

PEACE, GLOBAL WARMING, ECOLOGICAL OVERSHOOT, AND RESOURCE WARS

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In addition to the usual threats to world peace, a number of other destabilizing factors affect human society: global warming, ecological overshoot, and resource wars. These factors are interactive and often have positive feedback loops, making the effects worse than linear extrapolation indicates. Peace will more likely be achieved if: (1) empathy markedly increases for members of the human species and compassion grows for the other life forms with which humans share the planet, (2) immediate steps are taken to eliminate the ecological overshoot that threatens the biospheric life support system upon which survival of the human species depends, (3) strong, immediate action is taken to reduce anthropogenic greenhouse gases responsible for global warming and other types of climate change (e.g., changes in rainfall patterns, increased storm intensity), (4) humankind finds ways to begin taking measures immediately for significantly diminishing global inequities in resource distribution, (5) humankind stabilizes its population level and resource consumption to a sustainable level, and (6) the success of the above actions is judged by a marked reduction in or elimination of resource wars.

We appear to be a species out of control, setting in motion processes that we do not understand with consequences we cannot foresee.

Lester R. Brown

Only a species out of control would destroy both its habitat and its biospheric life support system. Until humankind accepts that it lives on a finite planet with finite resources, peace will be difficult, arguably impossible, to achieve. Until global warming, other types of climate change, ecological overshoot, and resource wars are markedly reduced or eliminated, the search for peace will be futile.

Global Warming

Although mainstream science has accepted the evidence of global warming for some time, the present US administration persists in focusing on technological solutions. Still, even if the Kyoto Protocol were implemented, persuasive evidence suggests that its implementation would not be adequate to eliminate the problem. In fact, some scientists believe that an irreversible tipping point may have already been reached for global warming. Britain's Hadley Center for Climate Prediction and Research, using computer models created by the combined power of more than 95,000 computers in 150 countries, dramatically increased the prediction of future warming. The Center's Myles Allen stated, "The danger zone is not something we are going to reach in the middle of this century—we are in it now." As if this grim statement were not enough, a *Christian Science Monitor* article has noted that India, China, and the United States are planning to build 850 new coal-fired power plants that would generate up to five times more carbon dioxide than would have been diminished by the Kyoto Protocol. Rejection of mainstream science by two of the world's most populous countries (India and China) and the world's largest contributor (United States) of anthropogenic greenhouse gases (Table 1) does not bode well for either peace or the future of humankind. Since the prospect of resource wars and a less habitable planet for humankind is so appalling, one can only continue to espouse peace and sustainable use of the planet and hope that reason and the evidence of mainstream science will prevail.

Although the body of evidence is not as substantial as that for global warming, the possibility of anthropogenic ocean acidification by increasing atmospheric carbon dioxide (Orr and others 2005) deserves serious attention. Atmospheric carbon dioxide is also, ironically, a major factor in global warming. Surely, the prospect of ecological disequilibrium in both terrestrial and oceanic ecosystems, with deleterious effects on both peace and sustainable use of the planet, should be a major cause for concern. Gerda Hasselfeldt (Reuters 2005), a German conservative policy maker, has noted that climate change played a role in the intensity of Hurricane Katrina. Insurance companies are taking global warming seriously (ENS 2005a), perhaps that action should convince policy makers in both government and business to follow this example in those countries that

Table 1. Top Ten Carbon Dioxide Polluters

	Million Metric Tons CO ₂
1. United States	1,494.60
2. China	740.38
3. Russia	405.04
4. Japan	288.41
5. U.S. cars and light trucks	260.00
6. India	252.55
7. Germany	227.51
8. United Kingdom	147.36
9. Canada	138.46
10. Italy	119.98
11. South Korea	107.51

Source: Sierra Club, sierraclub.org

have not accepted the evidence of mainstream science. The costs of cleanup are still not precise, but debris in New Orleans is everywhere and the cleanup is just the beginning of estimating the costs (Abraham 2005) since, in New Orleans alone, 160,000 houses were recently underwater. The ecological harm from Hurricane Katrina has been described as unprecedented (Daley 2005), and the evidence is still mounting. Severe ecological damage will reduce the region's carrying capacity for humans, plus natural capital and the ecosystem services it provides. The "Pentagon Report" on global warming (Schwartz and Randall 2003), based on interviews with leading climate scientists, discusses how an abrupt climate change scenario could "potentially de-stabilize the geo-political environment, leading to skirmishes, battles, and even war due to resource constraints" and, although disquieting, is one of the best analyses on this topic.

A report from the World Bank asserts that nearly a fifth of all ill health in poor countries and millions of deaths can be attributed to environmental factors such as climate change (including global warming) and pollution (including pesticides and other hazardous substances) (Vidal 2005). Global warming increases the spread of malaria and dengue fever and also leads to lower yields of some crops. In addition, although Hurricanes Katrina and Rita had enormous effects on humans, the effect on the US budget is estimated to be over 200 billion for cleanup in the US Gulf Coast (MacGuineas and Cheng 2005). Since the fiscal situation was already precarious before the hurricanes, this added burden will almost certainly lessen social stability and reduce the prospects for peace.

Ecological Overshoot

The term *ecological overshoot* refers to growth significantly beyond a region's carrying capacity (e.g., Meadows et al. 2004) that usually results in misery and starvation, which, in turn, leads to resource wars (Catton 1980). However, the general public and most of its leaders are either unaware of the problem or choose to ignore it. If the overshoot worsens, as seems likely if the problem is ignored, resource wars will intensify and become even more widely spread.

Arguably, the key individual who argued that resource limitation is an absurd idea was Julian Simon (1932-1998), a Professor of Business Administration at the University of Maryland (e.g., Simon 1981, 1999, Simon and Kahn 1984). I have two problems with Simon's approach. First, it is extremely homocentric to view Earth as an unlimited resource base primarily for *Homo sapiens* and not give significant attention to humankind's ethical relationship with other life forms. The ecological overshoot indicates that humankind is not markedly concerned with its ethical relationship with other living members of its species or for posterity. Second, Simon does not acknowledge humankind's dependence on the biospheric life support system, which, as James Lovelock has shown, has kept the planet habitable for the human species. However, if humankind persists in destroying both natural capital and the ecosystem services it provides, the biospheric life support system may not continue to maintain conditions that have favored humans for 160,000 years. To facilitate sustainable use of the planet, three conditions must be met (Cairns 2005): (1) stabilize the human population at a level within Earth's carrying capacity, (2) replace unsustainable practices with sustainable practices, and (3) repair damage to the biospheric life support system (ecological restoration).

Ecological overshoot poses two major threats to peace. First, it reduces the carrying capacity of the region in which it occurs, thus worsening the degree of stability. This overshoot is virtually certain to increase the number of environmental refugees. Second, excessive use of fossil fuels (a significant factor in overshoot)

will worsen the problems of global warming and climate change, which will be major obstacles to achieving peace.

A trend of rising global temperatures has been occurring for 25 years, and data from 7,200 weather stations scattered around the world indicate that 2005 was on track to be the hottest year on record (Eilpenn 2005a). Global warming has already produced both societal and ecological disequilibrium, which are two major threats to peace. Global warming is linked to increased storm intensity (e.g., hurricanes), which often requires massive reconstruction efforts and produces large numbers of environmental refugees. Danger also exists for esthetic and cultural values; for example, lawyers are urging the UNESCO World Heritage Committee to place Mount Everest on its endangered list because climate change is melting snow and ice on the world's tallest mountain (ENS 2005b). As Friends of the Earth note, this melting has swollen Himalayan lakes, thus increasing the risk of flooding, so this event is not a localized peril.

Persuasive evidence indicates that nearly 75% of American adults agree that protecting the environment is important (The Harris Poll 2005). Of these, only 12% described themselves as active environmentalists. The poll has many details well worth viewing. Properly implemented, stronger laws might markedly diminish ecosystem loss, which should reduce the increase in ecological overshoot, but would not eliminate the overshoot. Still, it is a superb first step.

In contrast, a counter trend is strong. For example, oil companies wish to drill in the deeper waters of the Gulf of Mexico, despite the two recent hurricanes that have resulted in concern about the wisdom of placing so many energy bets in such a high risk region. The key issue becomes: should environmental risks of this magnitude be undertaken to continue major dependence on fossil fuels without a major policy of increasing energy efficiency and major immediate development of alternative energy sources suitable for long-term sustainable use? If alternative, sustainable use energy sources are not developed, resource wars will intensify and will diminish the prospects of peace.

Resource Wars

Three major types of resource wars (e.g., Klare 2001) interact with each other. First are the seemingly endless wars between nations over resources (e.g., oil). The basic goals of these resource wars are usually masked by demonizing the opposing group or by using a surrogate goal, such as bringing democracy to a region by eliminating an oppressive government. The second type of resource war is the war with nature, which consists of the destruction of natural habitat that both stresses and eliminates the species inhabiting it. The third type of resource war is the act of permanently acquiring resources (e.g., land) used by other life forms.

A report released by the United Nations indicates that the world is witnessing fewer wars (LaFranchi 2005). The report concludes that global conflict prevention and post-conflict peace building efforts are becoming both more numerous and more effective. However, any one paying modest attention to the conflict in Iraq is well aware that much remains to be done.

Major problems exist with determining how long Earth's overused resources will last: (1) the information is often shockingly inaccurate (e.g., Connor 2005), (2) estimates of use are not based on exponential growth of either human society or resource use, and (3) changing environmental conditions may reduce the amount available (e.g., ENS 2005c, Breshears et al. 2005).

The probability of resource wars would be markedly diminished if (1) humankind lived sustainably on the planet, (2) leaders and citizens paid more attention to scientific evidence, even when it appears to conflict with either political ideology or matters of faith, (3) humankind took precautions to minimize the impact of episodic events that reduce resource supply and availability, and (4) resource wars were so labeled instead of masking their purpose by mislabeling them. Fewer people would be willing to attack, kill, and maim others in order to avoid reduced energy use levels, develop alternative sources of energy (e.g., solar and wind), or develop a comprehensive energy policy. Since extreme weather events exacerbated by anthropogenic greenhouse gases are highly probable (Eilpenn 2005b), precautionary measures to decrease the likelihood of resource wars are essential.

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