#### ANNALS OF DISCOURSE

# The Tragedy of Common Sense Part One: The Power of Myth

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"[I]t is necessary to follow the common; but the many live as though they had a private understanding."
—Heraclitus¹

The topic of this discussion will be both the common and the commons. It is about the truth we hold in common, and about certain falsehoods that we hold in common. These falsehoods, which inhabit both our minds and our way of being, are called ideology. The particular object of ideology that will be investigated here is the commons. The commons consists of the places, and, indeed, the world that we hold in common, and which we have, in many ways, forsaken. This investigation aims at uncovering some of the ways in which ideology tears apart what is common and lays waste to the commons. Its subject is, in effect, the tragedy of ideology.

One of the best known and most influential arguments in contemporary applied ethics is biologist Garrett Hardin's case for "lifeboat ethics," an analysis of the moral dimensions of world hunger, foreign aid, immigration policy, and population growth. Hardin describes "lifeboat ethics" as an application to these issues of his well-known concept of the "tragedy of the commons." In a highly influential article with that title, Hardin used the term to depict a situation in which members of a group are able to exploit some common resource for their individual benefit, and in which the results are a degradation of the resource and serious harm for all members of the group.

Hardin contends that such a situation is occurring globally in relation to food resources and population growth. He argues that the world is headed toward a catastrophic crisis in which global population will reach an unsustainable level that greatly exceeds "carrying capacity," and that many countries have already exceeded such capacity within their own borders. He asserts, further, that the primary cause of the impending global crisis is the rapid rate of population growth in poor countries, and that to avert disaster, it is essential that their fertility rates be reduced to the already modest and decreasing levels of many rich countries. In addition, he holds that food aid from rich to poor countries is a major factor in producing THE unsustainably high fertility rates of the latter. More specifically, he argues that food aid causes a "ratchet effect" that prevents the population of a poor country from falling to a "carrying capacity" that would in his view "normally" constitute its limit, and instead allows it to overshoot this "carrying capacity" to an

<sup>&</sup>lt;sup>1</sup> Kirk and Raven, translation of Fragment 2, slightly abridged.

<sup>&</sup>lt;sup>2</sup> Garrett Hardin, "Living on a Lifeboat," BioScience, Vol. 24, No. 10, 1974, pp. 561-568.

<sup>&</sup>lt;sup>3</sup> Garrett Hardin, "The Tragedy of the Commons," *Science*, Vol. 162, No. 3859, December 13, 1968, pp. 1243-1248. It has often been pointed out that reproductive decisions do not in fact follow this paradigm and that the situation that Hardin describes does not correspond to the historic institution of a "commons." Thus, his "application" of this concept to population issues is at best a vague and impressionistic one.

increasing degree that will ultimately occasion global collapse. His conclusion is that citizens of rich countries have no moral obligation to send food aid to poor countries, even in cases of severe famine. Indeed, the clear implication is that it is their moral duty *not* to do so.

A goal of the present discussion is to demonstrate the need for a dialectical social ecological analysis of the interconnections between phenomena such as world population growth, food resources, poverty, and social inequality. This will be done through a critique of Hardin's non-dialectical, ahistorical, ideologically conditioned analysis and a consideration of why it has been so influential in the American academic subculture, in the larger American political culture, and particularly in some segments of the contemporary environmental movement. It is hoped that such a critique will contribute to understanding more clearly the processes through which ideology shapes political culture—and to finding ways to reverse such processes.

Part One of this discussion will include several steps. We will begin with some thoughts on the nature of ideology and the ways in which the reception of Hardin's ideas might tell us something about how ideology functions in contemporary society in general, and in academia in particular. Next, we will analyze in some detail both Hardin's lifeboat metaphor as a depiction of global society and his "ratchet effect" as an account of the impact of food aid on population. And lastly, we will look at Hardin's success as a prophet of demographic doom, and the ways in which his concept of carrying capacity relates to real-world social and demographic conditions.

#### We Hold These Falsehoods To Be Self-Evident

As a result of his iconoclastic and polemical articles, especially "The Tragedy of the Commons," Hardin became one of the most famous and most quoted American intellectuals. He won many awards for his work, including the Phi Beta Kappa award for science writing for the general public, in recognition of his outstanding communication skills. A Garrett Hardin Society was established in his honor. 4 "The Tragedy of the Commons" has been called "one of the most famous essays written in our time" and has achieved wide recognition in various areas of American science and social science. A Google search shows literally thousands of references to the work as "a classic article," "a classic essay," "a classic piece," etc., and as many as 300,000 references to its title concept. It is often described as one of the most frequently reprinted articles, and it has no doubt appeared in many more than the 111 anthologies that have long been cited by his admirers. The Garrett Hardin Society claims, not without reason, that it is "widely accepted as a fundamental contribution to ecology, population theory, economics and political science." While this article has been Hardin's most famous work, "Lifeboat Ethics" has also had a huge influence. In particular, it is one of the most widely reprinted articles in the field of applied ethics. It is almost inevitably included in sections of moral problems anthologies on global justice issues, and many, if not most, introductory ethics students will encounter it. It

<sup>&</sup>lt;sup>4</sup> See the Garrett Hardin Society website at <a href="http://www.garretthardinsociety.org/">http://www.garretthardinsociety.org/</a> for links to many of Hardin's articles, biographical information, tributes to Hardin, and much additional material.

has appeared in at least seventeen such anthologies,<sup>5</sup> in addition to being frequently included in collections in more specialized fields, such as environmental ethics and global ethics.

The article that is most often used to "balance" Hardin's "Lifeboat Ethics" article in ethics anthologies is Peter Singer's famous essay "Famine, Affluence, and Morality," which was written shortly before Hardin's article. Singer defends a "marginal utility" position in which the existence of severe food scarcities in poor countries implies an obligation on the part of affluent people to donate to food aid and famine relief to the point that further giving would reduce donors to the level of suffering of famine victims. When presented with these two positions as the foremost "living options" in the ethics of world hunger, students are trapped in a moral dilemma that begs the question of the ability of poor countries to provide for their own food needs. The two sides of the dilemma are stark contrasts: either Singer's Draconian "marginal utility" option of reducing oneself to poverty by sending food to poor countries, or Hardin's "tough-love" option of doing nothing to help while allowing the hungry to suffer and die "for their own good." It is not difficult to imagine which choice will seem more plausible on the basis of such a superficially fair and balanced philosophical inquiry into a major contemporary moral issue.

A question that remains in the background of this discussion is that of the process by which certain texts emerge as canonical works in a field such as global ethics. Such a question deserves further investigation as part of a more general inquiry into the role of ideology in the political culture. Why, one might ask, do certain articles appear habitually in ethics anthologies? Out of the hundreds of significant and illuminating articles relevant to the ethics of world population issues, why have Peter Singer's and Garrett Hardin's analyses emerged as two of the main options, and sometimes the only options, presented to students? Among the reasons are the following: 1) There is a preference for "point counterpoint" articles on ethical issues, so that an impression of fairness and objectivity, as defined by the dominant academic consensus, can be created; 2) For pedagogical reasons, there is a preference for articles with a simple argumentative structure that can be analyzed logically and tested for obvious fallacies; 3) Philosophy instructors' background and training are often

<sup>&</sup>lt;sup>5</sup> See for example: Raziel Abelson and Marie Louise Friquegnon, Ethics for Modern Life, 6th ed. (New York: Bedford/St. Martin's, 2002); Daniel Bonevac, Today's Moral Issues, 3rd ed. (New York: McGraw-Hill, 1998); Jeffrey R. Di Leo, Morality Matters: Race, Class, and Gender in Applied Ethics (New York: McGraw-Hill, 2002); Anthony Failkowski, Moral Philosophy for Modern Life (New York: Prentice Hall, 1997); Lawrence M. Hinman, Contemporary Moral Issues: Diversity and Consensus, 2nd ed. (New York: Prentice Hall, 1999); Christine M. Koggel, Moral Issues in Global Perspective (Peterborough, ON: Broadview Press, 1999); Thomas Mappes and Jane Zembaty, Social Ethics: Morality and Social Policy (New York: McGraw-Hill, 2006); Larry May, Shari Collins-Chobanian, and Kai Wong, Applied Ethics: A Multicultural Approach (New York: Prentice Hall, 2005); Jeffrey Olen, Julie C. Van Camp, and Vincent Barry, Applying Ethics: A Text with Readings, 8th ed. (Belmont, CA: Wadsworth Publishing, 2004); Louis P. Pojman, Life and Death: A Reader in Moral Problems, 2nd ed. (Belmont, CA: Wadsworth Publishing, 1999); Terrence Reynolds, Ethical Issues: Western Philosophical and Religious Perspectives (Belmont, CA: Wadsworth Publishing, 2005); Stephen Satris, Taking Sides: Clashing Views on Moral Issues, 11th ed. (New York: McGraw-Hill/Dushkin, 2007); Christina Hoff Sommers and Fred Sommers, Vice and Virtue in Everyday Life: Introductory Readings in Ethics (Belmont, CA: Wadsworth Publishing, 2003); James P. Sterba, Morality in Practice, 5th ed. (Belmont, CA: Wadsworth Publishing, 1996); Mark Timmons, Disputed Moral Issues: A Reader (New York: Oxford University Press, 2006); Louis Vaughn, Doing Ethics: Moral Reasoning and Contemporary Issues (New York: W.W. Norton and Co., 2007); and James E. White, Contemporary Moral Problems (Belmont, CA: Wadsworth Publishing, 2005).

<sup>&</sup>lt;sup>6</sup> Peter Singer, "Famine, Affluence, and Morality" in *Philosophy and Public Affairs*, Vol. 1, No. 1, Spring 1972, pp. 229-243.

rather narrowly analytical or formalist, with a bias toward conceptual analysis, as opposed to theoretical approaches that are historically and empirically grounded. Many introductory-level ethics courses are assigned to graduate assistants and junior faculty who have increasingly been under pressure to pursue narrow and technical areas of specialization and publication, which is not conducive to broad general knowledge of issues in social ethics. \*

As intriguing as these general questions concerning the place of ideology in academia may be, a more central concern here will be the ways in which typical reactions to Hardin's acclaimed essays, and "Lifeboat Ethics" in particular, show the marks of ideology. When one is in the thralls of an ideological system, ideas that reflect strongly the core value commitments and reality conceptions of that ideology take on an aura of self-evidence. One immediately forgets the empirical evidence that contradicts those ideas, no matter how obvious and familiar that evidence may be. One overlooks the most blatant contractions between those ideas and ones other beliefs concerning value and reality. In short, a pervasive process of ideological blocking systematically distorts ones thinking and evaluating. As will be demonstrated, the ubiquity of the evidence against Hardin's thesis attests to the power of the dominant ideology, the dominant imaginary, the dominant system of habitual practices, and the dominant social structure. Scattered information about states of affairs has little force in the face of a dream world of powerful images and habitually reinforced ideas that form part of a comprehensive system of embodied reality. In this context, the ideological dream world has the virtue of cohering with a world that appears powerfully real, while messages about some possibly existent alternate worlds (global society, the biosphere) can be largely filtered out as background noise.

What is it within the collective ideology and imaginary that resonates so well with the ideas and images presented by Hardin? The images in the media of thousands of helpless, often emaciated famine victims during occasional severe food crises have a great impact on the imagination. On the other hand, the unimaginable reality of a billion victims of chronic malnutrition will have no place in the social imaginary. The public knows in some vague way that large amounts of money are disbursed for foreign aid and in an ideological climate that interprets the allocation of social goods as a series zero-sum games, most can only imagine

<sup>&</sup>lt;sup>7</sup> This distinction should not be identified with the conventional juxtaposition of "analytical" versus

<sup>&</sup>quot;Continental" (i.e., European peninsular) philosophy. There are, of course, "analytical" philosophers who are engaged in empirical investigation and "Continental" philosophers who are narrowly formalistic. The issue is the degree to which a dialectical confrontation between theory and historical phenomena is undertaken.

<sup>8</sup> This impression comes in part from reading hundreds of resumés of job applicants in recent years.

<sup>&</sup>lt;sup>9</sup> As used here, "ideological dream world" is shorthand for the more-than-ideological world determined not only by the dominant ideology, but the dominant imaginary, the dominant ethos, and the dominant institutional structure. The subject constitutes a world (and is constituted by it) by thinking it, imagining it, living it, and beholding it.

<sup>&</sup>lt;sup>10</sup> Ionesco had great insight into the difference between acutely experienced personal trauma and the normal civilized response to distant tragedy: "If only it had happened somewhere else, in some other country, and we'd just read about it in the papers, one could discuss it quietly, examine the question from all points of view and come to an objective conclusion....But when you're involved yourself, when you suddenly find yourself up against the brutal facts, you can't help feeling directly concerned—the shock is too violent for you to stay cool and detached. I'm frankly surprised, I'm very, very surprised. I can't get over it." *Rhinoceros and Other Plays* (New York: Grove Press, 1960), pp. 78-79. If it happens somewhere else, we get over it.

that significant amounts of this aid must be given to the undeserving poor of the world, and that such an appropriation of their taxes must be much to their detriment.

The racist ideology and the racist imaginary that objectify domestic minority groups as lazy, criminal, breeding animalistically, greedy for handouts, parasitical—and, of course, dirty—is enormously powerful. Such ideological and imaginary processes famously resulted in almost identical images of scavenging survivors of the Katrina disaster being labeled images of "looters" in the case of blacks and images of "finders" in the case of whites. The racist concepts and images of Blacks and Latinos/Latinas, with all their accompanying baggage of fear and resentment, are easily transferred to and projected on the poor, largely non-white masses of the global South. We will consider how such transference is relevant to the generation of the ideological world of "lifeboat ethics."

#### The Power of Abstraction

For over 30 years my students have been reading Garrett Hardin's "Lifeboat Ethics" essay. I have always been struck by the powerful impact that Hardin's article, and his lifeboat metaphor in particular, have had on them. The majority of the students have been working adults from working-class and lower middle-class backgrounds, with a significant representation of ethnic minorities. However, there have also been many traditional-age students from more affluent backgrounds. Over the years, whatever the students' backgrounds and whatever their reservations about some of Hardin's views may have been, they have consistently judged his arguments to be strong and well-grounded in facts about the world. Why, we might ask, do Hardin's ideas exert such a powerful force, even among those who resist them? Why do his arguments tend to convince, even though they are quite weak. Why is his approach perceived as factually based, when almost all of his claims about states of affairs in the world are groundless, and can be seen to be groundless on the basis of even the most limited knowledge of conditions in the world? I would suggest that the answer is that they tap into aspects of the dominant ideology in a very powerful way and that they are therefore a good guide to understanding the nature of that ideology and its grip on the general consciousness.<sup>11</sup>

Some examples of comments by recent students illustrate the power of Hardin's depiction of human nature and the world. A considerable number of students accept his position with enthusiasm. One states that "Hardin's argument is valid" because "people who are always helped in times of need are going to become dependent on that cushion that is always provided for them." Another supports the idea of helping those in need, but fears that "if everyone gives too much, the lower classes will never get out of poverty and hunger, for they will get used to this system and never learn to maintain themselves or their families by their own." A third agrees with this, adding that "if everyone looks to others for help when times are tough, people will get lazy and turn to others for a bailout all the time," and that "if there is a shortcut or a way to get out of doing work, most people will take it." One student judges Hardin's ideas to be "much more practical" than those of other analysts of global problems, and adds that "his diagrams give good insight into why countries are the

<sup>&</sup>lt;sup>11</sup> The scope of this "consciousness" should be taken to include not only abstract ideas, but also emotions, feelings, mental dispositions, and "habits of mind" in a large sense.

way they are and what needs to be done." The student notes that if Hardin's prescriptions are followed, "people will die, which many people with hearts will care about and fight to save, but the fact is that once these mass amounts of people die, a country will be down to a more manageable population." Another student agrees with Hardin that "if we stick to the Christian ideals and help everyone in need, then we will all perish in the end. We must make these countries stop reproducing at such a large rate so that they can sustain the population they already have."

What I find especially striking is that many students who have mixed feelings about Hardin's views, and even some who find them disturbing, feel compelled in the end to accept the validity of Hardin's position because of what they see as its factual, commonsense basis. One student comments that "the lack of recognition of the world's poor people is immoral," but "to give large amounts of food to poor people does result in increased population." This student, like a number of others, praises Hardin's "Ratchet Effect" theory (which will be discussed in detail later), saying that "it is logical" to conclude that "when the resources are there the population will grow no matter what the circumstances." In another case, a student finds Hardin's views "a little extreme," but notes that "he has good research behind his arguments." Another who has reservations concedes that Hardin "provides factual, useful information." One describes Hardin's analysis as "harsh wisdom," commenting that "unfortunately it is hard to dispute his logic, as much as I'd prefer to believe in the ideal outlook." This student explains that Hardin shows that "the first responsibility must go to the protection of your own lifeboat" and that "debilitating yourself for the sake of trying to help others makes the whole effort a vain attempt." Finally, a student states bluntly that Hardin's outlook is not "a very moral way to look at things," but concludes that nevertheless "he has a good point" in arguing that giving aid to "poor or vulnerable people or countries" means that "they will never be able to grow on their own."

#### The Scandal of Particularity

A crucial point in the development of my own awareness of global realities occurred when I was fortunate enough to hear a speech by Jamaican Prime Minister Michael Manley when he visited my university over thirty years ago. He was preceded by a representative of a group that was helping collect food for a ship coming down the Mississippi River picking up supplies to distribute to the poor in the Caribbean. Manley expressed his gratitude for such generosity, but made it clear that what Jamaica really needed was not canned goods, but rather assistance in making the transition to an economy that helped Jamaicans fulfill their own needs and develop their own possibilities. He observed that for a long time sugar cane production was central to the Jamaican economy, and was still a major sector when he spoke (the highest level of production was as late as 1965). However, given the declining value of sugar cane in the world economy, the more Jamaica continued to rely on this traditional crop, the poorer it would become. What Jamaica needed was not charity, but rather the means to overcome such a legacy of the colonial past and the ability to shape its own future.

Manley's speech made an indelible impression on me, and I have often mentioned it to my ethics students. When discussing the Jamaican case-study, I usually pose the question of why Jamaicans would have continued to remain heavily dependent on a product such as sugar cane when doing so was so detrimental to their position in the global economy. Usually the first, most spontaneous responses are that Jamaicans must have liked producing

sugar cane, or that it's hard to break a habit. In other words, the answers follow the dominant ideology, in which it is the choice of the oppressed themselves that is at the root of their own oppression. Similar thinking often underlies the common observation that if people in poor countries did not *choose* to work in sweatshops they would not apply in large numbers for jobs in such workplaces, or continue to work there. However, it does not take long for students to realize that working in cane fields would probably not be anyone's first choice of occupation, much less that of a large labor force (some know that it is the traditional form of forced labor at the notorious Louisiana State Penitentiary at Angola). The next response, that sugar cane production is a habit (often "it's what they know how to do"), is, of course, correct. But students soon realize that the fact that something is a habit does not explain why it is this and not something else that has become habitual, or why some habits are broken, yet this one was not for a very long time. They see that the explanation is essentially circular, since it simply states that those who do it do it because it is what they do, without introducing any explanatory factors. The next suggestion is usually that the country's climate determines that this crop should predominate. Such reasoning does seem to have a certain empirical basis, since sugar cane does in fact grow well in tropical Jamaica, as it does in subtropical Louisiana. But almost everyone soon realizes that just as in Louisiana, many economic activities other than sugar production are possible, and Louisiana has largely broken with such old habits as sugar cane and cotton production, so there must be some further explanation for such continued specialization in the case of Jamaica.

What is interesting from the standpoint of critique of ideology is that students' first responses typically attribute oppression to the free choice of the oppressed, and when these fail to hold up after examination, the next responses typically attribute it to something over which no one has control. The failure of these seemingly reasonable, natural, common-sense explanations points in the direction of another unreasonable and unnatural one that defies common sense. If the oppression is not chosen by the oppressed themselves, and it is not caused by conditions that exclude choice, it must be caused by the choice of someone other than the oppressed. The turning point seems to be when it becomes apparent that a narrow focus on the present will not result in an explanation as opposed to a redescription of what exists, and it follows that the details of history have to be examined. Many students have some familiarity with the Middle Passage and of the place of Jamaica in the economy of slave-trading, sugar cane planting, and rum production. Once these are mentioned, more recent social realities, including the neo-colonial economy built on the foundation of past slavery, quickly begin to make more logical and historical sense. The students begin to understand in concrete terms how the past can not only "weigh like a nightmare on the brains of the living," but indeed weigh like the iron shackles of slavery on their bodies.

#### The Ship of Foolishness

According to Hardin's lifeboat metaphor, "each rich nation amounts to a lifeboat full of comparatively rich people," while poor nations are "other, much more crowded, lifeboats." Since their lifeboats cannot hold them, they "continuously fall out of their lifeboats and swim for a while in the water outside, hoping to be admitted to a rich lifeboat,

or in some other way to benefit from the 'goodies' on board." Thus, according to Hardin's scenario, we are to imagine the rich on their lifeboats, merrily enjoying life, while the poor flounder miserably and helplessly at sea, struggling for survival. A rather curious aspect of this metaphor is that all this desperate floundering on the part of the poor does not prevent them from managing to reproduce at very high rates, as Hardin notes with alarm.

However, what is more crucial to the fate of the metaphor is other activities of these supposed flounderers that are ignored entirely by Hardin. This includes producing large quantities of agricultural products and, increasingly, manufactured goods that are exported to wealthy consumer societies such as Hardin's own. So were we to try to salvage this rapidly sinking metaphor we would need not only to imagine the poor of the world swimming around the ocean while reproducing prodigiously, but we would also have to imagine them at the same time throwing enormous quantities of goods on to the lifeboats. However, our job is not in fact to salvage it but rather to investigate further whether it can remain afloat.

According to Hardin's account, the poor in the poorer countries of the world will have little chance of getting on local lifeboats, so they must attempt instead to somehow get aboard one of the richer ones. In more literal terms, this means that they would seek relatively lucrative jobs in the developed world. As we will see, Hardin's analysis of this problem depends heavily on his view that the problem of scarcity in poor countries stems from their tendency to continually exceed "carrying capacity," so that the poor must seek resources elsewhere, either by emigrating to rich countries or by demanding aid from these countries.

According to Hardin "each lifeboat is effectively limited in capacity," or, in more literal terms, "the land of every nation has a limited carrying capacity." In view of his singling out of poor nations for exceeding "carrying capacity," it is somewhat surprising that he also concedes that this is a general global condition, for in this case he veers dangerously in the direction of global realities. "We have already exceeded the carrying capacity of the land. We have been living on 'capital'—stored petroleum and coal—and soon we must live on income alone." And this is indeed true of a global society based on fossil fuel consumption and the destruction and degradation of the planet's ecosystems. So at this point we discover that in Hardin's ideological dream world some societies that irresponsibly increase their population exceed "carrying capacity," while at the same time *all* societies are already exceeding "carrying capacity."

Hardin does not mention another (for him quite embarrassing) implication if we follow this line of reasoning: industrialized societies that support their growth heavily through enormous per capita consumption of fossil fuels are then *exceeding carrying capacity much more* than poorer societies that consume little of such resources per capita.<sup>13</sup> Instead, he

<sup>&</sup>lt;sup>12</sup> In reality, the vast majority of the poor of the world would not have fallen off, but would never have been on the lifeboats at all. Moreover, the elites of these poor nations probably do not feel very crowded on their lifeboats—their estates, rich neighborhoods, resorts, and today, gated communities.

<sup>&</sup>lt;sup>13</sup> As Robert Van Wyk asks rather pertinently, "Why should the Asian or African people be compared to the "sheep" who are the greatest threat to the commons when the average American uses up thirty times the amount of the earth's resources as does the average Asian or African, and when the developed nations import more protein from the developing nations than they export to them?" Robert Van Wyk, "Perspectives on World Hunger and the Extent of Our Positive Duties," *Public Affairs Quarterly*, 2, 1988, p. 76.

asks us to forget this unfortunate subject and revert to the idea that only poor societies can exceed "carrying capacity." To describe "our" position in the world ("we" meaning, of course, the members of an affluent society), he suggests that we imagine that we are on a lifeboat that holds 50 people, and has a maximum capacity of 60. However, he adds, actually allowing the ten additional people onboard and reaching maximum capacity would violate the "engineering principle" of the "safety factor." Let it not be said that Hardin was not a man of principle.

Hardin poses three possible scenarios in response to this predicament as it relates to the question of immigration. The first scenario is based on what he calls "the Christian ideal of being 'our brother's keeper," or the "Marxian ideal" of "from each according to his abilities, and to each according to his needs." Adopting such principles, he says, would mean inviting everyone onto the boat and thereby quickly sinking it, or, as he states it, "complete justice, complete catastrophe." The implication is that no one foolishly tempted by Christian and Marxist principles could possibly hold on to them in the face of grim reality. A second possibility, for the more faint-hearted altruist, would be to allow others to board the boat until the maximum capacity is reached. However, in Hardin's view, this option only delays the process of collective suicide. With the "safety factor gone," before long a large wave will sink the boat and the result will be equally catastrophic. This leaves only a third choice, the one that cannot be refused if you live in lifeboat land. It is to allow no one to board the boat (with the possible exception of a few who bring along valuable wealth and talents) and to protect it against "boarding parties."

Hardin thus presents the reader with a mythological world in which human society consists of a war of all who are on lifeboats against all who are not, and in which life-boat preservation is the first law of nature. He can then make the reasonable and non-controversial assumption that all of his (affluent) readers are averse to being drowned and will therefore enthusiastically accept choice number three. It will be obvious that those on the lifeboat should defend themselves and what they possess against those outside of lifeboats, whether by denying entry to outsiders or by refusing to distribute to those outsiders any of the largess, "the goodies," on the lifeboat. In more literal terms, this means that those who are not hopelessly in the grips of an irrational death wish founded on the most insidious altruism will oppose any programs to allow immigration or to send food aid

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<sup>&</sup>lt;sup>14</sup> Hardin is in general quite suspicious of the Christian tradition, but he makes an exception for the third-century theologian Tertullian, who (in a passage that is indented and italicized for emphasis) is quoted as saying "The scourges of pestilence, famine, wars, and earthquakes have come to be regarded as a blessing to overcrowded nations, since they serve to prune away the luxuriant growth of the human race." The implication seems to be that humanity was already having problems with "carrying capacity" in certain nations over 1800 years ago, but Hardin fails to pursue this intriguing hypothesis, which might have suggested how little this elusive concept has to do with absolute numbers of human beings in relation to what is provided by the earth. On the other hand, what does emerge clearly from Hardin's theological digression is that beneath his contemptuous rejection of altruistic religious feelings lies a faith in a kind of bloodthirsty Providence that rules the world barbarically.

<sup>&</sup>lt;sup>15</sup> This saying, made famous through Marx's formulation in the "Critique of the Gotha Program," was already common to a century-long tradition of French utopians and socialists, and had been used most notably by Saint-Simon and Louis Blanc.

to famine victims.<sup>16</sup> Hardin relies largely on the myth of the lifeboat to guide his readers to these conclusions. His next step is to convince his audience of the absolute identity between myth and reality. He thus proposes to "enrich the image step by step with substantive additions from the real world." As we will soon see, his major effort at "enrichment" consists of a cursory look at reproduction rates and some speculation about where trends seemed to him to be going. Fortunately, we now have almost four decades of actual history to look at in assessing his merits as a demographic prophet.

### Hardin's Ratchet Job

First, however, it is important to analyze what is perhaps the most powerful aspect of Hardin's argument after the lifeboat image itself. This is an ingenious pseudo-scientific analysis of an imaginary process called "the Ratchet Effect." The immediate context is an attack on a proposed "international food bank," but his target is any system of ongoing aid to famine victims. His thesis is that food aid interferes with a natural process in which population adjusts to the resources (essentially, merely the food supply) available within a country. He argues that in "a world inhabited by individually responsible sovereign nations, the population of each nation would repeatedly go through a cycle" represented in the following chart:

—Chart 1 here—

Hardin explains that this chart represents "the population cycle of a nation that has no effective, conscious population control, and which receives no aid from the outside." The ideas presented are quite simple ones, so one might wonder why such a chart is necessary. It is a bit like creating a chart to explain a process such as "the normal human temperature cycle." At "T<sub>1</sub>" X's temperature is "at normal level," but when it increases to "T<sub>2</sub>," X's temperature is "high," after which X "takes aspirin," and if you follow the arrows carefully, you will discover that X's temperature returns to "normal level."

Of course, the chart is not necessary; however, the use of a "figure" with seemingly technical variables such as "P<sub>1</sub>" and "P<sub>2</sub>" creates a useful aura of scientific authenticity and helps disguise the fact that it is based on no empirical evidence at all. Interestingly, Hardin claims that "P<sub>2</sub> is greater than P<sub>1</sub>, either in absolute numbers or because a deterioration of the food supply has removed the safety factor and produced a dangerously low ratio of resources to population." Thus, P<sub>2</sub>, a certain level of "overpopulation" beyond "carrying capacity" may actually represent a *decrease* in population resulting from a "deterioration of the food supply" because of "a crop failure" or, since this is only "e.g.," it may be because of *something else* that might produce such a result. (We will consider later what this "something else" might be). In other words, the population has *increased* beyond "carrying capacity" or not decreased quickly enough under pressure and is therefore above "carrying capacity." Hardin observes that "if the 'emergency' is not met by outside help, the population drops

<sup>&</sup>lt;sup>16</sup> The present analysis will focus on the question of food aid to show that Hardin's presuppositions about conditions in the world are false and that his arguments are unsound, but a similar case can be made to show that his claims concerning immigration do not support his conclusions.

back to the 'normal' level—the 'carrying capacity' of the environment or even below." This process is what is often described by partisans of such neo-Malthusianism as "letting nature take its course."

Hardin contends that if "poor countries that are governed by rulers insufficiently wise and powerful" are given food in times of "emergency," then "the population *cycle* of Figure 1 will be replaced by the population *escalator* of Figure 2. The input of food from a food bank acts as the pawl of a ratchet, preventing the population from retracing its steps to a lower level." He argues that eventually poor countries will put so much pressure on the whole system that the final result will be "the total collapse of the whole system, producing a catastrophe of scarcely imaginable proportions."

#### -Chart 2 here-

"Figure 2. The population escalator. Note that input from a world food bank acts like the pawl of a ratchet, preserving the normal population cycle shown in Figure 1 from being completed.  $P_n+1$  is greater than  $P_n$ , and the absolute magnitude of the "emergencies" escalates. Ultimately the entire system crashes. The crash is not shown, and few can imagine it."

Hardin concludes that "under the guidance of this ratchet, wealth can be steadily moved in one direction only, from the slowly breeding rich to the rapidly breeding poor, the process finally coming to a halt only when all countries are equally and miserably poor." The fact that wealth in the real world has typically moved "in one direction," from poor to rich areas of the world, appears nowhere in Hardin's fantastic depiction of reality. Most incredibly, the ratchet theory assumes that those who have laid claim to and benefitted from disproportionate access to the resources of others will altruistically give away those resources out of feelings of unbounded generosity. According to Hardin's scenario, even as they see their food resources dwindling and begin spiraling toward disaster they will obsessively and self-destructively continue to support a huge dependent global population. <sup>18</sup> In which world are such things conceivable? Here, as at many points, Hardin's position betrays its ideological nature most blatantly through the fact that it does not merely distort reality, but rather presents an absolute inversion of reality. Hardin offers his readers the ideological challenge. To paraphrase a classic formulation, if there be anything which to our eyes appears white and ideology defines it as black, we are to pronounce it black. And Hardin has found multitudes of readers with excellent ideological pronunciation.

### Hardin's People Problem

Hardin's analysis of global population issues fails above all in the face of one embarrassing reality that steadfastly defies his ideological abstractions: the *people* who make up the *populations*. Just as real humans, being complex historical, spiritual and material beings, defy classical and neo-classical economics by failing to act as economistic abstractions, they

<sup>&</sup>lt;sup>17</sup> This is Hardin's explanation of "Figure 2." It culminates in the neo-Malthusian fantasy of the sublimely cataclysmic demographic catastrophe.

<sup>&</sup>lt;sup>18</sup> One must wonder if Hardin might not have come under the spell of Ayn Rand, who was capable of imagining in *The Fountainhead* that "the world is perishing in an orgy of self-sacrifice."

defy Hardin's neo-Malthusianism by failing to reproduce according to his ideological fantasies. He asserts confidently that "in the absence of population control by a sovereign, sooner or later the population grows to P<sub>2</sub> ['over-populated']." Yet, he could easily have found masses of counterevidence had he ventured into the realm of modern and contemporary history. The enormous demographic changes that had already taken place in much of Europe and other parts of the world when he wrote this statement had not been caused by "population control by a sovereign," or, as he states it elsewhere, by a system of "conscious population control." In fact, a country such as France, which without such "conscious population control" saw its fertility rate drop below replacement level had already "consciously" adopted pronatalist policies aimed at encouraging families to have a third child. Long-term tendencies that began in Europe were, even as he wrote, beginning to spread much more widely across the globe.

It is instructive to look closely at Hardin's predictions of demographic doom alongside what has actually happened in the world over the three and a half decades during which his essay was busy becoming a classic. He notes that the populations of wealthy nations were doubling every 87 years, while those of other poor nations were doing so every 35 years. He then proposes a little thought experiment. He states that the United States then had 210 million people, which, he notes, was equal to the combined populations of Colombia, Venezuela, Ecuador, Morocco, Thailand, Pakistan, and the Philippines. However, the U.S. population was increasing by only .8 percent per year, while the population of the other eight countries was increasing by 3.3 percent each year.

He then has the reader imagine that by the time the U.S. population will have doubled to 420 million, his other carefully selected countries will then have a combined population of 3.54 billion. He confronts the reader with the presumably disturbing prospect that there will be eight people from those countries enviously eyeing the American lifeboat for every American on it. He open-mindedly concedes to the naïve that trends can change for the better, perhaps in some airy world of logical possibility. But he concludes toughmindedly that in the real world it seems much more likely that rates of increase will fall faster in rich countries. So the danger is that the actual future will probably be "even worse" than the projection, and in view of this, any ethic of "sharing" will be "even more suicidal." We will never be allowed to forget the genocidal implications of any altruistic inclinations we may be clinging to, if Hardin can do anything about it.

Since it has now been over 35 years since Hardin made his predictions, we might, then, look at what has happened in the countries that he chose to help make his case. Recent rates of annual population growth in these countries are: Colombia, 1.22 percent; Venezuela, 1.51 percent; Ecuador, 1.5 percent; Morocco, 1.10 percent; Thailand, 0.63 percent; Pakistan 1.56 percent; and the Philippines, 1.96 percent. Ironically, the only country mentioned by Hardin whose rate has actually increased is the United States, whose rate has climbed slightly to .98 percent. Even as the U.S. rate has increased, the rates of the other countries, which

<sup>&</sup>lt;sup>19</sup> See, for example, Marie-Thérèse Letablier, "Fertility and Family Policies in France," *Journal of Population and Social Security*, "Supplement to Volume )ne," online at: <a href="http://www.ipss.go.jp/webj-ad/Webjournal.files/population/2003">http://www.ipss.go.jp/webj-ad/Webjournal.files/population/2003</a> 6/9.Letablier.pdf.

<sup>&</sup>lt;sup>20</sup> According to *CIA World Factbook* figures for 2009. Online at <a href="https://www.cia.gov/library/publications/the-world-factbook/rankorder/2002rank.html">https://www.cia.gov/library/publications/the-world-factbook/rankorder/2002rank.html</a>.

Hardin predicted would "fall more slowly" than that of the U.S., have dropped quite radically, from 3.3 percent to an average about 1.3 percent, And while Hardin could blithely assume that in the absence of significant food aid there would be relatively consistent rates of increase for such countries for a period of 87 years, this precipitous drop has taken place in far less than half that span of time. It should be noted that these countries are not the sites of the most severe food crises over this period. In fact, many countries which *have* seen extreme scarcity during the intervening period have, in fact, much higher rates of population increase, for example: Ethiopia, 3.21 percent; Democratic Republic of the Congo 3.21 percent; Eritrea, 2.58 percent; Chad, 2.0 percent; and Sudan, 2.14 percent. While Hardin foresaw a world in which for a long period of time only the threat of famine would deter most nations from sustaining growth rates on the order of 3.3 percent, the global growth rate after 34 years was about 1.2 percent—not drastically greater than the .9 percent in the U.S. By 2009 the global fertility rate had fallen to 2.56 and India's to 2.68. Garrett Hardin's own fertility rate was, by the way, 4.0.

For Hardin, such global developments were simply unthinkable. In "Lifeboat Ethics," he rejects with disdain the idea that aid to poor countries might help them go through the "benign demographic transition" that has been seen throughout the developed world. He says that "those who believe in the benign demographic transition dismiss the pejoristic mechanism of Figure 2 in the belief that each input of food from the world outside fosters development within a poor country thus resulting in a drop in the rate of population increase." However, such a belief, which would be as simplistic as Hardin's own view, is certainly not the position of advocates of developmental justice. Their position is, first, that food scarcity does not, in fact, correlate with declines in fertility (except temporarily in cases of severe famine) and, secondly, that food aid can often be part of a many-faceted program of just, sustainable, and participatory development that does correlate with declines in fertility rates.

Hardin claims that "there are many counter examples" to the theory of benign demographic transition. But his examples are based largely on the temporary phenomenon of the post-World War II baby boom and do not reflect larger trends. Later developments have gone in a direction precisely opposite the one he predicted. One-third of the countries in the world now have fertility rates below replacement rate of 2.1, and two-thirds now have fertility rates below 3. India's fertility rate is now 2.81, which is lower than the U.S. fertility rate was as recently as 1945-1964, shortly before Hardin's "lifeboat" article was written. The post-WWII high in the United States, when Garrett Hardin was beginning his academic career, was 3.8. He noted with alarm in his article that "the average population growth is over 2 percent and shows no signs of slackening." Yet, it had, in fact, been "slackening" for three years, and had slipped below 2 percent the very year that his article was published.

<sup>&</sup>lt;sup>21</sup> CIA World Factbook, 2009. It should be noted that Hardin was not a very good prophet in the area of global food production either. He judges that "whether or not the Green Revolution can increase food production is doubtful (Harris, 1972; Paddock, 1970; Wilkes, 1972), but in any event not particularly important." However, even severe critics of the Green Revolution agree that in many countries, especially in much of Asia and parts of Latin America, it helped food production increase much more rapidly than population did, though the benefits often did not accrue to local populations, since the increase was often in export crops that displaced subsistence ones, and policies have helped larger landowners and agribusiness but have driven small farmers out of business. For a concise summary of some of these tendencies see *World Hunger: Twelve Myths*, Ch. 5.

Since then it has decreased significantly to only 1.13 percent by 2009. To summarize the evidence, many countries that have never been subjected to the food scarcities that he advocates have seen radical decreases in fertility rates. On the other hand, many countries that *have* seen such scarcities have maintained high fertility rates. Hardin's causal claims regarding food resources and fertility rates are thoroughly discredited and the correlation between these two variables turns out to be generally the reverse of the one that he claims to exist.

## The Myth of Carrying Capacity

One of the most crucial ideological concepts in Hardin's analysis is "carrying capacity." Of course, "carrying capacity" is not a *mere* myth. In its original, biological sense it can function as a useful technical concept. According to a typical formulation, it is defined as "the equilibrium size at which a particular population in a particular environment will stabilize when its supply of resources (including nutrients, energy, and living space) remains constant." But when the concept is used to link the occurrence of famine to a supposed excess of human beings within the borders of a given nation-state, one leaves the realm of biology and enters that of ideology and political mythology. It crosses the same line that was crossed when Darwinian science was transformed into Social Darwinist ideology, for similar reasons and with similar results. It follows the iron law of ideology in the society of domination. It is the survival of what fits.

One necessarily begins to suspect Hardin's concept when one starts to test it in relation to the major phenomena of the past century to which it purports to be most relevant. What does one find if one looks at the causes of famine in the 20<sup>th</sup> century in India, China, the Ukraine, Bangladesh, Biafra, Somalia, Ethiopia, Mozambique, East Timor, and other cases? It becomes clear that the major factors have been consistently political and economic, not demographic. In the majority of cases just listed, famine was the result of deliberate state policy, with goals such as enforcing the authority of the ruling regime, protecting economic interests, and most commonly, crushing dissident factions and separatist movements. In these cases, one finds that as soon as the political crisis was over, the food crisis also ended, "carrying capacity" miraculously expanded, and population began to increase.

Not only does Hardin fail to investigate the actual causes of famine, he also naïvely assumes that availability of food is the single variable relevant to declines in death rates. However, as Murdock and Oaten point out, such declines have been determined by factors such as "improved sanitation and medical advances," and therefore "cutting out food aid will not necessarily lead to population declines." In fact, we know that absence of such aid has no such long-term effect, since, as has been mentioned, many countries in which the populations do not receive it have the highest fertility rates in the world. Cutting off food aid might give Hardin's neo-Malthusian followers a feeling of gratification at seeing what they perceive as the deserved suffering of the poor and inferior. However, for his contrived

<sup>&</sup>lt;sup>22</sup> CIA World Factbook.

<sup>&</sup>lt;sup>23</sup> C. Starr and R. Taggart, *Biology: The Unity and Diversity of Life*, 5th ed. (Belmont, CA: Wadsworth Publishing Co., 1981), "Glossary."

<sup>&</sup>lt;sup>24</sup> Murdoch and Oaten, p. 562.

"Ratchet Effect" to work, they would have to find ways to reverse basic health and sanitation advances, among other social achievements. Only then would we be able to return to Hardin's good old days of the "normal population cycle," in which large numbers of people would die needlessly from poor sanitation, poor or non-existent health care, and poor diet.

Furthermore, if Hardin's thesis concerning population growth were correct, one would expect famine and malnutrition to correlate with population density. When he refers to poor countries that he thinks to be "above carrying capacity" as "crowded nations," this would seem to imply that they are densely populated, while when he describes affluent countries as safely below "carrying capacity," one would think that they would be more sparsely populated. Yet some of the richest countries in the world—the ones that in Hardin's metaphor have large, uncrowded lifeboats—are in reality among the most densely populated. Using 2009 IMF rankings of 180 countries, the second most densely populated country, Singapore, is the 23<sup>rd</sup> richest, the third most densely populated, Malta, is the 35<sup>th</sup> richest, the fifth most densely populated, Bahrain, is the 31<sup>st</sup> richest, the 11<sup>th</sup> most densely populated, South Korea, is the 38<sup>th</sup> richest, and the 14<sup>th</sup> most densely populated, Holland, is the seventh richest. Other small states, such as Monaco, the most densely populated country, and Vatican City, the seventh most densely populated, are centers of great wealth. On the other hand, many countries that have seen the most severe malnutrition and famine (Hardin's "emergencies") are among the less densely populated ones: Ethiopia is 102<sup>th</sup>; Eritrea, 134th; Mozambique, 148th; Sudan, 159th; Somalia, 169th; Congo, 176th; and Chad, 179th (to mention only a few of many examples).

Of course, these statistics are rather abstract. The complex reality is more striking. We find many examples of densely populated countries that are incapable of fulfilling their own food needs and are heavily dependent on imports for their food supply. In many cases, these are rich countries that have a high level of nutrition, and from Hardin's perspective, have populations that are far below "carrying capacity." On the other hand, there are many countries that are sparsely populated, produce large quantities of agricultural products, and are heavy exporters of these products. In many cases, these are poor countries that suffer from widespread malnutrition, and from Hardin's perspective they have populations that are beyond "carrying capacity." Thus, Hardin's idea of "carrying capacity" is disconnected from what might seem most obviously relevant, the *realized* capacity to produce food that can support the lives of human beings.

It is also useful to reflect on the concept of "carrying capacity" as "capacity"—that is, as *potential* to support human lives. Coffin notes that we have the capacity to feed twice the world's population with present food resources but that half of the world's grain is fed to cattle. He observes that according to some estimates, it takes 16 pounds of grain to produce one pound of meat, so that meat production entails a policy of reducing effective food-production capacity for human beings. In addition, he says, energy resources are squandered in such production, since it takes 78 calories of fossil fuel to produce one calorie of beef protein, as opposed to only two calories of fossil fuel to produce one calorie of soy protein.<sup>25</sup>

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<sup>&</sup>lt;sup>25</sup> Tristram Coffin, "World Food Supply: The Damage Done by Cattle-Raising," in Louis P. Pojman and Paul Pojman (eds.), *Environmental Ethics* (Belmont, CA: Wadsworth, 2007), pp. 493-496.

This has obvious implications for vague Hardinesque speculation about "carrying capacity." If a country devotes a significant amount of land to raising cattle for export rather than to raising crops that are used for local subsistence, the domestic hunger and malnutrition that result from such an allocation has nothing to do with exceeding any hypothetical "carrying capacity," and much to do with a failure to realize a real capacity to fulfill the needs of the local people. And this is what so often happens when production is organized under conditions of concentrated economic and political power and monopolistic control of land. Actually realized capacity (to produce necessities of life) is turned into an incapacity (to fulfill "effective" needs) that is engineered for the sake of profit and power. The manner in which "lifeboat ethics" follows the classic model of ideological processes is almost breathtaking. In "The Power of Money in Bourgeois Society," the young Marx famously observed: "Does not my money transform all my incapacities into their contrary?" Perhaps never has there been a more striking example than "lifeboat ethics" of the manner in which capital, through the magic of ideology, turns the productive capacities of humanity and nature into their very contrary.

There is always a "Purloined Letter" quality to the secrets of ideology, and this is taken to the extreme in the present case. The global crime scene is veritably littered with incriminating evidence of the gap between a nation's actual food resources and the access of the populace to those resources. For example, the following appeared recently: "Just a few months ago, a drought-induced famine steadily spread toward Kenya from neighboring Ethiopia and Sudan threatening millions of lives in a lush, bountiful country that should be able to feed itself and more; at the same time, several top Kenyan politicians were implicated in a scheme to illegally sell off millions of pounds of the country's emergency grain reserves, at obscene profits."<sup>27</sup> While reports of such flagrant abuses appear periodically, they merely punctuate the larger ongoing story. The everyday, ordinary, quite legal diversion of essential food resources in poor countries for export to rich ones for the benefit of a small privileged segment of the population is a common and seemingly conspicuous phenomenon. Yet it is so ideologically conditioned that it seldom arouses conscious notice, much less any sense of indignation. Within the context of the practical, institutional, ideological, and imaginary world order, it fades into the background and is ripe for mystification as "exceeding carrying capacity." Garrett Hardin was good enough to state his fundamental religious belief in the form of a commandment: "Thou shalt not transgress the carrying capacity." The critique of ideology is concerned precisely with transgressing the boundaries established by such mythology. When one does so and the invisible conditions are brought into focus, the illusory nature of Hardin's sacred concept becomes quite evident.

It should be noted that since Hardin's essay appeared, more coherent and rational concepts related to the general issue of "carrying capacity" have been developed. One such concept is that of the "global footprint," which is based on per capita use of ecological resources within any given geographical area, and is expressed in "global acres" of biological

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<sup>&</sup>lt;sup>26</sup> Karl Marx, Economic and Philosophical Manuscripts of 1844 (Moscow: Progress Publishers, 1974), p. 121.

<sup>&</sup>lt;sup>27</sup> Jeffrey Gettleman, "East Africa: The Most Corrupt Country," New York Review of Books, Vol. LVII, No. 1, January. 14, 2010, p. 35.

<sup>&</sup>lt;sup>28</sup> Garrett Hardin Society, "Garrett Hardin Quotations," at: <a href="http://www.garretthardinsociety.org/info/quotes.html">http://www.garretthardinsociety.org/info/quotes.html</a>.

productive capacity used per capita. Though this concept has been criticized for underestimating long-term ecological impact and the importance of relative wilderness areas, it gives a rough idea of relative use of resources in each country. According to the Global Footprint Network, the average person in the world is now using 1.9 global acres more than is available. In other words, there is a condition of "overshoot" in which ecological resources are being depleted globally by current overuse. However, the footprint varies greatly from country to country. Eleven countries have a deficit of over 10 global acres per capita. These are Israel, Kuwait, Qatar, Singapore, the U.A.E., Belgium, Greece, Spain, Switzerland, the U.K., and the U.S.A. Clearly, it is the affluent "lifeboat" countries that are the greatest drain on the planet's ecological resources, and it is they that are making the greatest contribution to exceeding "carrying capacity" in any meaningful sense. Once again, we find that not only is reality distorted through the lens of ideology, it is transformed into its very opposite.

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Part Two of this article will investigate the myths and realities of foreign aid programs, and assess Hardin's claims concerning their effects. There will also be an examination of some of the historical evidence regarding the causes of famine in India, Hardin's prime example of a country plagued by the ills of over-population. In addition, we will look to India for evidence concerning the relative merits of policies that pursue a "benign demographic transition" as opposed to punitive and coercive policies. The discussion will conclude with some final reflections concerning ideology as the inversion of reality, and of the reality of the commons in particular.

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<sup>&</sup>lt;sup>29</sup> "The Ecological Footprint uses yields of primary products (from cropland, forest, grazing land and fisheries) to calculate the area necessary to support a given activity. Biocapacity is measured by calculating the amount of biologically productive land and sea area available to provide the resources a population consumes and to absorb its wastes, given current technology and management practices.... A nation's consumption is calculated by adding imports to and subtracting exports from its national production. Results from this analysis shed light on a country's ecological impact.... A country has an ecological reserve if its Footprint is smaller than its biocapacity; otherwise it is operating with an ecological deficit. See <a href="http://www.footprintnetwork.org/">http://www.footprintnetwork.org/</a>.