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Sovereignty in an Era of Klimakatastrophes

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Not everything that is faced can be changed.But nothing can be changed until it is faced.

James Baldwin

We are become as gods, destroyers of worlds. **The Gita**

Ingratitude is a crime more despicable than revenge, which is only returning evil for evil, while ingratitude returns evil for good.

William Jordan

Sovereignty – the exclusive right to have complete control over an area of governance, people, or oneself (Wikipedia). Sovereignty carries with it responsibility.

Sovereignty – the absolute right to govern (*Black's Law Dictionary*)

These definitions of sovereignty were developed before economic globalization occurred and klimakatastrophes became a reality. Basically, what the average citizen of a nation-state expects is security, especially from catastrophic events with deleterious, even life threatening, consequences that would jeopardize both present and future generations. In the past, the major threat to security has been perceived as invasion by hostile military forces. However, in a world with an exponentially growing human population that is leading to increasingly crowded conditions, security could mean protection against pandemic diseases. The global food shortages of spring 2008 increase the number of starving people and lower their resistance to disease.

Central to this situation is rapid climate change, which affects food supply, the transmission of disease, water supply, and many other factors concerning human health and well being. Rapid climate change is affected by anthropogenic greenhouse gas emissions, which are still rising markedly. Worse yet, instead of reducing fossil fuel consumption, which would reduce greenhouse gas emissions, leading nations are preparing for resource wars. For example, Klare (2008) reports that the major industrial powers are becoming more desperate in their drive to gain control of what remains of the planet's untapped oil reserves. This situation is regrettable since resource wars and preparations for resource wars divert substantial energy and resources from development of alternative energy sources and increasing efficient use of energy.

The pivotal question is: how much time does humankind have before human plans are overwhelmed by the forces of nature? McKibben states: "If we don't get it right this time and we punt it 10 years further down the road, in ten years all we're going to be doing is figuring out how to adapt to changes" (as quoted in Lavelle, 2008). Complex systems, both societal and ecological, are fragile and likely to reach disequilibrium suddenly upon reaching a tipping point. Most important, tipping points are often not identified until they are reached. Even when such tipping points as peak oil are identified, humankind has failed to prepare for them adequately. For example, oil was discovered in the state of Pennsylvania in 1859, and, from then through 1973, the United States was the dominant player in the global

energy business (Bryce, 2008). In fact, for most of these years, the United States was both the dominant producer and dominant consumer of oil and gas on the planet. A half century ago, US-based energy companies pumped about 45% of all oil produced outside the United States. At present, that percentage has fallen to 10% (Bryce, 2008). In 1970, US oil production hit its all time high of 9.6 million barrels of oil per day. Since then, US oil production has been in a gradual decline (Bryce, 2008). However, the increase in oil consumption and declining oil production of the United States ensured that protectionist polices would not last (Bryce, 2008). Increased efficient use of energy, a highly commendable objective in itself, will not necessarily reduce energy demand and will not make the United States energy independent. Neither will biofuels. Increased prices for grains have moved the biofuel debate into a new ethical/moral framework. State officials in the United States are responding to this new values crisis. Governor Rick Perry of Texas has formally requested that the federal government relax biofuel requirements imposed on his state. The Missouri legislature is considering a rollback of its own recently passed law requiring that gasoline must have a minimum percentage of ethanol (Cox, 2008). A local dairyman and a local farmer both predicted, quite accurately, what would happen when politicians proclaimed that biofuels would result in energy independence. However, the agricultural lobby has legendary clout in the nation's capital of Washington, DC, so current biofuel targets, along with heavy subsidies that keep the industry alive, will stay in place for now. The US Congressional farm bill, in final stages of approval, cuts the corn-ethanol subsidy by only 6¢ to 45¢ per gallon, while the subsidy for the "next generation" of ethanol (to be made from grass, straw, and other cellulosic materials) will rise to more than US$1 per gallon. To soften the rapid food/price inflation that is expected to result, the new law will increase food aid to lower income citizens (Cox, 2008).

The Ecolate (Systems) Perspective

Part of the problems just described is the lack of a systems perspective, called *ecolate* by Hardin (1980). The ecolate perspective must be associated with both numeracy and literacy. If this perspective had been employed in the past, neither the biofuels debacle nor the energy "crisis" would have occurred — nor would the Myanmar (Burma) cyclone toll have been as severe as it was — nor would the "Boxing Day" tsunami of 2004, which took abut 230,000 lives (Ghosh, 2008). In Myanmar, the destruction of mangrove forest left coastal areas exposed to the devastating force of a cyclone (Kinver, 2008). However, the catastrophe was not heightened by just loss of mangroves. Citizens had learned, through trial and error, that early warning was not enough — preparation also demands public education and political will (Ghosh, 2008). In an age when extreme weather events are clearly increasing in frequency, the world would do well to learn from these various situations. May it be so!

The End of Business as Usual

For individuals with modest environmental literacy, numeracy, and ecolacy, the beginning of the end is already in sight. However, in most of the world, exponential economic growth is still an extremely desirable goal. The abundant energy "party" remains in full swing (i.e., frequent airplane flights, personal transportation, energy intensive homes) for the very wealthy and the upper middle class. The very poor are worried about being able to purchase food; they may spend as much as 70% of their income on foodstuffs. About 215,000 people (births minus deaths) are being added to a finite planet daily (Engleman, 2008, p. *x*). Last, but far from least, humankind continues to damage the world's ecosystems,

such as the oceans, Amazon and Indonesian forests; destabilize the global climate; and mismanage the planet's finite supply of water. The cornucopian view (i.e., infinite resources) still prevails in many nations, but the billions of poor know this approach is delusional.

Rae-Dupree (2008) remarks: "Habits are a funny thing. We reach for them mindlessly, setting our brains on auto-pilot and relaxing into the unconscious comfort of familiar routine." She quotes William Wordsworth's prophetic 19th century statement: "Not choice, but habit rules the unreflecting herd." However, now the habits developed during the era of cheap, abundant energy will kill much of humanity if it fails to direct its own change by consciously developing new, sustainable habits. Rae-Dupree (2008) notes: "In fact, the more new things we try – the more we step outside our comfort zone – the more inherently creative we become, both in the workplace and in our personal lives."

However, time is too short for individuals to solve the global climate crisis, although individual actions can make a huge difference. If the world's sovereign nations cannot prevent catastrophes in an era of globalization, one wonders about the value of their existence in the future.

Three Illustrative Case Histories

Renton (2008) notes that, unlike global heating, the science of oceanic fish stock collapse is old and its practitioners have been in agreement since the 1950s. Yet, Callum Roberts (author of *The Unnatural History of the Sea*, 2007) can think of only one international agreement that has actually worked and preserved stocks of an exploited marine animal – a deal in the Arctic in 1911 to regulate the hunting of fur seals on the Pribilof Islands. So why has the international community failed so badly in its attempts to stop the long heralded disaster with fish? "Quite simply," Roberts says, "agreements and deals brokered by politicians will never be satisfactory. They always look for the short-term fix" (as quoted by Renton, 2008). Roberts and his team at York University conducted a survey of the last 20 years of the European Union ministerial decisions on fish catches and found that, on average, quotas were set for fishing fleets 15% to 30% higher than those recommended as safe by scientists (Roberts, as quoted by Renton, 2008). Roberts even found that often, for less threatened species such as mackerel or whiting, the quotas were set 100% higher than limits recommended as safe by scientists. This illustrative case history provides persuasive evidence that, even when the scientific evidence has been collected over a long time period, the politicians selected by sovereign nations chose to ignore it, since they should have been aware of it. Of course, the politicians could have chosen not to seek information from scientists, in which case they were not serving their sovereign nations well.

The second case history is based on the overuse of fossil fuels, which has resulted in global heating. This case history involves a large, complex system with comparatively complex physics and chemistry. Furthermore, unprecedented in human history is the 387 parts per million (ppm) carbon dioxide present in the atmosphere. This level is dangerously close to what many scientists regard as the next climate tipping point of 400 ppm atmospheric carbon dioxide (Climate Watch, 2008). Of course, the concentration producing a tipping point that will cause irreversible climate damage is not known until it has been exceeded.

One of the world's leading climatologists, James Hansen, articulates why climate change, peak oil, and human well being all argue for a massive shift in greenhouse gas emissions (Steffen, 2008). Hansen and his colleagues conclude that (Steffen, 2008)

> if humanity wishes to preserve a planet similar to the one on which civilization developed and to which life on Earth is adapted, CO_2 must be reduced from its present 385 ppm (parts per million) to, at most, 350 ppm. . . . peak CO_2 can be kept to about 425 ppm, with large estimates for oil and gas reserves, if coal use is phased out by 2030 (except where CO_2 is captured and sequestered) and unconventional fossil fuels are not tapped substantially. Peak CO_2 can be kept close to 400 ppm, if actual reserves are closer to those estimated by "peakists," who believe that the globe is already at peak global oil production, having extracted about half of readily extractable oil reserves.

Restraining atmospheric carbon dioxide will be a daunting task given present discharge of anthropogenic greenhouse gases, rising global demand for oil, and the rate at which coal-fired, steam-electric power plants lacking carbon sequestering capability are being constructed. Still, cautious optimism is justified. In the United States, families may face spending US$6,000 per year on gas (Clayton, 2008). Nariman Behravesh, chief economist at Global Insight (Lexington, MA, USA) forecasts that oil at US$120 per barrel would make a mild recession a little deeper; oil at US$150 per barrel would make a fairly serious recession likely (Clayton, 2008). O'Grady, (2008) notes that the curse of the 1970s – rampant inflation and stagnant economic growth – could return and drive humankind into some dangerous choices. For example, James Lovelock asserts that "any risks posed by nuclear power are small when compared with the 'fever' of heat-trapping carbon dioxide produced by burning coal, oil, and other fossil fuels" (as quoted by Revkin, 2006). However, opponents of nuclear power argue that mining uranium and building nuclear plants release huge amounts of carbon dioxide and that the danger from accidents or terrorism is too great (Revkin, 2006). In addition, safe, long-term storage of high-level nuclear wastes has not yet been resolved, and nuclear power plants (as well as coal-fired plants) require substantial amounts of cooling water – a major problem in areas with severe droughts.

Global climate change must receive more attention, including mandatory cuts in greenhouse gas emissions (Editorial, 2008). However, the science and the politics are far from congruent and, at present, unlikely to become so. Although China has overtaken the United States as the largest emitter of carbon dioxide; on a per capita basis, it still produces less than one-fifth of what the United States produces (Kull and Miller, 2008). Political leaders in the United States have used the fact that China and other developing countries have refused to limit their greenhouse gas emissions as a basis for refusing to limit US emissions. Scientific evidence indicates that a major reduction in greenhouse gas emissions, which will require the participation of all sovereign nations in order to succeed, is essential to reduce the probability of klimakatastrophe. Ironically, majorities of both Chinese (70%) and Americans (59%) agree that climate change is a pressing problem and that "it is necessary to take major steps starting very soon" (Kull and Miller, 2008). Clearly, two of the world's leading greenhouse gas emitters have failed to address a problem that is already proving catastrophic to human society. If a sovereign nation fails to protect its citizens from klimakatastrophes at the global level, its political stability will be badly weakened. Diamond notes: "Societies aren't murdered. They commit suicide, they slit their wrists and in the course of many decades, stand by passively and watch themselves bleed to death (as quoted by Goerner *et al.*, 2008).

The third case history concerns exponential human population growth on a finite "no-growth" planet. Engleman (2008, p. 8) sums up the woman's view of population growth beautifully: "Women aren't seeking more children, but more for their children, and we can be thankful for that." He (Engleman 2008, p. 32) further states: "We may never know the combination of factors that brought us to where we are now: 6.7 billion strong and securely occupying all of the world's continents." However, he does note that "our species wouldn't have survived without women's efforts – in fact, not without adaptations and innovations that almost surely belonged to women alone." In every known pre-modern society, women performed the crucial task of ensuring that babies and children stayed alive. "Human beings are the only primate species that regularly seek assistance during labor and delivery" (Karen Rosenberg and Wenda Trevathan as quoted in Engleman, 2008, p. 36). Historians of childbirth believe bipedal females had to go against what must have been a deeply ingrained instinct and seek assistance before the birth process began. "At some point in the distant past, at least, midwives gained their unique expertise, and obstetrics – the true 'oldest profession' – was born" (Engleman, 2008, p. 39). This event was momentous because midwives guide infants through the most dangerous moment of all of life. Obviously, enough human infants survived to greatly expand humankind's numbers. Women reduce infant deaths. A noble effort that improves the lives of individuals but does increase population growth markedly. Surely we can express compassion for individuals while staying within the planet's carrying capacity for humans at a level that ensures a quality life. Failure to do so increases the probability of perpetual resource wars. Sovereign nations have failed to keep human populations at or below carrying capacity (as evidenced by ecological overshoot). The "do-nothing" default position is to let nature reduce the population by starvation, disease, and death. This is definitely not evidence of responsibility.

Persuasive evidence (e.g., global food shortages) now exists that counteracts the perpetual growth concept of economists and the cornucopian thinkers and indicates limits exist to growth. In short, exponential population growth is not, in the long term, good for people or sovereign nations. If humankind exceeds Earth's carrying capacity, as ecological overshoot indicates it has already done, population size will be reduced in ways not pleasant to contemplate (e.g., starvation, disease, death).

Discussion is lacking on carrying capacity, optimal human population size, limits to population growth, resource allocation, preserving the integrity of the biospheric life support system, or any of the numerous other details that would be discussed if a spaceship trip to Alpha Centauri were being planned. China has made efforts to stabilize population growth, despite a storm of criticism from other countries that are doing next to nothing to stabilize their human populations.

Conclusions

Overuse of fossil fuels is leading to ever increasing greenhouse gas emissions. If present trends continue, klimakatastrophes are inevitable. Sovereign nations are not implementing or even developing policies to prevent or reduce the number and intensity of catastrophes. An exponentially growing human population has resulted in a substantial ecological overshoot that, if continued, will be catastrophic. Finally, resource wars could intensify if sovereign nations fail to discuss resource allocation. Not much time is remaining to resolve these issues, and nations have yet to begin substantive discussions.

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References

Bryce R. (2008) : If we all started driving Priuses, we'd consume more energy than before. AlterNet 10May http://www.alternet.org/environment/84982/.

Clayton M. (2008) : Get ready to spend $6,000 a year on gas. AlterNet 14May http://www.alternet.org/story/85280/.

Climate Watch (2008) : Greenhouse gas hits record level. Metro Co. 12May http://www.metro.co.uk/news/climatewatch/article.html?in_article_id=147343&in_page_id=59.

Cox S. (2008) : Drive 1,000 miles or feed a person for a year? The biofuels dilemma. AlterNet 9May http://www.alternet.org/water/84628/.

Editorial (2008) : The post-Bush climate. New York Times 14May http://www.nytimes.com/2008/05/14/opinion/14wed1.html.

Engelman R. (2008) : *More: Population, Nature and What Women Want*. (Washington, DC: Island Press).

Ghosh A. (2008) : Death comes ashore. New York Times 10May http://www.nytimes.com/2008/05/10/opinion/10ghosh.html?th&emc=th.

Goerner S. J., Dyck R. G., Lagerroos D. (2008) : *The New Science of Sustainability: Building a Foundation for Great Change*. (Chapel Hill, NC: Triangle Center for Complex Systems).

Hardin G. (1980) : An ecolate view of the human predicament. In: Global Resources: Perspectives and Alternatives: XIV Nobel Conference (Ed) C. N McRostie. (Baltimore, MD: University Park Press).

Kinver M. (2008) : Mangrove loss "put Burma at risk." BBC News 6May http://news.bbc.co.uk/2/hi/science/nature/7385315.stm.

Klare M. T. (2008) : The new geopolitics of energy. The Nation 1May http://www.thenation.com/doc/20080519/klare.

Kull S., Miller D. (2008) : Study will surely spark new emissions debate. The Pasadena Star-News 12May http://www.pasadenastarnews.com/opinions/ci_9237425.

Lavelle M. (2008) : The planet and the power of the pen. *US News*, **144(18),** 20.

O'Grady S. (2008) : The spectre of 'stagflation.' The Independent 14May http://www.independent.co.uk/news/business/news/the-spectre-of-stagflation-827745.html.

Rae-Dupree J. (2008) : Can you become a creature of new habits? New York Times 4May http://www.nytimes.com/2008/05/04/business/04unbox.html.

Renton A. (2008) : How the world's oceans are running out of fish. The Observer 11May, Focus section, p. 28.

Revkin A. C. (2006) : Updating prescriptions for avoiding worldwide catastrophe. New York Times 12Sept http://www.nytimes.com/2006/09/12/science/earth/12conv.html.

Steffen A. (2008) : James Hansen on peak CO_2 and big carbon. World Changing 12May http://www.worldchanging.com/archives/007978.html.