Frequently Asked Questions

When readers and audiences are presented with information like that presented in this PDF collection, follow-up discussions typically include an assortment of frequently asked questions. In this excerpt we address a sampling of such questions.

For instance, population discussions often prompt questions about all the people who die in wars and disasters.*

* The reader will agree, of course, that counting on wars or disasters to deal with overpopulation is unethical.

A1: First let us consider the one million Americans who died in all U.S. wars between 1776 and 2000. At current rates of population growth, all of these deaths are, in a numeric sense, replaced in just five days. In effect, the 200,000 extra births that take place every day result in more than one million extra human beings in less than one week.

A2: We can also consider one of the deadliest natural disasters in history. In November, 1970, a hurricane killed at least two hundred thousand people along the coasts of Bangladesh, with one hundred thousand others never found. With its death toll of three hundred thousand, the storm claimed one hundred times more victims than the terrorist attacks of September, 2001.

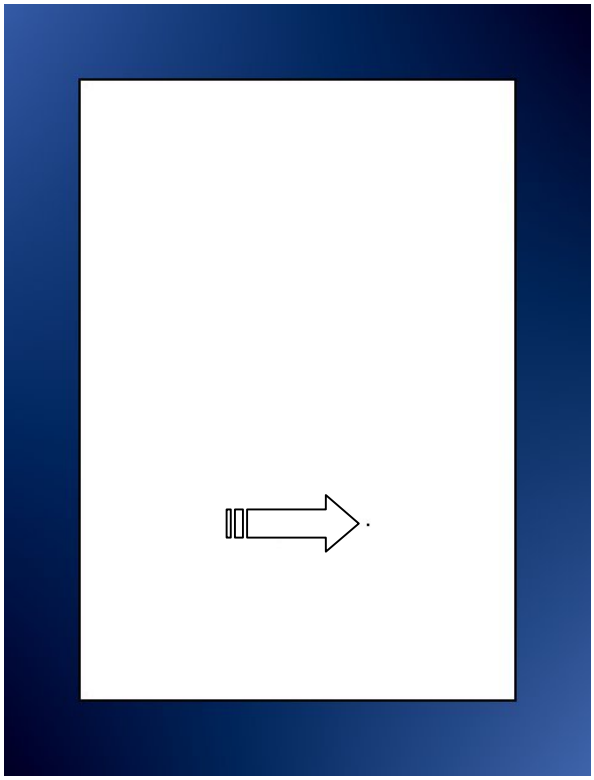
At today's rates of population growth, all of these deaths are replaced (in a physical and numeric sense) *in a day and a half.* In other words, with the birth of 200,000 extra (non-replacement) infants every day, all the extra births that take place over a period of 36-hours physically replace all 300,000 people who lost their lives in that hurricane.

A3: It would be most unethical to depend on or count on natural disasters and wars to save the rest of us from the demographic damage that we are selfishly inflicting on our planet, on our fellow human beings, and on future generations. As the data above show, it wouldn't work anyway. *Today's rates of population growth are still so enormous that they over-whelm even the worst of our historical disasters.*

Q: Doesn't earth have "vast amounts of open space" left?

A1: Organisms in nature do not squash or crush each other to death due to overpopulation and overcrowding because *other* limiting factors affect species and their environments long before "running out of space" becomes their problem. For example, even populations that occupy a volumetrically *insignificant* portion of their environments (i.e., there is still a "lot of room" left) routinely generate calamitous changes to those environments (such as the dinoflagellate brevetoxins, ethanol wastes produced by yeast, and depletion of dissolved oxygen by nutrient-fueled algal blooms in eutrophic ponds).

In Scheffer's classic 1951 description of climb-and-collapse in a reindeer herd in Alaska (see pgs 50 and 126), the herd suffered a 99% die-off even though its 2046 individuals lived on an island of 40 sq. mi. and occupied **less than one-tenth of 1% of the "empty space"** theoretically available to them. In other words, the reindeer exceeded the carrying capacity of their environment even when "vast amounts of open space" remained and their island home was still **99.9%** "empty." In addition, consider again the dot in the image on the next page that denotes ***two one-thousandths of one percent.***



Recall that in outbreaks of dinoflagellate red tides (e.g., PDF 1 - the "Open-space Delusion"), organisms such as *Karenia brevis* manage to catastrophically alter the aqueous environment in which they live even as the cells themselves physically occupy less than *two one-thousandths* of one percent of the volume that remains theoretically-available to them (see dot in above image).

A2: Also consider the many other limiting factors. One limiting factor that is routinely overlooked is the limited capacity of an environment to accept, cleanse, dilute, dissipate, or recycle the WASTES that are generated by a growing population. Thus, as a population of yeast cells grows, the resulting accumulation of ethanol soon poisons the surroundings in which they live* (e.g., Gause, 1934; Catton, 1982).

* Note that the yeast manage to poison their environment even as the "amount of space" occupied by the yeast cells themselves is VOLUMETRICALLY INSIGNIFICANT.

Given our worldwide release of pesticides, herbicides, CFCs, nuclear wastes, greenhouse gases, and exhausts that produce acidic rain, fog, clouds, and dew (Karl, et al., 1997; Pitts Jr., 1985), it seems clear that today's human population of 6.8 billion already far exceeds earth's limits.

Q: If the problem really does become severe, we can always just go to other planets, can't we?

A1: The problem already is severe and we have yet to send even a first manned expedition to Mars. Think of the expense to send a dozen astronauts to Mars, or just a single unmanned rover that costs hundreds of millions of dollars. First, it would be ethically and logistically impossible to send millions (or billions) of men, women, and children to Mars (almost certainly against their will) and to build infrastructure to support them there. There is not enough money in all the governments of the world combined to accomplish such a task.

A2: When we think about it, sending billions of "extra" people to another planet also won't work on a humanitarian level. Would you volunteer yourself and your family for such a dangerous journey? What if there are not enough volunteers? In the 1830s, Andrew Jackson and the U.S. Congress enacted the Indian Removal Act which legislated the forcible relocation of five nations of native Americans from their southeastern homelands to the grasslands of Oklahoma. Hopefully none of us today would imagine legislating a planet-wide version of the shameful "Trail of Tears" that resulted.

Q. Won't free markets cure everything?

A1: Unfortunately, economic activities sometimes generate environmental problems or cause them to worsen. Although rapidly growing populations present a host of problems for earth's natural systems and for governments, for an economic entity additional people are often seen as more consumers, more customers, added supplies of cheap labor, and increased revenues and profits.

Although free markets, capitalism, and free enterprise all play powerful roles in modern civilization, mainstream economics often tends to exacerbate (and routinely fails to prevent) problems such as deforestation, overfishing, melting ice caps, disappearing wildlife, global warming, or accumulating stores of toxic wastes. And frequently, society's long-term interests may be sacrificed for the sake of private or near-term economic gain.

A2: As recently as 2008-2009, a ten-year American experiment that left financial, economic, and market interests largely to their own devices resulted in one of the most expensive economic calamities in the history of civilization. What had been a U.S. budget surplus in 1999-2000, turned into a housing bubble followed by unprecedented deficits and bailouts brought about by unregulated financial markets, leveraging, uncollateralized debt, bundling, Ponzi schemes, and a laissez-faire creed of economic religiosity among many financial, corporate, and economic elites.

At least one result, bailouts, left governments, taxpayers and working families around the world (along with future generations) having to rescue mismanaged banks, insurance companies, and Wall Street financial entities that had been allowed to become "too big to fail." While workers lost their jobs and health insurance, and families lost their homes, CEOs and financial elites, after expending millions on corporate jets and lobbyists, rewarded themselves with millions of dollars in bonuses for their losses and poor management.

At least one lesson, then, would seem to be this: An assemblage of market theorists, financiers, and mainstream economic apologists gave the world a disaster in their OWN AREA of claimed expertise. Given free rein, they failed, collectively speaking, to regulate themselves, failed to pro-

tect the interests of their companies, their employees, their investors, and their countrymen from a house of cards upon which their policy decisions were built.

The point to be made, then, is this: If mainstream economics and the collective leadership of the financial world cannot manage affairs *in their* OWN *field of expertise*, why should the world trust them when it comes to issues of population, carrying capacities, climate, and the only planetary life-support machinery in the known universe? *

In contrast, biologists, climatologists, and the scientific community have now warned journalists, policymakers, economists, and the general public about the potentially-calamitous outcomes of our present *population*, *consumption*, and *waste-production trajectories* - REPEATEDLY.

* Another, but older, example is also instructive: In April 1994, the presidents and /or CEOs of seven major tobacco companies testified before a U.S. Congressional committee addressing the health effects of cigarettes, tobacco products, and nicotine. (Use of a search engine will turn up the full text of their testimony including multiple sworn statements such as, "No, I don't believe nicotine is addictive;" U.S. House, 1994). Their testimony demonstrates the effects that an utterly laissez-faire approach to issues affecting, for example, public health and/or the environment can have, because the decisions in corporate suites can easily be conflicted by private or near-term financial considerations as opposed to the greater long-term, public or biospheric good. Such testimony involving tobacco, along with past corporate scandals such as those at Enron, Worldcom, and Health South also illustrate, over and over again, that unfettered free-market philosophies, along with avarice and self-interest, cannot be unfailingly trusted to serve the greater public, long-term, and planetary good. Thus, although free enterprise can serve as a valuable tool to harness self-interest and greed to advance standards of living and/or the quality of life, it can also result in overexploitation, unsustainable demands upon natural systems, pollution, and rapacious consumption.

* To be fair, not all economists and financial theorists can be saddled with the calamitous "growth at any cost" ideologies that we criticize here. A number of thoughtful and influential cross-disciplinary scholars, for example, have founded an entirely new discipline known as **Ecological Economics** and have, for more than two decades now, published an academic journal of the same name, cofounded by former World Bank senior economist Herman Daly and biologist Robert Costanza. Similarly, Charles A. Hall and others have devised models of biophysical economics that incorporate the impacts upon, and the role of, nature, energy, and natural systems.

In addition, Sir Nicholas Stern, former chief economist of the World Bank recently observed that "climate change is a result of the greatest market failure the world has seen. The evidence on the seriousness of the risk from inaction or delayed action is now overwhelming" (2006, Stern Review). Finally, as some have noted, many people advocate an "economics as if people and the planet matter" (NEF, 2009).

A3: Some observers (e.g., Pianka, 2008) have noted that our economic system is based on the principle of a chain letter: ("growth, growth, and more growth"), and that such "runaway growth only expands a bubble that cannot be sustained in a finite world." As a result, Pianka likens some of today's economics to a pyramid scheme in which "upside down pyramids must fall over" and "bubbles always burst." We have just seen what happens when a financial and economic bubble bursts. <u>If we are living in the midst of a population bubble</u>, *what will happen when that population bubble bursts*?

A4: As Harvard's E.O. Wilson suggests, "the single greatest intellectual obstacle to environmental realism… is the myopia of most professional economists" (1998). Few biologists and natural scientists, for example, make talk show appearances to recommend the M-1 money supply, international monetary exchange rates, or the overnight lending rate. Yet, as Wilson notes, many "influential economists still make recommendations as though there were no environment" (ibid).

From at least one perspective, this is because too many market theorists, some of whom know little or next to nothing about science, ecology, chemistry, or physics, mistakenly *assume* that our planet's myriad of natural systems and environmental processes are somehow invulnerable and will always continue to function *no matter how much damage and abuse* we heap upon them. Wilson reminds us that "it is a mistake to dismiss a worried ecologist or a worried doctor as an

alarmist," because " in ecology, as in medicine, a false positive diagnosis is an inconvenience, but a false negative diagnosis can be a catastrophe."

As a result, Wilson asks: "Shall we gamble? Suppose the odds are even that humankind will miss [the] environmental [walls]. To bet on a safe passage is a terrible choice, because the stakes on the table are just about everything [and]…if you lose the bet down the line, the cost will ruinous" (Wilson, 1998).

Q: Didn't a recent United Nations study project that our population might be just nine billion people three hundred years from now?

A: The wording of a United Nations press release in December 2003 was either poorly chosen or disingenuous: "According to the medium scenario...world population would rise from today's 6.3 billion to around 9 billion persons in 2300." Anyone who does not turn to the report itself is left with the impression that world population will gradually rise from today's levels to about nine billion three hundred years from now. Consequently, the press release *creates a mistaken impression* that we have nearly three hundred years before any confrontation with our ninth billion will take place. Unfortunately, the release neglects to point out that our 7th, 8th, and 9th billion are all projected to arrive between now and 2055.

A more accurate press release would have informed us that the report projects that the years 2012, 2027, and 2053 are likely to bring our 7th, 8th, and 9th billion, respectively, and that most people living today will face the crowding, instability, taxes, pollution, migration, environmental, climate, and humanitarian crises that arise from these enormous numbers.

Q: Some people suggest that we have plenty of food right now and that hunger in the world today is simply a political problem or a problem of distribution.

A1: First, the statement above presumes that hunger and food supplies are the principle limiting factors affecting human populations. In chapter four and elsewhere, however, we have seen that there are *many* OTHER *factors* that can act to limit the size of a population including phenomena such as destruction of the environment, epidemic disease, aggression, and pollution. Today, environmental destruction, CO_2, and other pollutants have already become prominent factors that have begun to wreak havoc long before food itself limits us (PDF - "the open-space delusion").

A2: When it is asked, the question above implies that we simply need to solve today's political and distribution problems. By 2050, however, we are unlikely to live in a utopian world that has magically eliminated sociopolitical problems, distribution inequities, corruption, and incompetence. Furthermore, we can be pretty sure that *adding three or four billion* MORE people at a rate of 600,000 extra every three days is not going to solve many of today's problems. It would be wiser to solve our existing problems before adding more and more billions, one after another and another in the four decades that lie just ahead.

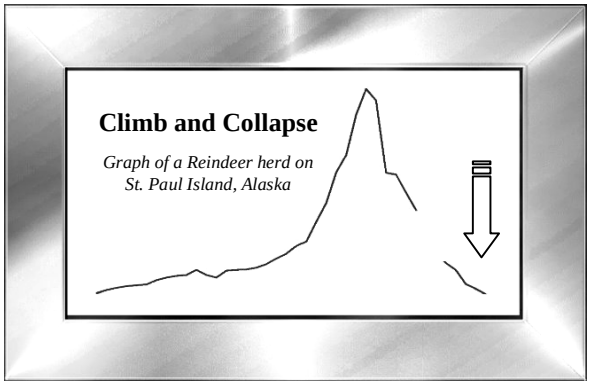
Q: Aren't there instances of reassuring complacency in some recent reports and literature?

A: Probably reassuring is not the right word to use, but the reference to complacency is definitely appropriate. In chapter twelve, for example, we commented on *Beyond Six Billion* (Bongaarts and Bulatao, eds., 2000) which seems shockingly complacent in the face of a 7th, 8th, and 9th billion expected to arrive by mid-century. And as we said, if the BSB study were a report on the passenger liner *Titanic*, it would be filled with a host of data involving alternate speeds and distance

potentials that might be expected under assorted water conditions, engine RPMs, currents, freightage, and passenger numbers. But there would be nothing about running into icebergs.

The reason population projections are warranted in today's world is because there are icebergs out there called limits. What limits are out there? Where are they? How close are they? How fast are we approaching them? Which ones pose the greatest and most immediate dangers? What corrective actions should we take to avoid a catastrophic collision?

There are powerful arguments against complacency. First is the fact that one billion is a truly enormous number. Secondly, typical environmental response times and feedbacks are characterized by lag-times and dangerous delays that the BSB editors either discount or ignore. And thirdly, *we have absolutely no assurance that earth's natural systems* (which are already being impacted and damaged at present population levels*) can survive continued assaults by another billion and another and another in the decades just ahead*.



Q: Since I consider myself a reasonable person with an optimistic outlook, why should I concern myself with population growth?

A1: Look again at the graph above - do you have children or grandchildren? If you are a passenger in a crowded vehicle that is sailing down a mountain road at a high rate of speed, and your children and grandchildren are in the vehicle with you, categorizing one's self as an optimist is irrelevant. Given such a circumstance, it is irresponsible to speed onward espousing a complacent "philosophy" of business-as-usual when a realist or a pragmatist, or any prudent or intelligent person would slow down and take their foot off the accelerator.

A2: Consider again our graph (above) depicting the climb-and-collapse of the reindeer living on St. Paul Island, Alaska. After temporarily peaking at more than 2,000 individuals, **99%** *of the population died in the resulting collapse* (Scheffer, 1951).

A follow-up study of another reindeer herd living on St. Matthew Island, Alaska (Klein, 1968) exhibited the same pattern, making it the second of two classical field studies confirming the reality that climb-and-collapse patterns can occur in mammalian populations which are freed from competition and predation.

Why should we suppose that nature's rules do not apply to us?

We thus have two provocative examples of boom-and-bust disasters in reindeer populations, not once, but twice over the past hundred years. *The reason biologists and other scientists bring up issues of collapse is because it can and does occur*. What is most disconcerting, however, is: (a) Our own species currently exhibits a trajectory that is even MORE EXTREME than that seen in the

reindeer herds as they approached collapse, and, (b) the “island” that we are damaging is the earth itself.

A3: It may still be possible, optimistically speaking, to address these problems effectively and the future need not be a disaster – but to deal with the problems, we and our leaders need to face up to the numbers in this book and *act quickly*.*

* Elsewhere we note actions that can help reduce
our impacts in the decades just ahead.

Q: Haven't there been assorted books and articles by economists who say that things are getting better and that science, technology, and humanity's best minds will solve any problems that arise?

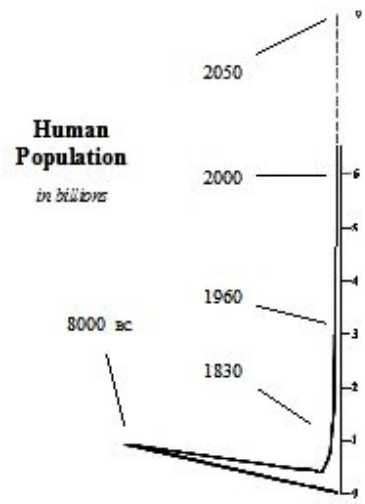
A1: Mainstream economics is famous for its practice of "discounting the future." For the most part, today's prevailing economics is about the here and now; about this quarter's performance and this quarter's dividends. Positioning a company for a hundred years from now is usually not very high on a board of directors’ list of priorities. Biologists and scientists, on the other hand, are accustomed to evaluating systems over centuries and millennia and analyzing their long-term interactions, trends, and processes.

A2: If one attempts to apply pure principles of neoclassical economics to large, slow-growing species like redwood trees and whales, an economic entity can sometimes realize a rapid gain by simply liquidating the resource and converting it into cash that can be invested elsewhere at a higher rate of return (Pimm, 2002).*

* Or be converted into CEO salaries, executive
bonuses, megayachts, and suites of corporate jets.

In addition, too many traditional economists treat things such as ecosystem services, pollution, photosynthesis, acid rain, melting ice-sheets, ozone depletion, and endangered species as inconvenient "externalities," thereby excluding them (and thus their implications) from economic calculations.* Unfortunately, a refusal to acknowledge such phenomena does nothing to banish them and their real-world implications from existence.

**All of those pesky forests, plants and diatoms, after all,*
only produce the OXYGEN *that we* (and all other animals) *breathe.*



A3: Some market theorists and pro-growth apologists routinely urge us to imagine future conditions based on modeled assumptions of “*business as usual*” (one of the most unwarranted assumptions of our age). In doing so, they manage to distract us from or to otherwise obscure today’s perilous demographic realities that constitute *anything but* “business as usual.” Consider again our graph (left) that denotes the most ominous and *enormously different* demographics that our species and our planet have ever faced.

As Thomas Friedman has noted, “if the spread of freedom and free markets is not accompanied by a new approach to how… we treat the environment …then Mother Nature and planet earth will impose their own constraints and limits on our way of life – constraints and limits," he quickly adds, "...that will be worse than Communism” (Friedman, 2008).

A4: There are often philosophical and/or financial ties between business interests and the reporters, analysts, regulators, editors, and theorists with whom they deal, so that self-serving ideological or financial considerations may influence the policies, recommendations, and arguments that some authors and analysts advance.

Given such influences, it should not surprise us that some books, presentations, articles, and legislation that address an issue from an economic vantage point might seem misleading or disingenuous when viewed from a natural science perspective. Pulitzer prize winner Thomas Friedman, for example, has recently noted that "greedy" companies within the "dirty fuels system … have helped rig the game" and, "in too many cases, they have distorted facts, placed misleading ads…and bought out politicians" (Friedman, 2008). He goes on to suggest that the funding from this "energy-industrial complex… has obscured our ability to tell the ecological truth" (ibid).

In one of Wecskaop's chapters we examine a book that appears
to equate "beverage can pop-tops" with "pollution" (Simon, 1981).

A5: Would you allow yourself and your family, not to mention the future of the biosphere and civilization, to board an untested rocket that no one has ever ridden before - and a rocket, at that, that is fueled by hyperexponential processes typical of atomic explosions and boom-and-bust catastrophes in reindeer studies? The graph of humanity's demographic history (previous page) which shows us skyrocketing directly upward, along with the whole of this book, should make it clear that our demographic moment in history COULD NOT DIFFER more *radically* from any previous conditions that our species and our planet have ever faced.

Having walked on land for our whole lives, we might as well climb onto an unfinished and untested roller-coaster ride whose incomplete track is rocketing us straight upward – as though the phenomenon of gravity were nonexistent.

A6: Why should we subscribe to an economic view of a topic that is fundamentally biological in nature? Few market theorists, for example, have Ph.D. expertise in biology, climate, science, or ecology. Suffice it to say that an unwarranted degree of hubris is required for mainstream theorists, political scientists, and statisticians to assume that a financial or economic religiosity somehow exempts humanity from the realities of biology, ecology, atmospheric science, chemistry, the environment, and climatology.

A7: Suppose that you are bequeathed a unique and beautiful automobile – the only automobile, in fact, in the known universe – and that a replacement for it cannot be bought anywhere at any price. When its brakes, transmission, and electrical systems begin to fail and its engine begins to overheat, should you ignore the warning lamps so that you can adhere to business-as-usual, and then continue driving until you have destroyed it?

Presumably, market theorists take care of
their cars, which are, after all, replaceable.

Why are they so completely blind and cavalier when it comes to caring
for the <u>only planetary life-support machinery in the known universe</u>?

Q: Some books, articles, and authors claim that there is a birth-dearth. Is this true?

A1: Some authors, some of whom have ties to economic ideologies or financial interests, apparently would like us to believe that **200,000** EXTRA births each day are not enough.

A2: Most authors making "birth-dearth" claims do not bother to mention that there are **600,000** EXTRA births that take place each weekend, or **800,000** EXTRA births that take place each week between Monday and Friday.

Nor, to our knowledge, do they bother to inform their readers that 32,000 ADDITIONAL classrooms must be completed every four days just to keep pace with the rate of extra births that are occurring today.

A3: Nor do most such books and articles enunciate the true size of a billion extra people or enumerate the costs and ramifications of adding an extra billion people to our planet every twelve to fifteen years. If an article does not share such data with its readers, the article at the very least is misleading and/ or disingenuous.

A4: As we point out elsewhere, approximately half of the world has achieved, or is on track to achieve, replacement or subreplacement level fertility. Both Japan and China are examples of this group, but as this is written, the populations of both nations are still growing.

In China, for example, 1970's fertility rates of 5.8 children per woman have fallen to 1.8 or fewer children per woman today. Despite this clear improvement, however, China's already gigantic population is still growing as this is written, and will continue to grow for another decade, with some projections of a peak of about 1.5 billion around 2019. Notice therefore, that falling fertility does not necessarily mean that a population immediately stops growing.*

* Dangerous lag-times such as this are
QUINTESSENTIAL
features of our societies and cultures.

Suppose however, that China's population does manage to peak around 2019 and manages to decline over subsequent decades. Its current rapid economic development promises to sharply increase its demand for oil, timber, fish, energy, and food. And at the same time, of course, its contributions of pollutants and greenhouse gases are likely to multiply, *so that China's net impacts on earth's environment are quite likely to worsen* even if its population stabilizes or begins to retreat from its currently excessive levels.

A5: Mexico's fertility rates have also fallen, but, despite this, its population will *not stop growing* for several decades. In addition, Mexico's high fertility rates of the 1980s were not matched by its production of jobs, so that millions of the infants born in those years have now turned to the United States for employment.

Other countries face the same sorts of crises recently experienced by Mexico. For example, the streets of Lagos, Manaus, Karachi, and other cities in the develop-ing world "are a sea of children," while "in at least 68 countries, more than 40% of the population is under fifteen years of age" so that "the crowds give the feel of a gigantic school just let out" (Wilson, 1998).

A6: As noted, approximately half the world has achieved or is on-track to achieve more rational fertility levels. The other half, however, is still growing exponentially, so that after fifty years of progress in fertility rates, *we still have a base population of three billion* that is growing exponentially.

A7: Traveling at 70 mph on a smooth and empty highway is one thing, but such speeds are unsafe in the more crowded and chaotic conditions of city and suburban streets and neighborhoods. In a similar way, we cannot maintain reckless demographic speeds in the crowded, chaotic world that we have become. In short, all of us (not just the industrialized nations) must slow down in order to transition ethically from runaway growth to a civilized stability. Unfortunately, too many financial and corporate interests are *addicted* to unending population growth like an addict that is hooked on drugs.

And while withdrawal symptoms may be far from comfortable,
in the end, failure to break an addiction can be lethal.

Q: I sometimes see articles that suggest that things are getting better. One article, for example, points out that the lower Hudson River valley today has three times as much forest as it had in 1875, even though its population has tripled. Doesn't such data show that earth's environment is improving even if our population is still growing?

A: It is conceivable that forest cover in, for example, the lower Hudson valley could increase though populations in nearby New York City and in the Hudson valley itself have substantially multiplied (Mann, 1993). This is possible because in order to meet the region's greatly-increased demands for food and wood products today, meeting these needs has been largely *shifted* to other regions and other countries.

As an example, much of the food for today's New York City and the lower Hudson now comes from places like Nebraska and Iowa, while supplies of paper, wood products, and timber now arrive from the rainforests of Brazil and South America. In other words, today's impacts still exist and have actually been AMPLIFIED many times by population growth, <u>but meeting these needs has been shifted to other countries and other places</u>, and are less visible to local residents as a result. We must thus exercise caution so that statistics like these are not misused or misunderstood.

In this example, the Hudson River valley acts as a microcosm of the world at large. In the developed and industrialized nations, for example, boreal and temperate forests are gradually returning, but recent studies also show that what seems to be an apparent gain is actually being "<u>offset</u> by worldwide deforestation LOSSES...of approximately <u>five to one</u>" (Potter, 1999; emphasis added).

Q: How can we avoid misunderstanding such data or avoid being misled?

A1: We have to closely watch the use of statistics. One example that comes to mind is a statistical technique that might be called "divide and conquer" because it employs simple division. A special-interest lobbyist or a talk-show guest might, for example, wish to hide a troublesome number from us by using manipulations to make it seem smaller than it really is. One trick employed to accomplish this is to divide the problematic number by some other number that is far larger.

Suppose, for example, that there exists a problem with pollution. To hide, disguise, or obscure such data, some writers *will divide it* by some very-large number such as the gross domestic product. When this is done, it is possible to report to one's reader that the amount of pollution per

dollar of gross domestic product is some tiny fractional amount. The problem is, of course, that whether one divides by the GDP (or anything else),

the amount of pollution under discussion is still the same
and still presents the same problems to the environment.

Imagine, for example, an exchange
between two cartoon characters:

Character 1: You've got a pile of garbage in your yard.

Character 2: Yes, but if you divide it by the total tax base of city XYZ, the amount of garbage per dollar is minimal.

Character 1: You've still got a pile of garbage in your yard.

The earth's environment cannot, in any sentient way, know nor care, whether we divide our total pollution by the gross domestic product or not. *An ecosystem must deal with exactly the same amount of pollution whether we subject it to statistical manipulations or not.* To mislead in this way, one need not divide by the gross domestic product – almost any really large number could be used. One could divide by the number of dollars in deposit accounts in all the banks of New York, the total national debt of the western hemisphere, or the number of liters of molecular nitrogen in earth's atmosphere in the third week of September of the year 1487. As long as the number chosen is really large and the writer is able to invent a fabricated linkage that sounds plausible, the technique can be employed to mislead or deceive an audience.

Q: What about guest speakers, recent articles and symposia, and wolves heading for Berlin?

A: Imagine a symposium sponsored by a civic group and one of its invited speakers addresses population matters for more than an hour. He warns his audience against slowing birth rates. Schools will close, we are told, and thousands of teachers will lose their jobs. The population of Japan, the speaker tells us, could drop to zero in several hundred years.

Suppose that we are never told that today births greatly exceed deaths. Suppose that the speaker fails to mention that we add **800,000** EXTRA persons to our planet every four days. We are not told that the world must complete 32,000 new classrooms every four days to accommodate the current pace of population growth. And we are not told that we add a BILLION additional people to our planet every 12-15 years. *Your author has attended real presentations exactly along these lines.*

Recently published articles seemingly urge us to imagine that a population decline and depopulation are underway. They seem to suggest, for example, that the human species is under threat, as though we are all about to depopulate ourselves out of existence.

One such article reports that wolves are “replacing people,” and even suggests that a new pack of wolves “might” form in eastern Germany and “could” end up “heading for Berlin.” The article uses selective data from a civilized population reduction that is underway in much of Europe to insinuate that this decline is a worldwide phenomenon. On the other hand, data like those pre-

sented in Wecskaop (and this excerpt) are not to be found, and the article does not inform its readers that, on a global scale, human numbers are still increasing explosively.

The same article tells us of a European town that must refit its sewers because its population has declined, so that "too few people are flushing" to maintain proper flow. Shrinking, the article then intones, "can be an expensive proposition indeed." Readers are not told, of course, that explosive population growth entails far more extensive and costlier expenditures for additional roads, schools, hydroelectric dams, power plants, and water and sewage treatment facilities.

These examples are an amalgamation of actual articles and presentations in recent years. With an additional billion joining our population every twelve to fifteen years, humanity and civilization might be better off *addressing the* 32,000 *new classrooms that are needed every four days* instead of too much worry about a "possible" pack of wolves that "may" form and "could" end up heading for Berlin (as though the authorities in Berlin couldn't deal with 10-20 lost and disoriented wolves in about 12 minutes) – (assuming, of course, that any of the animals manage to make it safely across the autobahn).

Numbers can act as an asset to an honest presentation. They can help clarify, underscore, and illustrate important trends, concepts, and principles. Unfortunately, an old adage reminds us that "if we torture numbers long enough, we can get them to say anything." When we are offered unabashed pro-growth advocacy by articles and presentations like those cited above, we should read between the lines to discern the economic and financial motives of those who stand to profit from continued runaway rates of population growth.

A continuation of today's demographic tidal wave *may constitute the greatest single risk that our species has ever undertaken*.

Excerpted from
What Every Citizen Should Know About Our Planet
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M. Arman Publishing, Fax: 386-951-1101

Expanded implications of this excerpt are also
addressed in additional PDFs in this collection:

- Razor-Thin Films: Earth's Atmosphere and Seas
- Numerics, Demographics, and a Billion Homework Questions
- Conservation planning - Why Brazil's 10% is Not Enough
- Eight Assumptions that Invite Calamity
- Climate - No Other Animals Do This
- Critique of Beyond Six Billion
- Delayed feedbacks, Limits, and Overshoot
- Thresholds, Tipping points, and Unintended consequencs
- Problematic Aspects of Geoengineering
- Carrying Capacity and Limiting Factors
- Humanity's Demographic Journey
- Ecosystem services and Ecological release
- J-curves and Exponential progressions
- One hundred key Biospheric understandings

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