# Social Psychology of Culture and Ethnic Populations: The Impact of Global Warming on Social Change within Culture and Ethnicity

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#### Abstract

In addressing global strife on the planet, it is necessary to discuss the growing concern surrounding global warming and related climate change and the documented impact it is having on societal changes in ethnic cultures. Drawing from over 60 references, this research article reviews global warming from the natural scientific perspective and consider the relationship of climate change to changes in social order. Looking at different impacts in different parts of the globe, it establishes a hypothesis that establishes a link between natural and socio-cultural change that negatively impacts the ethnicity of minority or disenfranchised people. These changes include, among others, the status of decreasing water and precipitation on crop failure and resulting scarcity of food spawning governmental corruption and misuse of power and the necessity of ethnic groups in various parts of the world to uproot family, leave traditional homes, abandon ethnic cultural mores and customs in the search for survival. While regarding global warming and acknowledging the disagreement in the scientific community on cause and extrapolated effect of global warming, the research found indicates that global communities' agreement in current changes in the natural order, and inevitable resulting differences in human social order, will require a collaborative effort to adjust, both socially as well as physically, in order to survive,.

#### Introduction

Our planet is in a state of strife and crisis from a number of fronts. This paper examines the Social Psychology of Culture and Ethnic Populations, examining particularly a subtopic of that topic of great interest world-wide, global warming, or climate change. Three major points discuss a hypothesis that establishes a link between climate change and social change that impacts cultures and related ethnic issues across the globe. Point 1 is the reality of a changing worldwide climate and the negative impact of such change on the natural, social, cultural and ethnic fiber of life in various parts of the globe. Point 2 discusses the catastrophic results in a growing number of distressed countries of corrupt governments that thrive on desperate conditions and that often spawn civil war that results in disenfranchised people being driven out of their own country, and Point 3 addresses the trauma and upheaval of leaving traditional homelands to escape starvation and warfare and, in the process, losing the thread of ethnic identity that makes a people unique and binds them together. A final point raises questions with regard to potential solutions to the social situations that are occurring in desperate parts of the world and that will see worldwide increase if and as the climate continues to warm.

## Climate Change Defined and Its Effects Described

What is meant by *climate change?* Is it a potentially cataclysmic change in the planet's processes, or simply another of Earth's ancient cycles? That the question is of general interest to

the world population is evidenced by numerous articles and reports available for review. According to the web site of Heartland Institute, a national nonprofit nonpartisan research and education organization (Heartland, 2007), 863 titles were listed on its Global Warming / Climate Change section during 2007, and many other similar sources provide ample scientific evidence that the climate worldwide IS changing and that the world IS becoming warmer. The web encyclopedia for the lay public, Wikipedia, published an overview of the implications of global warming and states, in lay terms, that "the predicted effects of global warming on the environment and on human life are numerous and varied. . .recent effects of climate change may be already occurring." The article goes on to address relevant subjects such as rising sea levels, glacier retreat, altered patterns of agriculture, all of which are cited as direct consequences (of global warming) (Wikipedia, 2007). James Hansen, PhD, Climatologist and Director of NASA / Goddard Institute for Space Studies at Columbia University, is one of the world's foremost scientific authorities on global warming, and during 2007, Dr. Hansan wrote 14 articles and gave numerous presentations discussing his concern for and evidence of global warning (Hansen, 2008). In his comments, Dr. Hansen explained how gases being produced by the combustion of fossil fuels are contributing to a "greenhouse effect by retaining heat on the planet like glass panels do on a greenhouse." In a January 29, 2008 talk to the Royal College of Physicians, London, UK, Dr. Hansen speaks of "Global Warming – The Perfect Storm: Health Implications of Climate Change" in which he contrasts the global effects of CO<sub>2</sub> and the resulting threat to the health of the youth of today and their inheritance of a sick planet with efforts that, if made today, could change the potential end result of increased sickness of living things and the planet alike. (Hansen, 2008). In a January 20, 2008 interview on a television special program, Dr. Hansen warned that the earth has no more than 10 years to reverse the present undeniable trend of drastic changes in the earth's climate, or the change will be unstoppable (Peley, 2008).

A report on a study published in the journal, *Proceedings in the National Academy of Sciences*, states that there has been a dramatic decline identified in the ability of the Earth to soak up manmade emissions of carbon dioxide, as well as an acceleration in the rate of increase of greenhouse gas in the atmosphere (Canadell, 2007). According to Dr. Canadell, these facts indicate to environmental scientists that they signal a potentially dangerous turn of events for climate world-wide. He explains that a "feedback" in global climate, which occurs when carbon

dioxide increases in the air, resulting in atmospheric concentrations of CO<sub>2</sub>, has already begun several decades before many predicted. One reason given for the new evidence is that, for the first time in the past 100 years, "the efficiency with which fossil fuels are used has stagnated." According to a United States governmental report, the Year of the Ocean, 1998, changes in the ocean climate were already observable, and there was evidence ten years ago that the human influence was separable from natural long-term variability (Year of the Ocean, 1998). The Pew Center on Global Climate Change says that a gradual warming of our climate that is already underway will continue and will pose serious risks to economies and environments across many nations, particularly poorer countries without the ability to tolerate lost crops, grazing land, fishing and gross national product (Pew Center, 2007). The Center cites the two primary processes that contribute to sea level rise as thermal expansion, the increase in water volume from heat uptake, and *mass inputs* or the transfer of freshwater from land to ocean, the largest potential source of additional water mass being the large ice sheets on Greenland and Antarctica. The International Council of Academics in Engineering and Technological Sciences (CAETS, 2007) at their convocation held in Tokyo, in October 2007, published a report that states, "greenhouse gas emissions in the newly industrializing countries are increasing rapidly to rival those of the highly developed countries. . . most of the observed global warming since the mid-20<sup>th</sup> century is very likely due to human-produced emission of greenhouse gasses, and this warming will continue unabated if present anthropogenic emissions continue or, worse, expand without control."

Another term used for the by-products of greenhouse gasses is *global dimming*, the reflection of the sun's heat, which has been blamed for many negative effects throughout the globe. Certain of these effects include: health impacted by environmental problems such as smog, respiratory problems and acid rain; death from these problems and from starvation brought about a decrease in rainfall and subsequent failure of agriculture, as well as the failure of Asian monsoons (Shah, 2005).

# **Observable and Detrimental Evidence**

As the temperature of the planet rises, so does the temperature of the oceans, causing a melting of ice in the two polar regions which raises both water temperature and ocean levels. As a result,

low-lying countries, such as The Netherlands, Bangladesh, Mozambique, the Asian Pacific countries and the Chesapeake Bay area of Eastern United States, and major cities world-wide, such as New York, Shanghai, Miami, New Orleans, Buenos Aires, and London, may be faced with rising sea levels that will cause significant damage to life, the national economy and infrastructure (McKinney, 2007).

According to Ian Sample of Guardian Unlimited, a scientific web site, a collaborative statement from experts from 13 nations indicates that nearly ¼ of the world's mammals, 1/3 of amphibians, and 1/10 of bird species are threatened with extinction. . . (Sample, 2006). "We are on the verge of a major biodiversity crisis. Virtually all aspects of diversity are in steep decline and a large number of populations and species are likely to become extinct during this century." According to these scientists, the following representative species are already in danger of extinction:

The great white shark population has decreased 95% in the past 50 years, polar bears are expected to decrease 30% in the next 45 years, the dama gazelle population has decreased 80%, and ¼ of fresh-water fish in Africa is threatened by human activity (Sample, 2006).

According to Clive Wilkinson of World Wildlife Fund and echoing what Anup Shah had said the year before, "20% of the world's coral reefs {an important part of the total ecosystem} have been effectively destroyed and show no immediate prospects of recovery . . . 24% of . . . reefs are under imminent risk of collapse through human pressures, and a further 26% are under a longer term threat of collapse" (Goldberg & Wilkinson, 2004; Shah, 2004). From long ago as 1998, much of the blame has been assigned to the rising temperatures of the oceans which bleach the coral white; as the algae that feed on and color them are driven out, the coral dies (Lardner, 1998).

Couple the natural results of rising ocean temperatures with over-fishing, and there is a problem of reduction in animal protein provided by marine fisheries, an estimated half of which is diverted to animal or agriculture food. "Many fisheries are in trouble. Worldwide, it is estimated that some 90% of species of large predatory fish are gone, and domestically, of 230 assessed U.S. fisheries, 54 stocks are classified as over-fished, 45 are experiencing over-fishing, and the status of just over half of the nation's stocks are unknown" (Environmental Defense

Fund, 2007). In addition, the Environmental Defense Fund notes that American's fishing communities also suffer; the collapse of New England's cod fishery in the early 1990's cost an estimated 20,000 jobs and an additional 72,000 jobs have been lost because of dwindling salmon stocks in the Pacific Northwest.

An international survey of climate scientists on global warming was developed by Joseph L. Bast and James M. Taylor and administered to more than 530 climate scientists from 27 different countries (Bast and Taylor, 2007). The survey was first administered in 1996 and again in 2003, and responses were compared. The results of the 66 questions asked indicate a continued difference of opinion in 2003 about characteristics and implications of global warming, although all answers recorded an acknowledgment of the existence of global climate change.

To summarize the scientific perspective of global warming/ climate change, there are any number of sources available that discuss the phenomenon, both pro and con. And while there is not consensus within the scientific community with regard to cause or degree, there is agreement in the reality that the temperature of the planet is rising and that the increase will impact the natural and developed world as we know it. Others in the social sciences are equally concerned about the impact that such dramatic global change will have on society and culture, as well as on physical life.

## Social / Cultural Impacts of Climate Change

Depending on the region of the globe, the different ethnic populations of the world have anthropological sub-groups, each of which is identified by its own culture, language or dialect and the traditions, mores and customs that sustain its people. It is these sub-groups that create their unique ethnicity and about which the following discussion refers.

On June 16, 2007, Ban Ki Moon, Secretary General of the United Nations, addressed the changing climate and its social impact on the world in an article published in the Washington Post (Ban Ki Moon, 2007).

"We discuss Darfur in a convenient military and political shorthand – an ethnic conflict pitting Arab militias against black rebels and farmers. Look to its roots, though, and you

discover a more complex dynamic . . .the Darfur conflict began as an ecological crisis, arising at least in part from climate change."

Secretary Moon noted that two decades ago, the rains in southern Sudan began to fail. According to U.N. statistics, average precipitation has declined in the region some 40% since the early 1980s, and subsequent investigation found that it coincided with a rise in temperatures of the Indian Ocean, disrupting the seasonal monsoons. He explained that it is no accident that the violence in Darfur erupted during the drought and that, for the first time, black farmers no longer welcomed Arab nomadic herders to pass through their country. Their fear was that there would no longer be either water or food for resident and guest alike. In the future, when the military tragedy is finally settled and peace restored to the region, the essential dilemma will still have to be faced – the drought is still a reality and because of it, there is not enough good land in the region to go around.

The relationship of water scarcity and related food insecurity is the root of similar turmoil in other parts of the world, for example, Somalia, the Ivory Coast, Ethiopia, Western United States and other parts of the world, where we can expect to see the same kinds of problems arise. The lack of water is increasingly a condition for social uprising in a growing number of areas in the world. Julian Borger, diplomatic editor of The Guardian, British periodical, quotes an 18-month study of Sudan by the UN Environmental Programme (UNEP) that says, "Darfur holds grim lessons for other countries (in the region) at risk" (Borger, 2007). As rainfall has decreased up to 30% over the last 40 years and the Sahara desert is advancing by well over a mile every year, or 60 miles in the last 40 years, tensions in the region threaten to erupt and rekindle a long-term war between the north and south Sudan that has been held at bay by a 2005 peace accord. The UNEP study finds links between climate and conflict and predicts that the impact of climate change on the stability of the region is likely to exacerbate the tension and ultimate conflict The study points also to conflicts in neighboring Chad that are associated at least in part with environmental changes that fuel tensions in the entire southern part of Africa as droughts and flooding continue. The UNEP study estimate that, between 2040 – 2060, rainfall in the region will have dropped by 16% - 30%, and climate models for the region predict a rise of .05 - 1% C which would reduce the sorghum crop, the local staple, by 70%. While the prediction of rainfall

is subject to change, the statistics of **past** rainfall decrease are factual, as are the long-held territorial tensions that lack of water exacerbates.

In April, 2007, a discussion of the links among environment, conflict and cooperation was held at the Woodrow Wilson International Center for Scholars and chaired by Geoffrey D. Dabelko, Director of Environmental Change and Security Program at the Wilson Center (Dabelko, 2007). Speakers represented the University of Nairobi, who gave the African context, and the Adelphi Research of Berlin, who provided the European perspective and voiced some of the challenges facing efforts to integrate the two global regions of Europe and Africa. The discussion addressed environmental resources from Congo to Cambodia – water, climate, land, forests, and minerals – and the link of those resources to civil conflict in the continent that have exacerbated the plight of the people. The difficulty in bringing different regions together in Africa to consider cooperation and encourage conflict prevention and peace was explained. In Europe, four considerations have emerged that impact and include Africa: bringing transparency to conflict resources, climate change and the risks to security, mainstreaming environment into the security discourse, and environmental peacemaking. According to the speaker, the connection between climate change and security is currently a hot topic in Europe, and leaders are alert to the potential outcomes of policy decisions. Solutions to these problems are open to debate; some advocate assigning control of the country to the military, but that may not even be possible without the threat of the military taking over the government. If such strategy is followed, "military strategy must integrate critical environment and health concerns" (Dabelko, 2007).

In a paper written nearly 16 years ago, Thomas F. Homer-Dixon of the University of Toronto speculated on several different ways that environmental change might lead to acute conflict in poorer countries and regions worldwide, several of which have already happened, while others could develop at any time (Homer-Dixon, 1991). One way is by shifting the balance of power between states that could lead to war. Another path to conflict might be the result of increasing disparity between regions in which poor nations that have very little to lose may attack richer nations for a greater share of their wealth. A third way may be that warmer temperatures could lead to conflict over new ice-free sea-lanes in the Arctic and Antarctic. Continued increase in population and reduction in land could spawn waves of environmental refugees that spill over

into entire regions resulting in destabilizing effects on the invaded governmental order and stability. The increased scarcity of water and effects of upstream pollution may be the catalyst for war. As was predicted years earlier, and as the climate changes and temperatures rise while precipitation decreases, crops often die in the fields before harvest, including both green foods and animal proteins. As the rate of food production falls, internal strife could result, with food itself serving as the major weapon between countries or even between regions. Ultimately, environmental change could result in gradual impoverishment of societies and could aggravate class and ethnic cleavages.

As a result of the combination of several issues, including increased population, overworked soils to produce enough food, inadequate fertilizing to augment soils' nutrients, and extended droughts that create deserts instead of fertile fields, soils in many countries, such as Iceland, that are unable to adequately address the problem of supplying the food needed to support the people. Douglas Ross, Political Science Professor at Simon Fraser University in Canada, lists additional multiple social factors that

"cause many parts of the global 'South' in Asia, Africa or Latin America to remain mired in poverty during the last half of the last century . . . through overpopulation, disease, deforestation, soil degradation, pollution, rampant crime, the breakdown of civil authority and the onset of inter-communal ethnic violence, intolerance, greed, anarchy. . . . Climate change due to global warming may intensify these problems, inundating some of the world's most agriculturally productive lands, causing far more energetic and destructive storms, wiping out coral reefs . . . {and} helping to further deplete already overworked major fisheries world-wide" (Ross, 2002).

Another crucial element in the impacts of climate change is the continuing rise in population world-wide. Over the last 100 years from 1900 to 2000, the United States population has more than tripled, increasing over 205 million, from 76 million to 281 million individuals (How America Has Changed, 2002), while during the same time period, the world population has increased from 1.7 billion in 1900 to 6,082 billion in 2000, increasing in numbers in shorter periods of time, reaching 2 billion people by 1927, 3 billion by 1960, 4 billion by 1974, and 5 billion by 1987 (U. S. Census, 1998). Such population growth has resulted in many more

mouths to feed, and feeding the populace depends on successful farming to grow the food. An August 2007 report from Iceland recognizes that "to meet the needs of a rapidly growing human population, more food must be produced over the coming 50 years than in the past 10,000 years combined. . . But land degradation and desertification are undercutting the soil's ability to produce more food, causing an environmental crisis that affects one-third of all people on Earth" (Between Hungry People, 2007). Again, the prediction of need for food may not be accurate; still, the fact of land over-use and decrease in production are real.

When food is increasingly scarce, people become afraid and desperate, and survival becomes a real uncertainty. Such desperation may stimulate a show of force by government in an attempt to retain control as unrest grows. If, as in many un-developed countries, government is already corrupt and involved more with the gain and use of personal wealth and power than with the well-being of its people, the result is similar to that in Darfur today – violence, starvation, relief food and medicine retained by government and never delivered to those for whom they were intended.

Due to fighting in the region over the last six years, there are more than 2 million people living in camps. And in September, 2006, the journal, Science, estimated the numbers of deaths in Darfur due to abnormal war conditions at "no fewer than 200,000." Although the UN has not called this death rate "genocide," these are victims of war crimes against primarily the black African minority population in a civil conflict between Sudan's government and the pro-government Arab militias and the Sudan Liberation Army (SLA), insurgents that have splintered along both political and ethnic lines (BBC, 2007). The social order changes with the loss of a government that protects its people to one that abandons care and protection of its citizens. Warfare regularly makes huge stretches of farmland unusable because of the population in its path. The ripples from social change continue to spread to include loss of GNP, order, representation of any kind by the people, leaving the country destitute in resources, the major one being the loss of human resources. A similar situation has again erupted in Somalia during the last few weeks in April, 2008. Political insecurity, drought, floods, mass exodus and rising food prices caused by a scarcity of food due to changing weather conditions have contributed to pushing the precarious lives of people in Somalia over the edge. These examples of current history are not a science-

fiction scenario; they are happening today and will very likely develop in other countries if and as the planet continues to warm.

# Ethnicity as a Victim of Climate Change and Civil Conflict

In the past year, the media have informed the world that in the Middle East, loss of home and property, nomadic efforts to find safety, disruption of the family and starvation are all symptoms of change in the ethnic and cultural order of life. Does the media capitalize on such suffering and report a more dire situation than is true? Possibly, although the pictures seen on the evening news are hard to question. Richard Eckersley in his article published by Oxford Press for the International Journal of Epidemiology, states, "The anthropological view would seem to suggest that, because the impacts of global warming will vary according to a range of regional and local factors, it can only be studied at these levels. Obviously, this is not the case" (Eckersley, 2005).

The loss of culture and ethnicity is not new nor has it always resulted from climate changes; nonetheless, the results to the identity of the people was then, as now, cataclysmic. As long ago as 1838, the American Cherokee Nation of Native Americans was forcibly removed from their ancestral home in North Carolina on a historic "Trail of Tears," and the people were marched to Oklahoma, a place that could not have been more different than their cultural home (Burnett, Rutledge, 1995). The loss of tradition, familiar surroundings, historic mores and subsequent loss of tribal customs and social life left the nation with grief that lasted a century and left the survivors of the march with little ability or drive to adjust to foreign and demeaning conditions that stole the ethnic identity of the Cherokee during that era. In 1944, Gretchen Kaapcke wrote on the identity loss of indigenous people in Russia as many cultures were brought together through the United Soviet Socialist Republic (Kaapcke, 1994). In 2003, Douglas A. Hurt cited the American Creek Nation as an example of loss of ethnicity and culture as the settlers and American military subdued this proud Native American people by taking their customs and traditions, even language, in an attempt to rid a new America of its indigenous people (Hurt, 2003). In 2006, a PhD candidate, Christianne Stephenson at McMaster University, Hamilton, Ontario, chose to do an ethnographic research on the psycho-social and cultural impacts of water pollution and environmental degradation on the Ojibway Nation of Walpole Island First Nation (WIFN), Canada (Stephenson, 2006). In 2005, Iya Oyatolu Olajejoye

explored attempts to eradicate the ethnic identity of the Yoruba in Africa as they were bought by slave traders and forcefully taken from their traditional home (Olajejoye, 2005). Two other articles explore how Western medical education has, through the years, showed lack of respect for and ignored laws regarding ethno-cultural biases regarding illness and its treatment in a number of different cultures, i.e. Native American, Asian, Hispanic, among others (Gregg & Saha, 2006; Koehn and Swick, 2006). In all of these references, albeit from different reasons and perspectives, the loss of cultural mores and traditions, even language, are seen as eroding the identity of a disenfranchised people.

Present-day changes in weather are spawning changes in culture and ethnic traditions in widespread areas of the world. In South America, climate change is changing centuries-old beliefs regarding the protection by the mountains of indigenous populations in the Andes Mountains of Ecuador. "The Cotacachenos people believe that they live on the mountain's skirt under the watchful eye of the goddess, Cotachaci. As a result of the glacial melting high on the peaks, the agriculture-based local economy is suffering as rains become more sporadic and sources of irrigation dry up. Because current cultural memory views the mountain and its glacier as a provider, reactions to the decrease in water availability and agricultural adaptations have been sluggish" (Rhodes, 2006). In the Asian Pacific region, within the last decade, Bangladesh has experienced devastating floods that have taken thousands of lives, left many more homeless, left large percentages of the land underwater for weeks and experienced disease as a result (Preston, et al, 2002). In such situations as these, there is decreasing effort to sustain cultural mores and habits and more effort directed to surviving, less to festivals and tradition and more to feeding the children. Cultural beliefs and religions are found to be ineffective in bringing rain that would again make crops grow, provide food, generate energy and encourage a country's people to return home and reclaim order. These links are forged in a chain of changes in the natural as well as the social world that are easily documented, as is the cultural aftermath easily seen and understood.

Another ethnic issue that results from the combination of climate change and civil unrest is the discrimination and unequal access to political power of the minority group (Ghobarah, Huth, Russett, 2005). In many instances of a country or region in a struggle for survival, it is the ethnic

minority that suffers most from discrimination and loss of voice, employment opportunities, or necessities of life, i.e. food, water, shelter, health care within the country. In a case of "have's vs. have nots," it is the ruling ethnic power that obtains and retains resources, relegating the minority group to take what little, if any, is available. This dynamic is seen ranging from social and physical limitations to genocide, as in every recent ethnic conflict on record, i.e. Kosovo, Rwanda, Darfur, Ethiopia, Somalia and others. A specific example of the low sense of value assigned to indigenous people is what happened to a representative organization of International Indigenous Forum on Biodiversity (IIFB) when they withdrew from the second meeting of the Biological Diversity (CBD) Working Group on Protected Areas, held in Rome in February, 2008 (EU Forest Watch, 2008). This group had made a difficult effort to attend the meeting, yet they were not given access to the floor on matters of deep concern to them, and they felt they had no alternative but to leave. In another example of similar treatment from the same report, villagers from the Ilisu Dam region in southeast Turkey traveled to Ankara on March 4, 2008 to tell their government that, if their homes and villages were destroyed by a prospective dam, they would have no choice but to claim asylum from the planned and destructive project (EU Forest Watch, 2008). Yet a third example discusses the failure of technology to adequately reduce emissions as it fails to help poor people across the globe adapt to that technology (Rosenthal, 2008). These examples point up the unfortunate reality that, in situations of social strife, the populations without power in the society could be considered "dispensable." But while any number of reports are available that discuss the link between ethnic upheaval and civil conflict, few-to-none were found to address the negative impact and loss of ethnic identity as a result of climate change and civil conflict that is the hypothesis of this paper.

As the cultural fiber frays, as the familiar ethnic structure is weakened and the security of tradition is lost, another reality of the ethnic crisis emerges, that of health conditions and loss of health (Corvalan, 2002). Particularly in the face of current climate change, as food crops fail from drought and famine results, starvation is a looming reality. The combination of a corrupt government, civil warfare and fear of survival has been seen to drive its citizens from their ancestral homes to refugee camps where not only do ancient mores fade, but where a general health infrastructure has collapsed. In February, 2007, the United Nations Refugee (humanitarian) Agency, UNHCR, reported on a mission to five camps which found that many of

the refugees were experiencing dire health conditions. Some of the health problems that were identified included: malnutrition, both acute and long-term, anemia and results from lack of hygiene of some 90,000 people in Sahrawi camps in south-western Algeria living in harsh weather extremes and devoid of economic opportunities (UNHCR News Center, 2007). Other reports cite compromised mental health among refugees, concluding that the sociopolitical context of the refugee experience is associated with refugee mental health (Porter, Haslam, 2005). Still other reports cite outbreaks of typhus in Burundi associated with trench fever (Raoult et al, 1998) and infestation with the human body louse that is a vector of infectious diseases (Houhamdi, Parola, Raoult, 2005). Without health care, thousands of people who are already exhausted, both physically and psychologically, exist on the brink of premature death, where malnourishment and infectious diseases, such as cholera or diarrhea, typhoid fever, dengue fever, malaria and influenza are commonplace, and where vector-borne diseases run rampant through the populations of these camps. The combination of such upheaval in both the natural and societal orders increases the loss of cultural and ethnic identity. With poor-to-no medical care or medicine, and fading beliefs and traditions to hold onto, death claims large percentages of these people and means the loss of future generations who might carry forward the uniqueness of the sub-culture of the ethnic populations.

As has been acknowledged, cultural changes, poverty and family break-down have not first emerged as social issues with the growing evidence of climate change. In addition to the critical African regions of Darfur, Ethiopia, and Somalia, the break-down of families and a related break-down in traditional culture are documented in The Philippines, Thailand, India, Columbia and other un-developed parts of the world. Perhaps the most tragic of social break-down in these stricken countries is what happens to the children (Le Roux & Smith, '98). Children have been a product of poverty, particularly in large cities, and families have suffered breakdown since early recorded history. All too often, children aged 7-17 years who should be preparing to lead their people in a few more years, instead are forced by parents and unfortunate circumstance to become street children, "representing one of humanity's most complex and serious challenges . . . Both developed and developing countries face a broad spectrum of problems posed by these children, yet few steps have been taken to address the issue." Such children suffer the most of deprived existences, lacking psychological, emotional and social needs, including trust in any

adult, love, belonging, safety, a positive father figure and an intact family, education, security and nurturing, as well as physical needs, such as being harmed, incapacitated, arrested and becoming ill.

As well as the children, other members of such families may be in crisis. With the loss of work in refugee camps, i.e. farming, harvesting or processing food and grains, fathers have little or nothing to do with their time. They may find temporary menial jobs to earn subsistence dollars, but often much of their time is spent under the influence of substances with which to numb their sense of failure and feelings of hopelessness. They may take out their frustration by abusing the women in the family, the wife and older daughters. In many situations, others in the ethnic community, including older parents and parents-in-law, live in the same house, exacerbating the psychological and emotional stress. In tropical or desert countries, rising temperatures and lack of water may increase physical stress. In these kinds of situations, global warming and social and cultural break-down are tightly interwoven.

Traditions, mores and customs hold families and communities together, and the cohesiveness that cultures provide to a people is eroded by economic and social crises in many areas of the world that are, directly or indirectly, the result of changes in climate that lead to the failure of crops, food and sources of income from growing things (Morris, 2007). Couple agricultural failure with warfare between a corrupt ruling government and rebel factions attempting to return government to the people, and the common man and his family are reduced to moving from the village of origin, with its extended families, local traditions and religion, support systems and familiarity. In an attempt to alleviate refugee conditions, the United Nations Refugee Agency (UNHCR) partners with Non-Governmental Organizations (NGO) (UNHCR-NGO, 2007; UNHCR-WFP, 2007) to set up camps and provide food, water, legal assistance, education and health care in such camps found in Africa, the Americas, Asia, Caswaname and Europe, and these kinds of efforts have relieved a great deal of the loss of being uprooted from traditional homes and villages. If they're fortunate, the refugee family can move to a UNHRA camp housing thousands of families who have run from a similar social disaster. However, there are many peoples in other countries who are not so fortunate as to find such humane care. They more often find themselves in squalid refugee camp where, in most cases, home is a hovel or single

fabric 'roof' raised in a pitiful attempt to protect the family from the heat and rays of an unforgiving sun or torrential rains, where they receive food and medicine doled out from trucks or retrieved from airlifts, when they are available at all, and where helplessness replaces strength and hopelessness replaces optimism and plans for the future. Nonetheless, if and as climate change continues to strain the world community, the conditions that have spawned these social concerns will result in increased poverty and loss of opportunity for the children of the world and for families who cannot withstand these social forces.

To restate the working hypothesis, the upheaval, disenfranchisement and movement of ethnic peoples strain their traditional cultural customs and leave them fighting to survive without the assurance of long-term social-cultural support. In some instances, the trauma may strengthen the ethnic ties, but in others, the strain may break the ethnic identity and, without the traditional cultural anchors that kept them together for generations and beyond, may leave the people adrift.

## **Controversy within the Scientific Community**

Purposefully, this research does not address any level of political disagreement surrounding climate change. Nonetheless, in the face of well-respected scientific reports and documented evidence, there are many in the scientific community who continue to doubt that global warming is anything but hype and that those who believe the evidence are seen as "dissenters." Patrick J. Michaels of the Cato Institute, University of Virginia in his article, *Global Warming Overkill*, challenges specifically a report by a colleague at the University of Wisconsin who discusses the impacts of global warming. Michaels retaliated by noting that changes observed in climate may be anomalies of nature that could occur anytime without global implications (Michaels, 2007). Nonetheless, he does acknowledge that climate change is occurring. "There is no doubt that climate change will have some impacts, both positive and negative, on global health. One could just as easily write a review about how a warming planet is producing myriad health benefits . . ." (Michaels, 2007). The Heartland Institute has published a number of articles challenging the scientific position on global warming, including, "August 2007 may go down in the history of science as the month when scientific research made a decisive turn away from dubious warnings of climate catastrophes . . ." (Bast, 2007). And finally, the point is made that, "as a scientist, I

can find no substantive basis for the warming scenarios being popularly described. Moreover, according to many studies I have read by economists, agronomists, and hydrologists, there would be little difficulty adapting to such warming if it were to occur" (Lindzen, 1992). Other arguments abound that believe in the premise that global warming is a natural planetary cycle that has little or nothing to do with Man's influence.

In addition to the references cited above, there are many comments in the same genre that are in opposition to those who see climate change as simply a repeated global phenomenon. These scientists ask their colleagues to examine rising temperatures, note recorded melting ice and learn true facts before making a decision. As indicated by these references, there is controversy in the scientific community regarding the scope and impact of what a cadre of scientists feel may be a natural planetary cycle.

# **Proposed Solutions to the Growing Global Dilemma**

If the uniqueness of ethnic diversity is seen by the 21st century to be important and to be saved, conditions that threaten the traditional ethno-cultural existence must be addressed. While they give their opinions on why the climate worldwide is changing, neither of the opposing scientific perspectives proposes specific solutions as to **how** to stop the progression of climate change. A plethora of proposed solutions are easily obtainable from a few minutes with Google, and they range from simplistic efforts of washing dishes by hand, becoming accustomed to cooler temperatures in the home, and recycling all waste material to more serious scientific alternatives that suggest: quickly phasing out vehicles that use fossil fuels as energy source and speeding up the manufacture of vehicles that run on non-fossil fuel energy, i.e. battery-powered electric, hydrogen or other, perfecting and turning to nuclear power as a primary energy source, and using geoengineering defined as "a scientific effort to manipulate the global environment" (Michaelson, 1998). Lloyd J. Dumas, Univ. Of Texas at Dallas, sees climate as an opportunity and, as such, lists a number of areas in which opportunity is possible (Dumas, 2006). His list includes: government action and market expansion, creating American jobs and stimulating the US economy, emissions trading, "cap and trade" greenhouse gas emissions reduction, energy conservation, development, use of renewable ecological benign energy sources, encouraged research and development, enhanced green house gas sequestration, all of which appear to be wise and sensible efforts.

If one considers that Man is responsible for the change in the natural order that controls climate and is subsequently responsible for enacting a "turn-around" effort, the fact that, currently, the undeveloped countries of the world, China and India particularly, are more committed to growing and competing with the higher developed countries for global power than they are with curtailing and changing their use of carbon-based polluting energy sources, the potential for a cooperative world is discouraging. In 1997, an effort was made in Kyoto, Japan to enlist global cooperation in addressing and finding solutions to the then-emerging evidence of climate change. The agreement was that the guidelines put down in that Protocol would go into force on February 16, 2005. The conditions for entering into agreement were that, by that date, each of the 55 original member countries would have reduced CO2 emissions by 55%. As of November, 2007, 174 countries or other governmental entities have joined the Protocol. As of March, 2008, The United States, one of the largest contributors of emissions, has signed but not ratified the agreement. In June, 2007, China submitted a climate change plan and promised to put climate change at the heart of its energy, but it has as yet neither signed nor ratified the protocol. India signed and ratified the Protocol in August, 2002, but it, like China, maintain that the major responsibility for curbing emission lies with developed countries, not with those countries working to develop their potential competetiveness.

The point of citing the Kyoto Protocol in this discussion is that it shows the difficulty in bringing the World together on an issue of potential catastrophe to them all. When the philosophy, concept of power and material wealth is vastly different in many countries, finding a necessary truth to any social issue is daunting, let alone one as crucial as the approaching potential known as climate change and global warming. And as important as it is to have an understanding of the sources of cultural and ethnic loss, that does not address a weakening or loss of ethnic identity. As our world becomes homogenized due to advancing technology and the resulting shrinkage of the globe, fewer unique ethnic cultures remain. Couple the inescapable fact that the world is growing smaller and that changes in weather patterns across the globe yield devastation of both drought and flood, the survival of these pockets of unique beliefs and traditions become more

and more threatened. While it is unrealistic to expect to halt the movement of technology, it may be realistic to seriously address climate change and slow the tide of natural devastation that substitutes survival for ethno-cultural difference in many parts of the world.

## Summary

To summarize, that the planet is experiencing change is well-documented. Irrefutable evidence records the melting of the Artic and Greenland ice caps, the melting of the Alaskan and Northern Canadian tundra, the rising of summer temperatures and those of the oceans of the world. There is also irrefutable evidence that, in different areas of the world, there are traditional ethnic and cultural mores and customs, even languages, that are being lost as those communities are forced to substitute survival for their own unique identities and to find enough food and a relatively safe spot to rebuild under a regime that will help reestablish the community rather than increasing the risks. Religion, customs and traditions serve to provide ethnic cohesion to a people, and when change and a resulting threat of survival occur, the strength of cultural and social mores may begin to weaken and give way. Traditions and customs that can sustain familiar social guidelines for a few generations may fade when the elders of the community are no longer there to serve as guides and repositories of tribal history and mores and when the surroundings are unfamiliar and life-threatening. Regardless of what it is called, the phenomena of climate change are happening and the physical and social changes that are resulting in many parts of the globe are threatening the glue that holds ethnic groups together.

The questions for world leaders today are not, "Is such change real?" but rather "How should the planet cope and find solutions for the increasingly devastating predictions?" If, beyond a reasonable doubt, Man, with his unquestionable egocentric use and pollution of natural resources, is found to be ultimately responsible for this change in the natural world, then Man throughout the world must accept his degree of responsibility, come together and develop useable alternative sources of energy with which to operate his technological world. Hansen, Canadell, see above, along with numerous others located in researching this paper (Michaelson, 1998; Dumas, 2006; Newshour, 2005; Johnson, 2007) provide statistical evidence of emissions that indicate it IS Man that is tipping the balance of natural equilibrium in climate change. The world of Science must challenge Man to, initially, bring the misuse of natural resources to an

end, and secondly, to find alternative energies that are non-toxic to the planet. Although such technological change would take years to return to familiar climate cycles, if begun in time, it could eventually enable a return to adequate rainfall that supports crops and livestock, feeds the people of the world, and thereby enables a return to the ethnic and cultural mores that strengthen those living in the particularly undeveloped regions of the world. If the planet is to stabilize its familiar climate patterns and, as one of many resulting benefits, ease the threat of the loss of unique culture and ethnicity in those areas throughout the world at greatest risk, it must be a global effort to address a global condition, a requirement that has already been seen as very difficult. Nonetheless, such an effort could bring back water as needed to sustain crops and life and enable the beautiful diversity of the world's people to continue.

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