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Coping with Environmental Refugees

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Abstract

Environmental refugees are produced when the human population growth exceeds the carrying capacity of the region or when natural resources are diminished due to droughts, floods, or other types of climate change. Although refugees seek better living conditions, they may cause an overload of the carrying capacity of the new region. As a consequence, their efforts will have been futile, as well as being a danger to the inhabitants of the new area.

Keywords: Environmental refugees, Climate change, Transmittable diseases, Carrying capacity, Natural resources.

"There are many challenges facing the international community today but few, in my mind, are more pressing than those of finding humanitarian solutions to refugee problems. We talk of regional conflicts, of economic and social crises, of political instability, of abuses of human rights, of racism, religious intolerance, inequalities between rich and poor, hunger, over-population, under-development and I could go on and on. Each and every one of these impediments to humanity's pursuit of well-being are also among the root causes of refugee problems.

— Poul Hartling, U.N. High Commissioner for Refugees, 1978-1985

"When food becomes scarce, refugees often turn to desperate measures to feed themselves and their families. We are particularly worried about the health of the refugee population, domestic violence and refugees resorting to illegal employment or even to prostitution, just to put enough food on the table."

— Antonio Guterres, U.N. High Commissioner for Refugees, 2005

"As I watched the machine scraping away the first buckets of soil, one thought kept clanging through my head. If this is allowed to happen, we might as well give up now."

— George Monbiot (2007), on the opening of a huge opencast pit coal mine in Wales

"We have always known that heedless self-interest was bad morals. We know now that it is bad economics."

— Franklin Delano Roosevelt, Former US President

I. Overview

Refugees have been common throughout human history. However, some major factors, which are different from the reasons for refugees in the past, may combine to produce hundreds of millions of environmental refugees in the 21st century: (1) global heating and other types of climate change that affect disease transmission, (2) globalization of transportation, (3) loss of agricultural lands and productivity of foodstuffs, (4) reduced petroleum (i.e., cheap energy) availability, which, in turn, affects mechanized agriculture, fertilizers, food transport, and refrigeration, (5) probable globalization of resource wars over diminishing resources, (6) continued exponential human population growth, now 1.5 million additional individuals per week, and density of people, thus increasing demand on diminishing resources on a finite planet.

2. Worst Case Scenario

Plans should always be available for a worst case scenario because these "hard landings" do occur and leave the optimists floundering. However, an optimistic, "soft landing" scenario could also occur, if there are substantive plans to cope with global change. Finally, an intermediate level scenario – "bumpy landing" – should also be considered because all three types of landings will almost certainly occur each century. Planning should occur at all levels of societal organization, from regional to global. Of course, resource wars could turn optimistic scenarios into worst case scenarios, as could civil wars caused by ethnic or religious differences. These problems are all overwhelming, so society should remember that it brought them on itself by unsustainable resource consumption.

3. Causes

Events that cause people to become environmental refugees are quite varied. Some illustrative causes follow: reduction in agricultural productivity, rise in sea level (affecting low lying islands and coastal areas), increase in transmittable diseases, loss of municipal and/or irrigation water, desertification, and pollution. In most cases, the movement of refugees is neither organized nor anticipated fully by the "host" region. Even with careful planning, only a few places on Earth have sufficient surplus of natural resources to accommodate a large surge of additional people. In the event of one or more global catastrophes (e.g., rising sea level and severe food shortages), regional organizations would probably be overwhelmed unless they had planned for such emergencies (e.g., food, housing, health). Anarchy is a probable outcome when the refugees are starving and the locals will not share food and other resources to the degree the refugees think appropriate.

4. Synergy

Global climate change, reduction in cheap energy, and exponential human population growth are all problems affecting the entire planet, and they are interactive (i.e., effects are not isolated from each other). For example, water shortages in one area that cause a refugee problem are likely to have significant

lesser effects in nearby areas, causing stress even before the refugees arrive. Under such circumstances, people may be even less willing to share their remaining resources.

5. Regional Responsibility

Not only is regional planning for coping with environmental refugees a must, but the population of each region should be prepared to avoid becoming environmental refugees. If this planning were accomplished skillfully and the public were informed about the evidence and reasoning, the flow of refugees might be reduced from a surge to a trickle. For example, low lying oceanic islands will probably be adversely affected by sea level rise since greenhouse gas emissions are still rising substantially and are likely to rise even faster as the large number of new coal fired plants goes online. Monbiot (2007) notes one view that mining and burning coal are justified by the prospect that, one day, carbon emissions might be captured and buried in geological formations – a process designated as carbon capture and storage. However, Monbiot (2007) further notes that the technologies available for carbon capture and storage might never become available. If this technology does not become available soon, greenhouse gas emissions will increase further and accelerate sea level rise. Densely settled coastal areas beware – these populations could become environmental refugees!

6. Triage/Carrying Capacity

The triage system was developed for military causalities when medical staff and facilities were inadequate for the number of wounded. In this system, the wounded were divided into three categories: (1) those who would survive, regardless of treatment, (2) those who would not survive regardless of treatment, and (3) those for whom treatment would make a significant difference.

The basic assumption for triage is that the medical resources, pharmaceuticals, and equipment would be inadequate to provide treatment for all patients. The same situation is likely to occur when conditions result in huge numbers of environmental refugees. In such cases, human mismanagement was probably responsible. In natural systems, species that exceed regional carrying capacity suffer major reductions in population size until the carrying capacity is no longer exceeded. Ecological overshoot evidence demonstrates that humans are using about 30% more of Earth's resources globally than nature can regenerate. So, most areas of the world are already exceeding regional or national carrying capacity and, therefore, should not further exceed carrying capacity and make matters even worse. However, average citizens are poorly informed about both ecological overshoot and carrying capacity and are thus likely to ignore ecological limits such as carrying capacity.

An ethical/moral justification exists for not using the triage approach either for nations exporting environment refugees or for the nations that the refugees enter. Globalization has frequently resulted in eliminating natural capital to plant crops for export (e.g., cutting down native forests to produce palm oil for export). In short, a global marketplace decision

was made instead of a local/regional carrying capacity decision. Of course, at least some local people were involved in this decision to favor the global marketplace decision, but *Homo sapiens* has become a global species functioning in some ways as a global society. Globalization has been a major factor in the vast disparity in wealth and resource consumption between the few ultra rich and the many ultra poor. In addition, globalization has not been beneficial for the biosphere, and the result is ecological overshoot and reduced carrying capacity. At the heart of this issue is the degree to which *Homo sapiens* views itself as an interacting, interdependent communal species. A key element is the degree to which humankind reduces the disparity of resource allocation within its own species and with other species that collectively comprise Earth's biospheric life support system.

At a global level, resource wars are already in progress. As resources become increasingly scarce, a temptation to use nuclear weapons may arise. However, conventional weapons are also a problem. One US government study has estimated a total of 215 million guns in the United States, with about half of all US households owning one (Harris 2007). Imagine how these guns might be used if hundreds of thousands of environmental refugees, who have lost most of their possessions and are desperate for food, shelter, clothing, and medical care, flee to the United States. At present, an average of almost 8 people under 19 years of age are shot dead in America every day.

The Bahamas are low lying islands fairly close to the coastline of the southeastern United States. In 2007, the total human population of the Bahamas was estimated to be 305,655. Both the actual sea level and storm surges during hurricanes determine how long these islands will remain habitable. The worst possible case scenario could result in over 300,000 Bahamians fleeing to the coast of Florida in the United States, even though Florida would also be affected by sea level rise and storm surges. No substantive planning has been made public for such an event.

Brown (2007) notes:

> If all of Greenland melts, something we were previously assured would take thousands of years, but now could be hundreds, then sea level round the world would rise seven metres. That is without any contribution from the Antarctic, the glaciers of Alaska, the Rockies, the Himalayas, or the ocean water expanding as it warms.

Farther inland in the United States, the drinking water supply is diminishing so that in Georgia, a state adjacent to Florida, legislators have already called the water shortage a crisis (Associated Press 2007a). Add to this situation the environmental refugees, and the problem would worsen dramatically. Lohan (2007) notes that this type of situation is a global problem.

7. Disease

Numerous present day examples indicate what future refugee problems will be like. About two days after a stressful escape from Rwanda, the more

than 250,000 refugees who arrived in Tanzania were soaked by heavy rains, which added to the miseries of inadequate shelter and food (Lorch 1994). From a carrying capacity standpoint, the cause of the exodus of refugees matters little; the important factor is that the number of environmental refugees will probably increase dramatically due to environmental problems, such as climate change and reduced production of food. In 2002 in Afghanistan and neighboring Pakistan, where an estimated 5 million people lived in overcrowded refugee camps, normally benign diseases rapidly became lethal (Dyer 2002). As the BBC News (1999) noted, the main health risks facing refugees are created by a lack of simple human needs – clean water, food, and shelter. The BBC further notes that, in the cramped and basic conditions of a refugee camp, disease gains a strong foothold and can spread quickly throughout the population. Although the World Health Organization has warned that stopping the spread of new and emerging diseases depends more than ever on the ability of governments to coordinate surveillance and containment efforts with other nations (Livingston 2007), society is not coping well globally with present numbers. These numbers could increase an order of magnitude in the first half of the 21st century.

Part of the problem in handling the spread of disease is that information does not get to the public. For example, in October 2007, the US Center for Disease Control and Prevention report was reduced from 14 pages to 4 pages by the White House staff (Associated Press 2007b). The focus of the report was the effects of climate change, including global heating, on human health. Specific scientific references to potential health risks were removed by unnamed persons whose scientific credentials to do so were not specified.

8. Housing

Many of the people displaced from New Orleans by Hurricane Katrina, which hit the US Gulf Coast in August 2005, are still not resettled in their original dwelling areas and may never be because protection is still not satisfactory against a Katrina or worse storm. In addition, at present (October 2007), wildfires are still raging on the west coast of the United States and have displaced nearly 1 million people. Many refugees in the San Diego, California, area were housed in the National Football League stadium. A similar housing of displaced people (in the Superdome) did not work well for long-term housing in New Orleans after Hurricane Katrina. This set up will likely not work well in California either. Many of the refugees in New Orleans had few or no resources of their own. The refugees in California appear to be more affluent, but their homes may have been their largest financial asset. Many of the house trailers allocated to New Orleans refugees were reported to be unsatisfactory. One hopes the situation will be better in California.

The American Psychological Association (APA; 2007) reports that one-third of Americans are living with extreme stress and that 48% believe that their stress has increased over the past five

years. Although money and work are still the leading causes of stress for 75% of Americans, the APA survey also found that the housing crisis affects 51% of Americans, who cite rent or mortgage costs as sources of stress this year. The toll of stress includes health problems, poor relationships, and lost productivity at work. Adding millions of refugees to this stress load could only make matters worse. Arguably, half the world's human population is poorly or marginally housed. Under such situations, any sizable number of refugees poses an essentially insurmountable problem.

9. Schooling

Teaching for educational purposes is difficult when students are hungry, lack potable water and adequate shelter, and face rising incidence of disease. Add to this situation the language barriers, and the task is next to impossible. However, a sound education is essential to survival in a rapidly changing world. Clearly, the curriculum should be modified to recognize the new circumstances. The children are the future, and society is responsible for preparing them for the future in the best way possible.

10. Citizenship

Environmental refugees who were driven to relocate because they had exceeded the carrying capacity of their home region will not be able to return soon, and many will not be inclined to make the attempt. If the number of refugees is large, as is likely in catastrophic times, the local "host" carrying capacity might well be exceeded. This situation could create a series of cascading nomadic refugees who will create a cascading series of problems. Good citizenship requires that such situations be both anticipated and avoided. This plan, in turn, requires some sacrifice on the part of each individual for the good of the community. Keeping within the carrying capacity of the region will be a major undertaking that will not succeed without the wholehearted cooperation of a significant majority of society. May *Homo sapiens* be up to the challenge!

11. Conclusions

Extensive consideration should be given to the looming global food crisis caused by climate change, fuel shortages, and the increased demand for biofuels that shifts food to ethanol production (Vidal 2007a). The global food crisis is evident in empty food shelves in Caracas and food riots in West Bengal and Mexico (Vidal 2007a). Soaring prices for basic foods is beginning to lead to political instability, with governments being forced to step in and artificially control the costs of bread, maize, rice, and dairy products. Record world prices for most staple foods have led to an 18% food price inflation in China, 13% in Indonesia and Pakistan, and 10% or more in Latin America, Russia, and India, according to the UN Food and Agricultural Organization (as quoted in Vidal 2007a). If such conditions persist or worsen, environmental refugees are likely to result. Worsening agricultural productivity could easily worsen a bad situation quickly.

The environmental refugee problem will undoubtedly worsen. First, the

International Energy Agency (IEA) predicts that greenhouse gas emissions will rise by 57% by 2030 compared to present levels, leading to a rise in Earth's surface temperature of at least 3°C (5.4°F) (Staff Writers 2007). Second, many of the largest food and fuel companies risk climate change disaster by driving the demand for palm oil land biofuels grown on the world's great peat deposits in Indonesia (Vidal 2007b). Carbon is released when virgin forests are felled and the swampy peatlands are drained to provide plantation land. Both decomposition and fires could release greenhouse gases for decades.

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