality of food produced and available for consumption by low-income people. In some cases, irregular seasonal and weather conditions will cause some farmers to use more chemical inputs in attempts to bolster crop resilience. In other cases, poor people may have to adopt less varied diets that lack essential micronutrients but are more capable of surviving changing climatic conditions.[48] Overall, climate change presents multiple obstacles for the world's poorest people to obtain food that is accessible, affordable, nutritionally adequate and culturally appropriate.[49]

The Right to health in a warmer and wetter world

A warmer global climate will produce an environment where disease-bearing vectors flourish and reach previously un-exposed areas where populations have not developed immunity to new diseases. For people living with scarce resources, poor nutrition and deficient health care, the effects of climate change pose major threats to the right to health. The World Health Organization has estimated that climate change was responsible for approximately 2.4% of worldwide diarrhea, and 6% of malaria in some middle-income countries in the year 2000,[50] and the IPCC has predicted that the global population at risk from malaria will increase by between 220 million and 400 million in the next century. Most of those affected will represent the poorest groups in society, and for whom the disease may prove most fatal.[51]

People living in poverty already face many obstacles to realizing the right to health. Many of the world's extremely poor people rely on biomass for household fuel, which has serious effects on respiratory health, particularly for women and girls. Many suffer from some degree of malnutrition, which weakens their defenses and renders them more susceptible to infection or illness. They often live in conditions which lack adequate sanitation or regular access to sufficient clean water to satisfy their basic household needs.

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[45] Ibid.
[46] ICCCD, 2009, Annex #1: "Food Security", p. 75
[47] World Bank, p. 5
[48] ICCCD, 2009 Annex #1: "Food Security", p. 74
[49] CESCR General Comment #12: The Right to Food
[50] WHO. "World Health Report 2002: Reducing risks, promoting healthy life." (Geneva, 2002)
[51] Center for Health and the Global Environment. "Climate Change Futures: Health, Ecological and Economic Dimensions." (Harvard Medical School, November, 2005)

More frequent and extreme weather events will result in greater numbers of deaths, injuries and physical and mental stress, particularly for poor people. Water and sewer systems damaged by violent storms will accelerate the spread of infectious diseases. Laborers often work in hot environments – whether in fields or manufacturing plants – and face particular risk of heat exhaustion or heatstroke.[52] High temperatures and extremes in either scarcity or abundance of water lead to increased rates of diarrheal disease, such as cholera and salmonella, particularly where sanitation is poor. Cholera outbreaks in coastal areas of Bangladesh, for example, have been linked with sea surface temperature and an over-abundance of plankton, both of which are caused by warming.[53] Infectious diseases of this nature mainly affect communities that lack adequate sanitation and access to clean water.

Many disease-bearing insects and other vectors are highly sensitive to changes in temperature and levels of humidity.[54] Floods and warmer temperatures speed the reproduction rate of mosquitoes and the maturation of the parasites that they carry.[55] Warming also enables disease-bearing insects to travel to latitudes and altitudes that used to be too cool to survive. The rate of transmission of many vector-borne diseases, such as encephalitis, lyme disease, dengue and trypanosomiasis, will follow.[56] Outbreaks of various rodent-borne diseases like leptospirosis are also frequent following flooding.[57] Climate change will also drive increases in allergens, many of which grow rapidly in warmer, more carbon-rich environments. The dust from desertification, particularly in Africa, has also proven to affect rates of asthma in many regions across the world. Lastly, a number of mental health disorders related to anxiety and trauma have also been observed following extreme weather events.[58]

In many regions of the world, the heightened risk of infectious diseases and other health problems resulting from the effects of climate change will overstretch already-strapped health care systems. Extreme weather events and the gradual degradation of the environment will continue to erode health infrastructure, resulting in new barriers for the world's most vulnerable people to fulfill the right to the highest attainable standard of physical and mental health.

Civil and Political rights in a climate-constrained world

Approximately one half of all people at risk of hunger live in marginal, dry and degraded lands which will become less fertile and less productive as the climate changes. Expanding deserts already threaten to drive 135 million people off their land. Land degradation currently affects more than 1 billion people and 40 per cent of the earth's surface; every year 12 million hectares of land are lost to deserts, and the rate is increasing rapidly. 500 million hectares of land in Africa are estimated to be moderately to severely degraded, and between 30 and 40% of people in Asia and South American live in similar dry-land environments.[59] As a result, the IPCC has warned that there may be as many as to 150 million people displaced by the year 2050 as a result of increased desertification and land degradation; and the UN High Commissioner for Refugees has warned that,

[52] ICCCD, 2009, Annex #4: "Health," p. 84
[53] IPCC. "Climate Change 2007: Impacts, Adaptation and Vulnerability" (Cambridge, UK: Cambridge University Press, 2007)
[54] Epstein, Paul R. "Climate Change and Infectious Disease: Stormy Weather Ahead?" Epidemiology: Vol. 13, No. 4, July, 2002
[55] Center for Health and the Global Environment. "Climate Change Futures: Health, Ecological and Economic Dimensions." (Harvard Medical School, November 2005) and Center for Disease Control: "Climate Change: Health and Environmental Effects"
[56] The World Health Organization: "Climate change and vector-borne diseases: a regional analysis" WHO Bulletin. Vol.78 no.9, 2000
[57] ICCCD, 2009, Annex #4: "Health," p. 86
[58] ICCCD, 2009, Annex #4: "Health," p. 88
[59] Submission to OHCHR study on the relationship between climate change and human rights, by the Secretariat of the United Nations Convention on Combating Desertification

by 2050, between 250 million and one billion people will become homeless as a result.

Between 75 million and 250 million people in Africa will be exposed to increased water stress and hunger by the year 2020, as glaciers continue to shrink. The Sahel region of Africa has experienced a 25 per cent decline in rainfall since the 1960s. Meanwhile, close to 95 per cent of African agriculture depends on rainfall. The strain on natural resources, including water, will create new sources of competition between groups. "Environmental stress, including scarcities and degradation, often stem from competition over resources amongst groups within a society (such as local people and migrants), and can generate political and social tension which may deteriorate into conflict as competition intensifies. Inequities in access to and control over resource use between groups can heighten differences, and can result in the failure to respect the rights of more vulnerable populations."[60]

In many cases, poor families will migrate to cities and seek shelter in areas which face great risk of disasters and enjoy minimal public services. As diseases proliferate and governments become overwhelmed with the grievances of growing numbers of people, civil liberties will likely be restrained. Food insecurity eventually leads to food riots, as the world could already see during the food crisis in 2008/2009 in a number of countries. New diseases evolve into pandemics and people displaced by disasters usually overwhelm the support systems available. As a result, increased social unrest will likely occur. Governments are largely unequipped to address the humanitarian disasters and social turmoil which will result. In the face of these disturbances, governments will likely respond in many cases with curfews, mass arrests, quarantines, censorship and the rationing of food and basic services.[61] The United Nations Security Council recognized the implications of climate change on conflict and global peace and stability during its deliberations in an extraordinary session in 2007. In addition, several human rights mandate-holders have observed a link between the degradation and resource competition caused by climate change, and conflict.[62]

Displacement, adequate housing and human rights in a degraded and unstable environment

The progressive degradation of natural resources and lands will eventually compel rising numbers of people to leave their homes in search of greater food and livelihood security. Many of those displaced by climate change-related effects will move to cities. UN-HABITAT estimates that in the rapidly expanding slum settlements of Africa, about one third of slum dwellers have migrated to the cities after being driven off their land by advancing desert frontiers and failing pastoral farming systems.[63] Since 1950, there has been a sevenfold increase in the urban populations of low- and middle-income countries; two-fifths of Africa's population now lives in urban areas.[64] Today there are about 1 billion slum-dwellers in the world, the majority of which live in the developing world.[65] It is estimated that if current trends continue there will be 1.4 billion people living in slums by 2020 and 2 billion by 2030: one in every three urban residents.[66]

[60] Submission to OHCHR study on the relationship between climate change and human rights, by the Secretariat of the United Nations Convention on Combating Desertification
[61] Kass, Stephen. "Integrated Justice: Human Rights, Climate Change and Poverty." *Transnational Legal and Contemporary Problems* (18), 2009
[62] See A/HRC/7/5, para. 51, and numerous reports by the Representative of the Secretary-General on Internally Displaced Persons
[63] Statement by Executive Director of UN-HABITAT to the High-Level Segment of the United Nations Climate Change Conference, UN Framework Convention on Climate Change
[64] ICCCD, Annex #: "Cities," p. 101
[65] Kass A/64/255
[66] UNDP 2007/2008

Most of these migrants settle in marginal areas on the outskirts of cities, often on hazardous locations where urban infrastructure and services are poor or nonexistent. Slum-dwellers often live in areas on or close to steep slopes where protective vegetative cover has been removed, in floodplains on the banks of rivers or on slopes which are prone to erosion and mudslides during heavy rains.[67] Inadequate drainage in times of heavy rainfall leads to localized flooding, injuries, disease and damage to property and means of livelihood and further weakens already degraded infrastructure. This is particularly serious in settlements where sanitation is inadequate, which contributes to the spread of waterborne disease. Overcrowded settlements where the urban poor reside will be particularly hard-hit from extreme weather events. It is also important to recall that 99% of households and businesses in developing countries have no disaster insurance.[68]

Finally, there has also been a notable rise in the concentration of people living in flood plains and low-lying coastal zones. Coastal zones are highly vulnerable to extreme weather events, such as cyclones and heavy rains, as well as the effects of rising sea levels. Climate change will particularly affect cities located in world's low-lying coastal areas, where about 643 million people (1/10 of the world's population) now live. Overall, for people living in vulnerable conditions, whether degraded rural lands, urban slums or low-lying coastal areas, the impacts of climate change will result in serious violations of the right to adequate housing and the human rights of displaced persons.

[67] ICCCD, Annex #9: Disaster Risk Reduction, p. 104
[68] ICCCD, 2009, Annex # 8: "Cities," p. 101

III) THE OBLIGATIONS OF STATES IN THE CONTEXT OF CLIMATE CHANGE

The IPCC has established that developing countries will be more vulnerable to climate change than industrialized countries and that the distribution of impacts will be uneven, signaling that "low-latitude, less-developed areas are generally at greatest risk due to both higher sensitivity and lower adaptive capacity."[69] The fact that those who will face the most severe effects of climate change are precisely those who have contributed the least to the historic carbon dioxide emissions which have caused the earth's climate to warm represents a tremendous equity challenge.[70] The UNDP estimated that if all of the world's people generated greenhouse gases at the same rate as the highest-emitting countries, we would need nine planets.[71] Yet the least developed countries emit, proportionally, a negligible share of the world's CO2 emissions. Currently, the United States, China and the EU, together are responsible for more than half of global emissions. If Russia, India, Japan, and Brazil were added to this group, they would represent more than two-third of total global greenhouse gas emissions. By occupying such a disproportionate amount of the world's remaining carbon budget, the world's high-emitting countries have affected the development paths available for less-developed countries in an increasingly carbon-constrained world.[72] "On this basis, it would be possible, at least in principle, to conclude that even if all states contribute to climate change and are therefore joint violators of the human rights affected by it, some states are far more culpable than others, and to allocate responsibility accordingly."[73]

Concerning efforts to assign the above-mentioned responsibility, a broad base of international and regional jurisprudence has developed around the connection between human rights and the environment. Internationally, several human rights treaties make reference to human rights related to environmental protection and management, including the Convention on the Rights of the Child[74] and the Convention Concerning Indigenous and Tribal Peoples in Independent Countries.[75] The rights enshrined in other instruments, such as the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights, establish recognition of rights which require a healthy environment for their realization. Several treaty committees have also clarified the relationship between human rights and the environment, in their capacity as interpretive bodies of human rights legal instruments.[76]

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[69] IPCC Third Assessment Report, "Climate Change 2001"
[70] McInerney-Lankford, Siobhán. "Climate Change and Human Rights: An Introduction to Legal Issues" (Cambridge, MA: Harvard Environmental Law Review, 33 (2), 2009), p. 1
[71] UNDP 2007/2008
[72] Baer, et. al, 2008
[73] Knox, John H. "Linking Human Rights and Climate Change at the United Nations" (Cambridge, MA: Harvard Environmental Law Review, 33 (2), 2009), p. 489
[74] Article 24 (c)
[75] Articles 4, 7 and 15
[76] According to the Committee on Economic, Social and Cultural Rights (CESCR) the right to health extends to its underlying determinants, including a healthy environment, and the right to adequate food implies "appropriate economic, environmental and social policies"

Regional human rights systems[77] have further established that environmental degradation may interfere with many rights, including rights to life, health, privacy, and property, as well as components of the right to an adequate standard of living, such as water and food. International case law, adjudicated both by regional bodies or on a bilateral basis, has also contributed to the recognition of the effects of environmental impacts on human rights. In the *Trail Smelter Case,*[78] for example, claimants in the USA alleged damages from airborne pollution deriving from a plant operated in Canada. The court held that, under the principles of international law, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence. Several decades later, the European Court of Human Rights found, in *Lopez Ostra v. Spain*[79] that a link exists between the environment and the right to privacy and family life. In addition, the right to a healthy environment or to protection from contamination is featured in many national constitutions and domestic legal systems, while several independent mandate-holders of the Human Rights Council have sought to make the normative link between climate change and human rights more evident; most recently, in the Joint Statement of the Special Procedure Mandate Holders of the Human Rights Council on the UN Climate Change Conference.[80]

A growing body of soft-law declarations and resolutions from international conferences has also underscored the relationship between human rights and the environment. The 1972 Stockholm Declaration proclaimed the "fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being." Declarations from the environmental and development conferences that followed in South Africa and Rio have further developed, and reinforced the principles associated with sustainable development.[81] The Rio Declaration on Environment and Development affirmed that "[s]tates have, in accordance with the Charter of the United Nations and the principles of international law… 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." The principles of intergenerational equity, "polluter pays" and common but differentiated responsibilities have evolved from this body of soft-law and many have been reflected in legally binding instruments.

According to international human rights law, states have the obligation to respect, protect and fulfill human rights. In the context of environmental degradation and change, this implies a duty to take all steps necessary to refrain from activities that result in the violation of human rights and, within the maximum resources available, to protect against threats to human rights. In this connection, states have the obligation to minimize, if not avoid climate change and to help those most vulnerable to its impacts to adapt. Given the nature and scope of global climate change, this obligation must be fulfilled through both international and domestic levels of action.

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[77] See, for example, Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights ("Protocol of San Salvador") art. 11 and the African Charter on Human and Peoples' Rights, art. 24

[78] *Trail Smelter Case* (U.S. v. Can.), 3 R. Int'l Arb. Awards 1905 (Trail Smelter Arb. Trib. 1941)

[79] *Lopez Ostra v. Spain*, 20 Eur. Ct. H.R. 277 (1994)

[80] See A/63/275 (paras 31-38), A/64/255, A/HRC/9/23 (paras 25-34) and A/HRC/4/32 (paras 49-50)

[81] Southalan, John. "Let's hope it's a small elephant in a big room: sustainable development and human rights", Accountability and Human Rights Symposium, 1 Sep 2009, University of St Andrews

Obligation to Respect: climate change mitigation in a rapidly warming world

The obligation to respect human rights represents the duty to refrain from any action which could result in the violation of the rights of persons and groups. This extends to all people, whether they reside within the jurisdiction of a given state or beyond. This is consistent with the obligation, upheld under international environmental law, to avoid contamination, the effects of which would extend beyond the borders of the state. In the context of climate change, states have an international obligation to collectively comply with global targets for capping global GHG emissions which are as ambitious and far-reaching as the science requires.

A general international consensus has emerged that global temperatures must stay below 2°C above pre-industrial levels in order to avert dangerous climate change. The adequacy of this figure as a threshold for avoiding dangerous climate change should, however, be evaluated against human rights criteria. The IPCC's Third Assessment Report observed that some population groups in industrialized countries are highly vulnerable even to a warming of less than 2°C. "Dangerous for whom? What is dangerous for a small-scale farmer living in Malawi might not appear very dangerous for a large, mechanized farm in the Midwest of the United States… The threshold for what is dangerous depends on value judgments over what is an unacceptable cost in social, economic and ecological terms at any given level of warming."[82] In effect, a certain amount of global warming may be tolerable for those societies that enjoy a minimal degree of resilience, flexible infrastructure and adequate baseline conditions of health, housing and income-levels. However, for resource-poor or otherwise vulnerable people who live in permanent threat to losing their homes and means of subsistence due to the increased frequency and intensity of storms, rising sea levels, desertification and drought, a rise in global temperatures well below 2°C may far exceed acceptable levels. According to human rights standards, any threshold of acceptable amounts of global warming would reflect the conditions of those people most vulnerable to its impacts.[83]

Regardless of the threshold temperature, in order to avoid dangerous climate change and the human rights violations which will follow, global GHG emissions must be reduced by 85% of 1990 levels by the year 2050. That requires that they peak by the year 2015, and decline rapidly thereafter, until meeting the global targets by the year 2050. This ambitious goal obliges states to decide on, and accede to, a robust international agreement which would establish clear, binding emissions reductions targets for industrialized countries. Furthermore, the growing pulse of carbon which will be emitted by many developing countries in coming years threatens to undermine international progress toward climate change mitigation. Industrialized countries therefore are also responsible for providing the financing, technology transfer and other aspects of cooperation necessary to assist developing countries onto a low-carbon development path and avert the human rights violations which would ensue from unchecked GHG emissions. To this end, each state, regardless of its level of

[82] UNDP 2007/2008, p. 26
[83] International Council on Human Rights Policy "Climate Change and Human Rights; A Rough Guide" (Geneva: 2008)

economic development, is accountable for exerting the international influence necessary to ensure that overriding obstacles are overcome and effective global agreements are reached, in order to mitigate climate change.

Collective action among states is essential in order to meet global mitigation targets and to close the gap between the funding required and that which has been committed. "Global cooperation at the scale needed to deal with climate change can happen only if it is based on a global agreement that addresses the needs and constraints of developing countries, only if it can separate where mitigation happens from who bears the burden of this effort, and only if it creates financial instruments to encourage and facilitate mitigation, even in countries that are rich in coal and poor in income or that have contributed little or nothing historically to climate change."[84] The challenge this poses to the international diplomatic architecture today is daunting. At the same time, "carbon cycles do not follow political cycles,"[85] and, according to the projections of the world's leading climate scientists, the window of opportunity to avert crisis is rapidly closing.

According to the Stern Review[86], the costs of mitigation in industrialized countries will be significant, and will likely represent 1–2% of global GDP (between $600 billion and $1.3 trillion) over the coming two decades. In developing countries, the World Bank has estimated that the annual costs for mitigating and $175 billion by 2030. These figures are fairly conservative, however, representing in great part efforts to abate the emission of greenhouse gasses in the short- to medium-term. Overall, however, the real costs of mitigating climate change, which will require a global transition to more efficient, low-carbon energy systems, will likely be considerably higher.[87]

The international obligations of states do not end with brokering a binding international climate change agreement. States also have obligations to respect the human rights of all people and groups, including those residing beyond the state's jurisdiction. These include the duty to refrain from interfering with the enjoyment of human rights, the obligation to take measures to prevent third parties from interfering with the enjoyment of human rights and to contribute to the fulfillment of human rights by people residing in other countries.[88] According to these standards, if a state emits large amounts of GHGs, and therefore contributes toward the acceleration of global warming which results in the violation of human rights, that state is responsible for providing a remedy for these violations. Similarly, if a state seeks to actively undermine a global treaty to limit GHGs and avert dangerous climate change, that state should be held accountable for "acts of omission," or inaction. Furthermore, states which contribute international cooperation and assistance to developing countries facing the effects of climate change have the duty to ensure that the assistance they provide does not undermine human rights in the recipient state.

The obligation of states to respect human rights by reducing their GHG emissions and contributing to meeting global emissions reductions targets requires a number of mea-

[84] World Bank, p. 20
[85] UNDP 2007/2008, p. 4
[86] Stern Review. This report also established that climate change, if unabated, will shrink the global economy by approximately 20%; since its publication, Stern revised his estimates upwards of 30% of global GDP
[87] See, for examples, projections by the International Energy Agency in its "World Energy Outlook, 2008." The differences in projections reflect various factors, including varying definitions of the scope of mitigation efforts and the use of different discount rates and costing methodologies, among others
[88] Office of the High Commissioner for Human Rights, 2009 with reference to CESCR general comments No. 12 (1999) on the right to adequate food (art. 11); No. 13 (1999) on the right to education (art. 13); No. 14 (2000) on the right to the highest attainable standard of health (art. 12); and No. 15 (2002) on the right to water (arts. 11 and 12 of the Covenant)

sures at the domestic level. This may imply the use of a number of policy instruments, including investments in greater energy efficiencies, progressive efficiency standards and a range of financial mechanisms to internalize the costs resulting from the impacts of carbon emissions. Policy options could also include the removal of fossil fuel subsidies,[89] incentives to reward research and development of new technologies, technical standards and labeling, forest conservation measures and sustainable agricultural practices.

States also have the obligation, both domestically as well as in their international actions, to avoid undue reliance on measures which have either proven ineffective or have yet to demonstrate their effectiveness in mitigating climate change. In efforts to find politically feasible, "no-cost" solutions to financing climate change mitigation, great reliance has been placed on the potential of voluntary, market-based mechanisms to efficiently allocate the remainning carbon budget and incentivize GHG emissions reductions. However, experience has shown that voluntary, market-based measures such as emissions-trading and offset projects, as well as measures taken under the Clean Development Mechanism, fall far short of meeting the global mitigation challenge. "Carbon markets are a necessary condition for the transition to a low-carbon economy. They are not a sufficient condition. Governments have a critical role to play in setting regulatory standards and in supporting low-carbon research, development and deployment."[90] Given their potential to generate significant profits, market-based responses have rapidly gained popularity in recent years, particularly among the policies espoused by OECD countries aimed at addressing climate change internationally. However, market forces alone will not ensure that the costs of the climate impacts of carbon emissions are internalized by polluters, nor that global emissions will remain under scientifically mandated targets.

In a number of cases, market-based approaches to climate change mitigation have resulted in highly problematic local responses, including the deepening of inequalities within communities[91] and further marginalization of the most disadvantaged people, particularly with regards to their access to land. The extra-territorial obligations of states discussed above would require countries which invest in these schemes (mainly industrialized and rapidly industrializing countries) to both ensure that they are effective in meeting mitigation goals as well as to refrain from actions which may result in the violation of human rights. These projects also highlight the obligations of those states where they take place to ensure that they do not result in the violation of human rights of their domestic populations. While this obligation exists for all states, developing countries are usually the sites of carbon offset initiatives and projects devised under the Clean Development Mechanism (CDM) and therefore bear particular responsibility to ensure that the violation of human rights does not occur as a result. Numerous concerns have been expressed, for example, regarding projects devised under the Reduced Emissions from Deforestation and Degradation (REDD) which often introduce significant monetary incentives to control forested lands and may result in the marginalization of forest dwellers,

[89] UNEP has estimated that the removal of subsidies for fossil fuels globally could reduce GHG emissions by 6% per year
[90] UNDP 2007/2008, p. 11
[91] Corbera, Esteve Katrina Brown and W. Neil Adger "The Equity and Legitimacy of Markets for Ecosystem Services" *Development and Change* Vol. 38, No. 4, July, 2007, pp. 587–613(27)

at the expense of their human rights. "Ample experience tells us that without secure rights and proper governance arrangements, the poor and landless risk being forced out when the value of forests and land increases. New opportunities will enrich some while others lose out. If safeguards against such risks are not put in place, new climate policy may further marginalize the poor and vulnerable."[92] The Permanent Forum on Indigenous Issues has voiced concern, on multiple occasions, about these projects, noting in particular the perception among many indigenous people that such schemes "reinforce centralized top-down management of forests, and undermine indigenous peoples rights" to their lands, self-determination and free, prior and informed consent.[93] Other mitigation measures, such as rapid increases in the production of biofuels have reportedly lead, in several cases, to violations of their human rights, including displacement, hunger,[94] child labor and debt-bondage, as well as loss of employment.[95] Concerns have also been expressed regarding the displacement of populations and the creation of new obstacles for poor people to access food as a result of hydro-electric dams constructed in efforts to develop low-carbon sources of energy.

States must also ensure that adaptation measures intended to protect people from climate change effects do not result in the violation of other human rights. The construction of dams for water storage may provide breeding sites for disease-transmitting mosquitoes or push people off their land.[96] The building of levees and sea walls may, in some cases, block access to fish on which fishermen and their families survive. Care must also be taken to ensure that the adaptation assistance provided does not aggravate existing inequalities. Often, the access to insurance, credit, and technologies most useful for adaptation by the poor are not provided in forms they can afford or obtain. This differential accentuates the "adaptation gap" between the poor and the better off.[97] When adaptation projects conflict with human rights, they should be carefully evaluated and redesigned. Some adaptation strategies, should be avoided whenever possible, given the extent to which they may infringe on a range of human rights. Resettlement of populations, for example, should be considered as an alternative to be used only in extreme circumstances when protection of residents cannot be guaranteed.[98]

The UNFCCC and its Kyoto Protocol call on parties to minimize the adverse economic, social and environmental impacts resulting from the implementation of response measures taken to mitigate or adapt to climate change impacts. Therefore, according to both international human rights law as well as the prevailing climate change treaties, both industrialized and developing countries have the obligation to establish mechanisms to this end. These should include both procedural guarantees such as access to information and participation and mechanisms for redress, as well as substantive rights such as right to life, food, health, housing and water. The priorities and concerns of specific populations and regions must be understood, and an analysis of the human rights impacts of these projects should be carefully studied. Risk analysis and disaster risk reduction also must be integrated into

[92] ICCCD, 2009, p. 5
[93] E/C.19/2008/13
[94] A/HRC/9/23
[95] International Labor Organization: Submission to UNHCHR Analytical Study on the Relationship Between Climate Change and Human Rights, found at: http://www2.ohchr.org/english/issues/climatechange/docs/submissions/ILO.pdf (last accessed 10/22/09)
[96] ICCCD, 2009 Annex #4: "Health," p. 88
[97] ICCCD, 2009, p. 45
[98] A/64/255

development processes. "Development should be centered on managing risks, building the resilience of the poorest, and enhancing the ecosystem functions upon which they depend… with special attention to the most vulnerable groups..."[99] These protections should, in all cases, aim to ensure that adaptation and mitigation projects do not result in the violation of human rights, enable discrimination or deepen the conditions of poverty in which people live.

Obligation to Protect: adaptation support for those most vulnerable to the impacts of climate change

International human rights standards include the obligation to protect people from the violation of their human rights by actors or forces beyond the control of the state in-question, as well as attention to particularly vulnerable populations and assistance for these groups to withstand the most severe effects of climate change. This requires support for adaptation, which is intended to protect people from the greatest harms and bolster the capacity of people to withstand climate-related shocks. The adaptive capacity of people is a comprehensive concept, and refers to baseline levels of health, nutrition, infrastructure and access to education, as well as resources with which to rebuild following a climate-related shock. As a result, effective measures to help vulnerable people and countries adapt to climate change must seek to strengthen the socioeconomic conditions in which the poorest people live.[100]

Internationally, the obligation to protect requires, primarily, the provision of substantial financial and technical assistance to developing countries, beyond pre-existing commitments for Official Development Assistance (ODA), to support their efforts to adapt to the inevitable effects of climate change. Given that the vast majority of greenhouse gasses that have caused global warming have been emitted by industrialized countries, these countries have the duty to contribute the majority of international financial resources and the necessary transfer of technology to assume the adaptation challenge. Resource constraints are frequently invoked as an excuse for inadequate adaptation commitments. Nevertheless, it must be recalled that, "irrespective of the additional strain climate change-related events may place on available resources, States remain under an obligation to ensure the widest possible enjoyment of economic, social and cultural rights under any given circumstances. Importantly, States must, as a matter of priority, seek to satisfy core obligations and protect groups in society who are in a particularly vulnerable situation".[101] Industrialized countries, therefore, have the international duty to provide financing for adaptation in developing countries, with particular emphasis on the most vulnerable groups and to contribute the maximum amount of resources available for this purpose.

Developing countries, as well, have obligations in terms of adaptation assistance, most of which are applicable mainly at the domestic level. First, notwithstanding limits on their financial resources, even the poorest countries have the responsibility to direct all available resources to supporting the most vulnerable people among their populations, including resources from international cooperation and

[99] ICCCD, 2009, p. 4
[100] UNDP 2007/2008
[101] Office of the High Commissioner for Human Rights, 2009, para. 77

assistance. Second, in recognition of limited financial resources, developing countries have the obligation to actively seek international assistance and cooperation[102] and to ensure that resources obtained from such cooperation are utilized effectively and without corruption. Third, developing countries are accountable for ensuring that development projects occurring within their jurisdiction contribute, to the extent possible and relevant, to adaptation goals.

Finally, all states should ensure that the policies and programs adopted to support adaptation goals are informed by human rights and that they seek to maximize their impact. They should be comprehensive, and bring together a number of national sectors in an integrated effort, such as the health sector, water management, agriculture, and disaster management.[103] Many of the world's rural poor, for example, are highly dependent on natural resources. Adaptation projects for these groups would likely require ecosystem protection in ways which fortify natural weather barriers while promoting sustainable livelihood activities. A broad scheme of social protection would also be necessary to create employment opportunities and protections against hazards and losses.[104] With a rights-based approach to adaptation, the underlying conditions of poverty would have to be addressed in order to decrease vulnerability and bolster resilience. Environmental and human rights impact assessments would need to be conducted and ongoing monitoring of impacts undergone. Information concerning the impacts of climate change, measures taken in response and national budgetary implications need to be made available to the general public. Moreover, opportunities for public participation in the design and implementation of plans designed to respond to climate change should be in place. Mechanisms of accountability, including access to information laws and oversight processes, must be in place to ensure that resources dedicated to adaptation and mitigation goals are used efficiently and according to national priorities.[105]

Adapting to climate change and providing protection from the most devastating impacts on the poorest and most vulnerable populations represents an opportunity to apply learnings about the past successes and failings of development efforts in the search for more effective, equitable urban planning and rural development. In the context of adaptation, the obligation to protect urges states to bolster resilience and improve baseline socioeconomic conditions for the most vulnerable groups in society, while working to establish an enabling environment for the full realization of all human rights.

Obligation to Fulfill: positive international and domestic measures aimed at guaranteeing human rights in the context of climate change

According to the UN Charter and numerous international treaties,[106] states are collectively responsible for creating an enabling environment for the fulfillment and realization of all human rights. The duty to fulfill human rights entails three distinct, yet related, obligations: to facilitate, provide and promote human rights. These obligations are equally applicable to industrialized and developing countries; yet, they require different emphasis in practice.

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[102] International Covenant on Economic, Social and Cultural Rights, Art. 2(1)
[103] ICCCD, 2009, Annex #4, Health, p. 85
[104] Epstein, Paul R., William Moomaw and Christopher Walker "Healthy Solutions for the Low Carbon Economy: Guidelines for Investors, Insurers and Policy Makers" (Boston, MA: The Center for Health and the Global Environment, 2008)
[105] Oxfam "Climate Wrongs and Human Rights", September, 2008
[106] See The International Covenant on Economic, Social and Cultural Rights, the Convention on the Rights of the Child, the Convention on the Rights of People with Disabilities and the Declaration on the Right to Development

Industrialized countries are obliged to facilitate the realization of human rights by persons within their jurisdictions. Domestically, this implies measures aimed at creating an enabling environment whereby people who stand to be affected by climate change, or various mitigation and adaptation projects, are able to claim their rights. This requires, primarily, comprehensive adaptation support to the most vulnerable groups among its population. It also necessitates close attention to procedural rights as well as prohibitions against discrimination to ensure that vulnerable people living in industrialized countries have the means necessary to realize their rights in the context of climate change. This requires, among other things, broad public information and participation in the planning of adaptation and mitigation measures stages to ensure that the concerns and needs of particular groups are registered and that new human rights violations do not result from such measures. It would also require effective disaster management planning with a specific focus on low-income populations who, for example, rely on public transportation in the eventuality of a weather-induced evacuation or are particularly susceptible to rising food prices.

At the international level, industrialized countries have the duty to promote the fulfillment of human rights in developing countries. This requires, primarily, that they provide resources for adaptation, within the maximum available resources. It also obligates them to ensure that the ODA and financing for adaptation they contribute effectively serve to facilitate the enjoyment of human rights and help the state receiving assistance to comply with its obligations in this respect. This may require rigorous monitoring and verification procedures for the assistance they provide.

Developing countries also have obligations to fulfill human rights in the context of climate change. In the first place, they have the duty to actively seek international cooperation and assistance[107] as well as to ensure that such funding reach the most vulnerable groups among their populations. They also have the duty to ensure that resources procured through international cooperation are utilized in a timely and effective manner, and to diminish opportunities for corruption and the mismanagement of funds. To that end, it is critical that developing countries establish mechanisms to ensure the monitoring and verification of the use of international funding related to climate change, and that such resources are managed with accountability and public oversight. Finally, developing countries are responsible for stimulating broad and inclusive participation in the planning and implementation of projects related to climate change.

[107] International Covenant on Economic, Social and Cultural Rights, Art. 2(1)

IV) HARNESSING GREEN GROWTH FOR THE REALIZATION OF HUMAN RIGHTS

The need for urgent collective international action to mitigate climate change and prepare for its inevitable impacts will require a major shift towards clean development and low-carbon energy technologies worldwide; tantamount to a second Industrial Revolution.[108] Currently 1.3 billion people world-wide, more than 43 per cent of the global workforce, work in exchange for earnings too low to lift them and their dependents above the poverty line ($2/day). Over 190 million are unemployed, and, with the coming of age of many of the world's youth, there will be more than 500 million additional job-seekers over the next 10 years.

An estimated 2 billion of the world's poorest people, most of whom are concentrated in the developing world, lack regular and affordable access to modern energy services. Most pay disproportionate costs, compared with their wealthier counterparts, in the time spent collecting fuels and addressing health impacts from the household use of biomass and other highly polluting fuels.[109] In the year 2000, exposure to indoor air smoke from cooking fuel was responsible for an estimated 1.6 million deaths and 2.7% of the global disease burden.[110] The widespread prevalence of energy poverty and its impacts will, in itself, render the Millennium Development Goals all but unattainable.

While energy poverty perpetuates broader poverty, energy systems also offer a major opportunity to stimulate economic development. Access to decentralized, renewable modern energy services could also contribute to the realization of human rights by the world's poorest people. It would enable study and commercial activity during night-time, provide access to communications technology and information, and decrease the risks faced by women and girls from gathering firewood and water, while freeing time for other activities such as schooling. Women exposed to indoor smoke face a threefold higher risk of chronic obstructive pulmonary diseases than those who cook with gas or electricity.[111] With household clean technologies many among the world's poorest people would face new opportunities to realize their right to health and pursue a higher standard of living in many respects. Avoided ecological degradation, such as deforestation, would also contribute to the realization of the rights of indigenous and other rural peoples with regards to access to lands, food, and the conservation of biodiversity.

In order to generate modern energy services and harness them toward the fulfillment of development and human rights goals, "developing countries have a fundamental choice: they can mimic the industrialized nations, and

[108] "Green Jobs: Toward decent work in a sustainable, low-carbon world." United Nations Environment Programme, September, 2008
[109] ICCCD, 2009 Annex #5 "Energy Access"
[110] "Indoor Air Pollution: National Burden of Disease Estimates." (Geneva: World Health Organization, 2007)
[111] "Fuel for Life: Household Energy and Health" (Geneva: World Health Organization, 2006)

go through an economic development phase that is dirty, wasteful, and creates an enormous legacy of environmental pollution; or they can leapfrog over some of the steps originally followed by industrialized countries, and incorporate currently-available modern and efficient technologies into their development process."[112] Currently, there are abundant options available for developing countries for the development of modern, green technologies and energy systems based on their natural resource endowments. The sun provides, in a single hour, more energy to the earth than all the energy consumed world-wide in one year. Great untapped potential exists to develop hydropower in Africa,[113] solar power in the Middle East, wave power in coastal regions, geothermal power where appropriate and wind power in the world's wind corridors. The mega-cities of the developing world also offer significant potential, through smart growth, enhanced industrial and building efficiency and the development of public transport systems powered by non-carbon energy sources.[114]

People living in extreme poverty are often located far from the centralized energy grids, and require decentralized energy delivery systems. These systems should be built in ways which may withstand weather extremes, and, whenever possible, be developed together with capacity-building efforts to ensure that they may be operated and maintained locally. Decentralized, small-scale renewable energy technologies possess a great potential to further the goals of mitigation (by reducing or avoiding further carbon emissions) and adaptation (by furthering the standard of living of people and bolstering their resilience in the face of climate change impacts).

Modern energy technologies also have the potential to serve as a major motor of economic growth for the developing world, "Energy is the lifeblood of the modern economy, and no country in modern times has substantially reduced poverty without a massive increase in its use of commercial energy and/or a shift to more-efficient energy sources that provide better energy services."[115] Development economists have established that, in developing countries, new investments in energy systems create far greater wealth than equivalent investments in any other sector of the economy.[116] The amount of labor required to build and develop windmills, solar plants and other renewable energy sources, compared to the largely automated nature of fossil fuel extraction, will create countless new jobs and secondary markets for related goods and services, across many sectors of the economy, from energy supply to recycling and from agriculture and construction to transportation. These jobs are structured around efforts to cut the consumption of energy, raw materials and water through high-efficiency strategies, to de-carbonize the economy and reduce greenhouse gas emissions, and to protect and restore ecosystems and biodiversity.[117]

The job-creation potential is significant, particularly in countries with active policies to promote renewable energy. In Germany, due to vigorous government investment in green economic sectors, the number of jobs in those

[112] Goldemberg, José "Leapfrog Energy Technologies." *Energy Policy* Vol. 26, No. 10, pp. 729-741, 1998
[113] World Bank, 2009
[114] Epstein, Paul R., William Moomaw and Christopher Walker "Healthy Solutions for the Low Carbon Economy: Guidelines for Investors, Insurers and Policy Makers" (The Center for Health and the Global Environment, Harvard Medical School. Boston, MA, July, 2008)
[115] ICCCD, 2009 Annex #5 "Energy Access," p. 60
[116] Morris Miller, former Executive Director of the World Bank, quoted in Gelbspan, Ross. "Boiling Point" (New York: Basic Books, 2004)
[117] UNEP, 2008, p. 5

sectors almost quadrupled to 260,000 in less than 10 years. A study undertaken in 2000 by the British Government concluded that, for every €1 million invested in residential energy efficiency, 11.3–13.5 full-time equivalent jobs were created. And in the United States every billion dollars invested in the so-called "green stimulus" has been reported to create 30,100 new jobs and saves the economy $450 million per year in energy costs.[118] The jobs created from green investments span a broad range of specialization and skills-levels, and will include a number of jobs for low-skilled labor across a variety of industries.

The potential is evident. More than 2.3 million green jobs have been created in recent years in the renewable energy sector. However, renewable technologies still only supply 2 per cent of the world's energy. If clean energy technologies are scaled up, the benefits in terms of employment generation and a range of economic spin-off effects could galvanize new levels of economic and social development, particularly for the world's poorer countries. Investment in renewable energy is booming, surging from $10 billion in 1998 to at least $66 billion in 2007, equivalent to 18 per cent of all energy investment. It is expected to reach $343 billion in 2020 and to almost double again by 2030 to $630 billion.[119]

In order to successfully link energy services and systems to their full development potential, market-distorting subsidies for fossil fuel energy sources, which currently cost the governments of industrial countries around $250 billion a year,[120] should be removed, as promised recently by the G-20 in its recent summit in Pittsburgh. Incentives in terms of investments in research, development and deployment of new green technologies, tax benefits for non-carbon energy sources and measures to internalize the costs of carbon in fossil fuel-based systems could boost the contribution of renewable energy around 50 percent to the power mix by 2050.[121]

For this to happen, a broad program of technology transfer is also required. The IPCC defined technology transfer as "a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change… [and] encompasses diffusion of technologies and technology cooperation across and within countries."[122] Within international environmental law, there are numerous references to the transfer of technologies as a necessary element to achieve global sustainability goals. A technology transfer fund was established in order to realize the 1987 Montreal Protocol to phase out stratospheric ozone-depleting chemicals. The UN Framework Convention on Climate Change has further clarified the normative obligations of industrialized countries regarding the transfer of technologies to the developing world, most notably in Articles 4.3, 4.5 and 4.7. The UNFCCC also establishes a financial mechanism to implement the obligation to transfer technologies, in Article 11. The Kyoto Protocol to the UNFCCC also reflects, in Art. 10 (c), the obligation for all parties to develop and transfer environmentally sound technologies. These requirements are consistent with the Universal Declaration of Human Rights and subsequent human rights treaties concerning the duty to cooperate internationally toward the fulfillment of the

[118] Heilmeyr, Robert. "A Green Global Recovery? Assessing U.S. Economic Stimulus and Prospects for International Coordination" World Resources Institute
[119] United Nations Environment Program. "Green Jobs: Toward decent work in a sustainable, low-carbon world." September, 2008, p. 13
[120] Stern Review, 2006
[121] World Bank, 2009
[122] IPCC, 2000

obligations contained in the Declaration. In the context of climate change, the transfer of technology and the provision of funding and support for the local development and maintenance of appropriate technologies reflect the extra-territorial obligations of developed countries to respect, protect and fulfill the human rights of those people who are most vulnerable to the effects of climate change.

In order to facilitate the broad transfer of clean technologies to contribute toward meeting the mitigation and adaptation challenges ahead, trade and investment barriers should be removed. According to the World Bank, the complete elimination of tariffs and non-tariff barriers to the trade in environmentally sound technologies would result in an average increase in the trade of clean technologies by 13.5% compared to the current level.[123] Resistance to technology transfer is often based on concerns regarding intellectual property rights, and the risk that technology-producing countries would lose their competitive advantage by transferring not just material, but also know-how, internationally. Yet, the WTO has established vehicles for addressing these concerns, such as the flexibility TRIPS agreements allow (Article 27.2) members of the WTO to "exclude from patentability inventions… necessary to… avoid serious prejudice to the environment." Given the obligations of states to enable the broad transfer of technologies and know-how, all efforts should be taken to remove trade and investment barriers and facilitate the financing and regulatory structures necessary to harness clean technologies toward the realization of global mitigation and adaptation goals.

[123] Meyer-Ohlendorf, Nils and Christiane Gerstetter, February, 2009

IV) CONCLUSION AND RECOMMENDATIONS

The effects of climate change, including weather extremes and the accelerated degradation of lands, will impact certain vulnerable groups with particular severity including people living in poverty. For these groups, the impacts of climate change will likely result in the violation of a range of human rights, including the right to food, health, housing, and a number of civil and political rights. According to a broad base of jurisprudence, states have the obligation to respect, protect and fulfill human rights. These duties should be recognized by the parties of the UNFCCC as guiding principles for any international agreement, as well as for domestic measures taken in response to climate change.

The obligation to respect human rights requires states to take all steps necessary to avert the harm caused by climate change. Internationally, this requires extensive cooperation, including a comprehensive, binding global pact to reduce global GHG emissions to 85% below 1990 levels by 2050. Such an agreement would necessarily require states to commit to the progressive elimination of fossil fuel subsidies, and provide new incentives and investments for the development of clean energy systems. Any calculation of the costs of mitigation efforts for the purposes of a cost-benefit assessment aimed at informing mitigation policies should fully consider the costs of inaction, particularly for the world's poor.

All states have the duty to wield their international diplomatic and political influence to this end, to engage in climate change negotiations with a spirit of cooperation and compromise and to refrain, whenever possible, from obstructing the attainment of a binding agreement. Equity considerations require that industrialized countries take the first and most dramatic steps in reducing their emissions. Developing countries also have obligations to this end, including the duty to actively seek international cooperation and assistance toward meeting their mitigation goals, and to establish mechanisms to ensure effective use of resources received. Accordingly, all states must submit to international monitoring and verification efforts to ensure that measures taken in accordance with mitigation goals are effective and that resources are managed with transparency.

At a domestic level, states have an obligation to ensure that human rights violations do not result from measures adopted in order to mitigate, or adapt to, climate change. Great care must be taken to ensure that these projects do not result in deepening poverty, exacerbating inequalities or enabling discrimination; nor should they be allowed to create new barriers for people to realize their rights to health, food and housing, among others. In order to avoid inadvertent harm and minimize the adverse economic and social impacts which

may result, safeguards must be in place to protect the rights of those people who stand to be affected by the projects in question. Procedural rights, such as the right to information, participation, consultation and mechanisms for redress and compensation in case of damages, would provide important protecttions. Prior to the introduction of carbon offset projects or a market system which creates incentives for the control over forested lands, the land rights of rural dwellers must be secured and governance structures established to ensure that climate change-related projects do not dispose them of their lands or means of survival. In addition., sufficient concerns have been raised regarding the human rights impacts of certain types of projects conceived under mitigation or adaptation auspices; for example, extensive biofuel plantations, the construction of hydroelectric dams that result in the displacement of large populations, or disaster management plans which include mandatory population resettlement. These approaches should therefore be avoided whenever possible. The introduction of human rights impact assessments and risk analysis prior to initiating mitigation or adaptation projects would greatly assist in anticipating and avoiding such adverse impacts.

Internationally, states have the obligation to protect people from the violation of their human rights, especially those living in countries which are particularly susceptible to the harshest impacts of climate change. This requires states, in particular the high-emitting industrialized countries, to provide substantial funding, separate and additional to pre-existing ODA commitments, to help developing countries adapt to the inevitable effects of a warming climate. Donor states are also responsible for ensuring that the resources they contribute to adaptation efforts in developing countries effectively facilitate the enjoyment of human rights and support the state receiving assistance to comply with its obligations in this respect. Rigorous monitoring and oversight procedures are necessary to ensure that assistance for adaptation is utilized according to the highest possible international standards. Countries receiving adaptation assistance also have obligations with regards to international assistance. They have the duty to actively seek international cooperation and assistance when they lack sufficient resources to effectively provide protection for their population. They are obligated to ensure that such funding reach the most vulnerable groups and that the resources received through international cooperation are utilized in a timely and effective manner. Finally, countries receiving adaptation assistance are accountable for the appropriate use and management of these funds, which requires states to establish monitoring mechanisms, eliminate opportunities for corruption and facilitate public participation in the planning and oversight of adaptation projects.

Domestically, the obligation to protect people from the violation of their human rights requires governments to place particular attention on those who are most vulnerable and to enhance their resilience and capacity to withstand climate shocks. Increased efforts to fulfill the right to food are necessary, including comprehensive rural support programs and measures to bolster crops and irrigation systems from weather extremes. Efforts should also be made to minimize the effects of fluctuating food prices due to weather-induced scarcity, through the use of buffer stocks, price controls and subsidies for some basic foodstuffs. Improvements in the baseline health conditions for the world's poorest people are also required, primarily through increasing investment in health care systems, access to clean

water and adequate food, and public education about risks of infectious diseases. In anticipation of the growing flows of people migrating to cities, governments should identify options for safe dwellings, develop urban planning and zoning regulations which incorporate disaster risk reduction and increase efforts to avoid the construction of new settlements in disaster-prone areas. Major investments in water distribution, sanitation, and transport are furthermore essential to reduce vulnerabilities and ensure that adaptation efforts will be sustainable into the future. Overall, social security and social protection programs must be in-place and function effectively to guarantee economic security and social welfare of the poorest members of society in the face of shocks or losses.

States are advised to bring together a number of national sectors, such as the health, agriculture, water and disaster management sectors, in an integrated effort. This would increase the ability to provide, for example, effective disaster management planning with a specific focus on low-income populations who rely on public transportation in the eventuality of a weather-induced evacuation or are particularly susceptible to rising food prices. States must also guarantee a number of procedural rights, such as access to information concerning planned adaptation measures and budgetary implications, and provide opportunities for public participation in these processes. This will help ensure that the concerns and needs of particular groups are registered and that new human rights violations do not result from such measures. Environmental and human rights impact assessments would further assist in meeting this goal. Finally, mechanisms of accountability, including access to information laws and oversight procedures, must be in place to ensure that resources dedicated to adaptation and mitigation goals are used efficiently and in accordance with national priorities.

The onset of climate change demonstrates the complex interactions between poverty, the environment and development. As Sir Nicholas Stern stated, "the world does not need to choose between averting climate change and promoting growth and development."[124] The Charter of the United Nations and numerous human rights treaties call on states to engage in international cooperation and assistance to promote international peace and security as well as human rights. Accordingly, the countries of the world must engage in a broad program of cooperation to address climate change through a large-scale, coordinated international effort to rewire the global economy with clean energy systems. This requires a comprehensive program for the transfer of technologies, and the removal of tariff and non-tariff barriers, including through the use of TRIPS flexibility mechanisms, when appropriate. It also requires robust international funding to enable developing countries to transition to clean energies while accelerating efforts to overcome poverty.

Domestically, states, particularly high-emitting industrialized countries, have the responsibility to shift market-distorting subsidies away from fossil fuels. Instead, they should direct all available resources to invest in the research, development and deployment of new green technologies, incentives for the use of non-carbon energy sources and measures to internalize the costs of carbon, among others. States receiving ODA or financial support for climate change mitigation should direct international assistance to these ends. They must also work to facilitate economic opportunities for the poor from the growth of renewable energies, through job training and other capacity-

[124] Stern, 2006, p. 11

building measures, as well as investment in decentralized energy delivery systems which are accessible to the poorest and most vulnerable members of the population. Climate change poses massive challenges for human rights and the prospects for the world's poorest and most vulnerable people. At the same time, the international and domestic actions required in the context of climate change represent an unparalleled opportunity for overcoming poverty, generating new levels of development, furthering the realization of human rights and building a more stable, balanced and robust global economy.

Acknowledgements

The author wishes to thank ***Paul R. Epstein***, M.D., M.P.H., Associate Director of the Center for Health and the Global Environment at Harvard Medical School, ***Ross Gelbspan***, Pulitzer prize-winning journalist and author of numerous publications on climate change and ***William Moomaw***, Professor of International Environmental Policy at the Fletcher School of Law and Diplomacy, Tufts University, for their comments and input on drafts of this paper.

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