

Global Environmental Justice Beyond Copenhagen: Footprints, Fairness and the Future of the Planet

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Abstract

To more fully appreciate its implications, global climate change needs to be considered within the larger context of the overall distribution of eco-system services around the world currently and into the future. In particular, our present public policies and private practices in this regard can be seen to be a major ethical failure, environmental injustice on a global scale. Ecological footprint analysis provides a convenient framework for considering a more fair distribution of all eco-system services globally to achieve intra-generational environmental justice. Furthermore, it is clear that our current ecological footprints, even if fairly distributed, are not sustainable into the future without irreparably damaging eco-system services, which could result in ecological catastrophe and preclude any reasonable form of sustainability and inter-generational environmental justice. To avoid this potential catastrophe, a global paradigm shift will be needed with participation by all sectors of society. This Eco-Enlightenment will require changes in individuals, institutions and ideas - a new level of thinking about what truly constitutes progress and prosperity for all members of current and future generations.

“The world we have made as a result of the level of thinking we have done thus far creates problems we cannot solve at the same level of thinking at which we created them.” Albert Einstein

Introduction

The recent debates over the Copenhagen Protocol, although unfortunately not providing a clearly satisfying approach to the problem of global climate change, did serve to re-focus attention not only on the direct environmental and health consequences of climate change but also, and perhaps more significantly, on the underlying economic, political, social and ethical considerations driving the process. A true resolution to global climate change will require acknowledgement of our failures in addressing these underlying drivers and in particular the ethical failure of our current public policies and private practices.

Although a significant ethical failure in its own right, global climate change is just one symptom of a broader threat to global sustainable development, namely the environmental injustice of the inequitable distribution of all eco-system services. As has been recognized in the sustainable development literature, poorer nations may be in part stuck at the bottom of the development ladder, or in fact excluded from even getting on the development ladder, by adverse environmental conditions, which seem to afflict them to a greater extent and which they have less capacity to address. As developmental economist Jeffrey Sachs notes:

The greatest tragedy of our time is that one sixth of humanity is not even on the development ladder. A large number of the extreme poor are caught in a poverty trap...trapped by climate stress, environmental degradation, and by extreme poverty itself.¹

It also seems possible that some, if not much, of the “climate stress, environmental degradation” and general ecological insults imposed on the poorer nations may be due to an un-fair trade in eco-system services whereby predominantly the resources flow from the poorer to the wealthier nations and wastes flow from the wealthier to the poorer nations. Throughout history, unfair trade practices between more developed and less developed nations have been characterized by colonialist exploitation of this sort enforced by military and/or economic advantage of the former over the latter. Thus type of military-economic colonialism has been generally condemned as unfair and viewed as a thing of the past in international relations and trade. However today, military-economic colonialism has been replaced by eco-colonialism by which more developed nations use their accumulated technologic and financial advantages to disproportionately import eco-system services at the expense of the less developed nations. So, we need to seriously consider whether the poorer nations of the world are stuck at the bottom of the sustainable development ladder with such a disproportionate burden of environmental problems primarily due to our eco-colonialist policies and practices. And, if so, how do we determine the extent of our ethical responsibility to help? What is the basis of a global environmental justice?

Ethics and Ecology

Environmental justice is a question of ethics, and in the ethics literature, the idea of justice as fairness was re-emergent in the twentieth century largely due to the work of John Rawls, among others.² However, as has been pointed out several times, Rawls approach seems insufficient, particularly in the face of global issues.^{3,4} Yet when it comes to environmental issues, fairness seems to be a reasonable place to start, and fortunately many great minds have attempted to address this. For example, Peter Singer, one of the most influential ethicists of our day, has made a very strong argument that the way we live in developed countries endangers the life and welfare of those in less developed countries through our approach to consumption and the use of environmental resources in a way that is a major moral failure.⁵ In considering the issue of global climate change and the use of earth’s atmosphere as a sink for our carbon wastes, his extensive examination of the principles of fairness involved leads him to support the principle of “equal per capita future entitlements to a share of the capacity of the atmospheric sink” as a fair solution.⁶ But the atmospheric sink represents only one of many vital eco-system services on the planet, both in terms of the resources consumed and the wastes assimilated in order to maintain life. If Singer is right about the atmospheric carbon sink, perhaps we can extrapolate the argument to all eco-system services, if we can determine what an equal per capita share of all such services would be.

Fortunately, our share of eco-system services can be determined from our human ecological footprint. The ecological footprint of any given nation, organization, population or individual is the area of land and water ecosystems required to produce the resources that they consume, and to assimilate the wastes that they produce, wherever on earth the relevant land/water may be located.⁷ Thus, ecological footprints can be seen as an efficient quantitative method for measuring and fairly distributing global eco-system services to achieve global environmental justice. Unlike the arguments over the distribution of other “goods” in society, where inequalities may be fairly justified in the Rawlsian “difference principle” sense if in making some better off than others they make the worse off better also,⁸ eco-footprints by definition are exclusive areas and thus exclusive “goods”. The total amount of these “goods” is limited by the size of the earth, and people are of necessity competing for this limited amount of bio-capacity. If one person or nation co-opts more than its fair (i.e., equal) share, than another person or nation must make do with less (i.e., eco-colonialism).

Intra-Generational Environmental Justice

So how does the current distribution of eco-system services compare to this measure of global environmental justice? The answer is quite disheartening. The average global ecological footprint is estimated to be approximately 1.8 ha/capita.^{7,9} In the most developed countries, the average ecological footprint is between 4-10 ha/capita, whereas in the least developed countries it is 0.33-1 ha/capita.^{7,9} A few developed countries, such as Canada and Australia, have typically large ecological footprints (e.g., about 6 ha/capita in Canada), but also have such small populations relative to their large surface area and thus their large available eco-system services that they have a surplus of biocapacity that they can export to the global commons, and in theory to less developed countries,^{7,9} which might provide an “excuse” for them for their unfairly large ecological footprint. However, even this is the rare exception rather than the rule. Almost all developed countries with their large ecological footprints have less available internal eco-system services than they consume so that they have eco-deficits of biocapacity that they must import to sustain their life-styles. Unfortunately, the U.S. is one of the worst offenders. The average ecological footprint in the U.S. is now up to 5 times that of the global average and 15 times that of the average for the least developed countries so that the U.S. has to import about half of its biocapacity.^{7,9} Developed countries with a biocapacity surplus, such as Canada and Australia, cannot come close to making up the eco-deficits of the rest of the developed and developing world, which means that the developed countries are indeed using their technological and financial advantage to take biocapacity from the less developed countries, forcing them to do with less. In other words, in order to maintain the over-sized ecological footprint of our Western life-style we are condemning a significant fraction of the rest of the world to extreme poverty and probably no chance of ever moving onto and up the development ladder. A simplistic economic argument might be that the market and/or sufficient aid (technological and financial) from the developed countries to the less developed countries would even the playing field, and in fact could over time allow the less developed countries to grow to a point of equity with the

developed world with equivalent lifestyles and ecological footprints. Unfortunately, this is not possible. The available eco-system services have a real physical limit and as noted above are exclusive in terms of use, and even with the current (mal)-distribution of available ecological footprints, global consumption of ecosystem services has exceeded the global capacity. In other words, we have already exceeded the earth's carrying capacity and passed a point of sustainability so that we are constantly and potentially irreparably running down the earth's biocapacity. We currently use the equivalent of 1.4 planet earths to provide the resources we use and absorb the wastes we generate, and even moderate projection scenarios suggest that if current trends continue we will need 2 planet earths to support us by the middle of this decade. Furthermore, we would need the biocapacity of four additional planet earths to allow the whole population of the world to live as we do in the U.S.

The impact of this over-sized and unfair ecological footprint of developed nations is profound. Due to the size of our ecological footprint, as noted we have already exceeded the carrying capacity of the planet so we are potentially irreparably damaging eco-systems and, in essence, "competitively excluding" other species from access to the habitats and resources necessary for survival (i.e., accelerated species extinction—eco-cide). Similarly, due to the unfair distribution of ecological footprints, we are forcing the less developed countries (and disadvantaged populations in developed countries) into an increasingly marginal existence so that the poorest are being "competitively excluded" from access to the resources necessary for survival (i.e., eco-genocide). But because the victims of our consumerist Western life-style, though many, remain distant, scattered, faceless and in essence invisible to us, we retreat to our walled McMansions, gated communities, and nation fortresses surrounded by security fences blissfully ignorant of our moral turpitude.

It should be reasonably clear from this argument that the present distribution of ecological footprints is unfair and needs correction. Does this necessarily mean that we all have to learn to live on our fair 1.8 ha share of eco-system services immediately and forever, which, even if it could be accomplished, would undoubtedly be traumatic for the inhabitants of the developed countries? The answer is not necessarily, but things may get worse before they can get better. Although the total available biocapacity of the planet (the numerator of the ecological footprint) is relatively fixed, population size (the denominator) is not. Unfortunately, the world's population has been growing exponentially in recent decades (with the increases occurring mostly in the least developed countries) and, due to population inertia from the demographic bulge of reproductive age, will continue to climb to an estimated global size of 9-12 billion people before hopefully stabilizing,¹⁰ and such growth will only further exacerbate the problem by further decreasing the available fair-share eco-footprint size. Fortunately, it does appear that global population growth is beginning to slow, and it may not be unrealistic to look forward to a time of actual negative population growth (i.e., population decrease) at some point in the future, which could eventually result in a larger available fair-share eco-footprint size. Obviously, the

sooner population growth is controlled the better, and the key to this process seems to be acceleration of the empowerment of women.¹¹ When women have control over their own reproductive function, they tend to limit family size. It seems increasingly accepted that women can best attain this control if they are fully empowered intellectually, economically, politically and socially. Although this may be difficult in many developing countries, it is clear that intellectual empowerment (e.g., schools for girls), economic empowerment (e.g., micro-finance loans for women's businesses) and political empowerment (e.g., women's right to vote and hold political office) can have a significant impact. This is not to suggest that this is an excuse for those of us in developed nations to do nothing about changing our own policies and practices while we wait for the rest of the world to control population growth. However, at the same time, we should be working to insure the full empowerment of women globally (which is the ethically correct thing to do anyway), so that we can help control population growth as soon as possible to achieve a reasonable fair-share ecological footprint size for all of humanity alive now and yet to be born.

Inter-Generational Environmental Justice

This naturally brings us to consideration of environmental justice for future generations. What do we owe to future generations? Can we truly achieve sustainability? Most people have adopted the Brundtland World Commission on Environment and Development definition of sustainability as meeting "the needs of the present generation without compromising the needs of future generations."¹² Unfortunately, I think this not entirely helpful since it is inherently scientifically inaccurate and vaguely indeterminate in that it implies that future generations can go on forever and that natural systems do not run down, so other definitions of sustainability have been offered.¹³ A major consideration for defining sustainability is that according to the laws of thermodynamics, all closed systems must run down, so if the present generation does anything at all it must in some sense compromise the available choices of future generations. On the other hand, the number of future generations is not unlimited (at least within our current closed system of the earth and the sun) by the fact that the sun will burn out in a few billion years; it is actually likely that the earth will cease to be habitable by humans long before that due to the cooling of the core and the termination of plate tectonics as well as the escape of the moon from its orbit and the loss of its stabilizing effect on earth's tilt. So the question of sustainability becomes how many people would we like to see live at what standard of living for how long before life can no longer exist at all on earth (assuming still that at each generation we would hope to achieve a reasonable fair-share, i.e., approximately equal, distribution of ecological footprints). Within this context, a workable re-definition of sustainability might be borrowed from the early conservation movement, namely, achieving "the greatest good for the greatest number for the longest period of time"¹⁴, with the added caveat of maintaining the least disparity in eco-system services at any given time.

No matter how you prefer to define sustainability, it seems clear that we don't behave sustainably even though we say we should, since as noted above, we have already exceeded the carrying capacity of the planet. Furthermore, in projecting the impact of our current decisions about the environment into the future, we tend to adhere to a traditional economic perspective that discounts the value of the future and the welfare of future generations. Any positive discount rate projected forward will relatively rapidly (when viewed on the geological timescale of the remaining life span of a habitable earth) result in the welfare of each subsequent generation being valued substantially less than the current generation, with the welfare of some *n*th future generation having essentially zero value. On the other hand, recent proponents of "green economics" in considering the effects of climate change have made forceful arguments for a longer viewpoint that would "give the same weight to future generation's welfare as we give to those now living", in essence supporting a zero discount rate.¹⁵ However, even this type of thinking may not go far enough when considered in the light of individual personal attitudes and behaviors about the value of our progeny. In general, parents tend to behave as if the welfare of their children is of higher value than their own welfare. Consider a simple example. You and your adult child and your young grandchild are marooned on a lifeboat at sea. It becomes clear that you do not have enough resources for all of you to survive to reach land safely. Who would you sacrifice first and who would you protect until the end? Most parents would sacrifice themselves first before their child and protect their grandchild until the end, clearly valuing each future generation *more than* each previous generation. In essence, this is making decisions about future generations based on a negative discount rate. Projecting this thinking globally, the current generation on lifeboat earth is running out of resources and future generations will have increasingly limited possibilities for achieving acceptable standards of living for the longest possible period of time on a habitable planet, the extent of the limitation being determined by how much the current generation (and each following generation) is willing to sacrifice for subsequent generations. So the discussion of inter-generational environmental justice and sustainability needs to focus on the combination of what number of people surviving at what standard of living for what length of time into the future we would hope to achieve and how much we are willing to sacrifice in order to achieve it. We can try collectively to reach a reasoned decision on these issues ourselves and act accordingly to control mankind's destiny, or we can continue on our current trajectory and allow nature to take its course and determine our destiny for us. It seems likely that the former course will be far more benign than the latter in which our progeny could be disastrously "competitively excluded" from the possibility of a humane existence through the ecological collapse of the planet (eco-progenicide).

Eco-Catastrophe vs Eco-Enlightenment

Are we facing an Age of Eco-Catastrophe? No one can be certain. However, it seems likely that ecological collapses of civilizations have occurred on a smaller scale in the past, and, as historian Jared Diamond has pointed out, collapse can occur much more rapidly than people expect.¹⁶ So prudence suggests that we should be prepared to take action to change our ways, and sooner

rather than later. As Nobel laureate Paul Krugman has recently made the case for action on global climate change: “And utter catastrophe does look like a realistic possibility, if it is not the most likely outcome....It would be irresponsible...not to step back from what all too easily could turn out to be a cliff.”¹⁵ What will it take to avoid the impending Age of Eco-Catastrophe? It does seem clear that these problems we have created cannot be solved “at the same level of thinking at which we created them”, so a new level of thinking must be necessary—a new way of viewing our relationship to the environment and our responsibility for it, i.e., an Age of Eco-Enlightenment.

An Eco-Enlightenment will require participation by and changes in all sectors of society. As was recently summarized in the *State of the World 2010* report of the Worldwatch Institute, what is needed is a transformation of culture from consumerism to sustainability with the participation of educational institutions, religious organizations, business, government, the media, and social organizations, among others.¹⁷ There is growing evidence that reorientation of educational institutions can strongly influence the behaviors of children and provide a platform for a lifetime habit of sustainable living. As UNESCO states, “Education at all levels and in all its forms constitute a tool for addressing virtually all global problems relevant to sustainable development.”¹⁷ Producing similar changes in the behavior of adults can be supported by the media through strategies of “social marketing of sustainability” and through social movements that demonstrate the feasibility and desirability of sustainable lifestyles and societies, including the “dècroissance” (de-growth) movement and the establishment of eco-villages.¹⁷ Likewise, harnessing the full potential of religion to change behaviors to sustainable modes has yet to be fully realized but could have enormous impact. As has been pointed out, almost all world religions have a significant eco-theological strain, encompassing both a respect for the environment and a concern for the welfare of future generations, that is consonant not only with the best in environmental science but also with the best in environmental ethics.¹⁸ Our way of doing business and thinking about economics will have to change as well. As our current economic model for doing business has been described “...we are stealing the future, selling it in the present, and calling it gross domestic product.”¹⁷ It is becoming increasingly clear that GDP does not measure our overall welfare. Subjective measures of well-being, such as perceived happiness, and objective measures of well-being, such as life expectancy, have not continued to improve with increasing per capita income and in some cases have actually declined. New metrics such as the Genuine Progress Indicator (GPI) try to better capture the well-being of the population, and GPI over the past few decades clearly demonstrates that although incomes are increasing our genuine well-being is not.¹⁷ Even more radical notions, such as Bhutan’s Gross National Happiness Index, may more fully encompass the things that make living truly worthwhile.¹⁹ And this does not necessarily mean that business will have to return to some pre-Industrial Revolution state. Businesses can, already have, and increasingly must move from the Industrial Revolution mind-set to the “Necessary Revolution” mind-set, with sustainability as a core business value, if they are to not only survive but also thrive.²⁰ Of course, governments

must also play a role because, as has been pointed out, public policy mechanisms are potentially better prepared to incorporate the necessary long time horizon view inherent in sustainability that private market mechanisms cannot easily accommodate.¹⁷ Although the vision of a single world community with a single, effective world government may be the ideal solution,⁶ it is unlikely to be achievable soon enough, if ever. But national governments have shown themselves capable of acting together to resolve global environmental issues, as, e.g., in the case of the Montreal Protocol in response to stratospheric ozone depletion from chlorofluorocarbons.²¹ In response to global climate change, cap and trade policies and national carbon taxes and carbon tariffs have been proposed as potentially effective policy tools to cure society as a whole of its carbon fuel addiction.¹⁷ Once again projecting from climate change to the broader problem of the unfair world trade in all eco-system services, perhaps what is needed for comprehensive global environmental justice would be the equivalent in ecological footprint taxes and ecological footprint tariffs. As yet though, it seems that the “life as usual” of denial and the “politics as usual” of limited self-interest preclude any real progress toward fairness and a sustainable future for the planet.

Conclusion

In the end, global environmental justice for both current and future generations will require many changes. This will include changes in individuals, changes in institutions, and most importantly, changes in ideas. In particular, we must be willing to embrace the idea that true progress and prosperity for humanity does not and cannot equal unlimited growth and consumption in a limited world.

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