# Links

## Cars

### Cars are consumption based

**Reay 05** Marine Biology at Liverpool University, a PhD with the British Antarctic Survey and Essex University, Led Multiple Studies on Greenhouse Gases (Dave, 2005, “Climate Change Begins at Home,” pg. 27)//DR. H

Car and air travel, as with the Carbones, top most people’s greenhouse gas budgets and so represent a huge opportunity for individuals to make a real difference. Unfortunately our way of life now so revolves around cars and planes that changing habits really does mean a break from the norm – taking the path less travelled. Look at the roads leading to your local mall: there are no pavements. Even if you wanted to walk to the shops you couldn’t – not without risking being mown down by an SUV. The same is true of cycling. It’s positively suicidal to ride a bike on many roads (Figure 4). Unless you are very lucky (or Swedish) there will be just a few kilometres of cycle path in your local town, probably scattered with broken glass, parked cars or potholes, or all three. Towns, cities, shops and offices, and even homes, are increasingly designed to fit the needs of that four-wheeled wonder that is the car, at the expense of less climate-damaging ways of getting around.¶ We’ve heard the pleas from politicians to use public transport, reduce speed, and drive a smaller car so many times we’ve become almost deaf to them. To date the effects of climate change on transport have tended to take the form of having the in-car air-conditioning on non-stop in the summer. Those of us who rely on an open window as opposed to whirring piece of cooling technology under the bonnet have certainly been feeling the heat in recent summers. Higher temperatures, though, are just the start of a series of impacts on our car driving.¶ Those journeys through torrential rain, gripping the steering wheel for all you are worth as another wall of water from the truck in front obliterates your view — expect more of them. Likewise, there will be more weather-related accidents and ‘road flooded’ notices. And climate change will attack the very road surface itself. If you don't find yourself in a jam waiting for a fallen tree to be cleared you're likely to end up in one caused by repairs as the surface melts in summer, cracks in winter, or sags and disintegrates due to both. Bad news then if you think of driving as an efficient, safe and rapid way to get around. it's also going to get very expensive. As oil runs out its price will go up; road tax will climb to pay for ali those repairs, insurance premiums will rise to cover increased accidents and, if governments are brave enough, drivers will face escalating taxes on their greenhouse gas.¶ Relying on top-down government action to cut our emissions from transport, though, could mean a very long wait. Yes, private road transport, being mainly cars, is a major source of greenhouse gas globally, but curbing our driving addiction has proved a political hot potato. There are more cars in the USA than people to drive them: the average household has l.8 drivers and 1.9 personal vehicles. That's over 200 million private vehicles in the USA alone. Lined up end to end these would stretch around the Earth more than 20 times. Over a fifth of them are SUVs, and another fifth are trucks, meaning big engines and bigger emissions. The average US car does about 20 miles per gallon - the worst do only 4 miles to the gallon - and, altogether, transportation in the USA creates nearly 2 billion tonnes of greenhouse gas each year. This is more than the total emissions of any other country, except China (a nation with four times as many people). Each day, on "average, an American will make four car trips totalling about 65 kilometres. Together the nation's drivers clock up about fl 7.5 billion kilometres each day.

## Technology

### Technology is balance. Questions of Consumption Come Before The implementation of Worthless Technology

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Technology is clearly a two-edged sword, providing opportunities to shift on a more¶ sustainable path, while at the same time presenting serious challenges to the entire¶ concept of sustainability. As a result technology presents several paradoxes for¶ sustainability:¶ 1. Technology is both at the root cause of the problems which the sustainability¶ framework was designed to address and also the potential source of solutions. An¶ example of a major technology challenge is that, of the 700 new chemicals introduced¶ each year in the U.S., few are tested for their toxicity and the burden is on the¶ government and society to prove any of them are harmful. In the European Union the¶ reverse is true and companies developing new chemicals are obligated to prove they are¶ safe prior to their deployment. On the positive side of technology, the development of¶ wind turbines, photovoltaics, and plant-based ethanol are providing the ability to shift¶ from non-renewable energy sources such as coal, petroleum, and natural gas to energy¶ systems based on the sun.¶ 2. It can enable a good quality of life for present generations while at the same time¶ threaten the quality of life for future generations. As humans have evolved, each¶ generation has sought to maximize its quality of life without regard for its decisions on¶ future generations.13 Indeed the impacts of technological developments have often been¶ unknown and the default behavior has been to assume the risk without a full¶ understanding of the consequences. The contemporary controversy over genetically¶ modified organisms (GMOs) is a case in point. Corn that can produce its own¶ insecticide, BT corn, provides farmers with a simple fix in dealing with pests. Farmers¶ often suffer devastating crop losses, especially in developing countries where insecticides¶ are expensive. However the long term consequence of BT-resistant insects that can¶ cause even more damage for future generations is ignored. Similar examples can be¶ found in the development of chemicals, nuclear energy, nanotechnology, cloning, and¶ others.¶ Determining how to cope with technological development and its deployment is not an¶ easy matter. Charles Lindbergh had perhaps as sound a view of the role of technology in¶ society as anybody. He had a fascination with technology and his association with the¶ development of the airplane has made him a metaphor for technology growth in the 20th¶ century. His euphoria at being able to be able to fly solo across the Atlantic in 1927 in¶ the most technologically advanced aircraft ever developed was tempered by the death and¶ destruction of World War II, largely a result of the continued evolution of the Spirit of St.¶ Louis. His profession and its associated technology had made vulnerable many more¶ population centers and permitted the delivery of nuclear weapons to end the war. Rather¶ than despairing over the perverse twists that had turned the technology he admired into a¶ major vector for destruction and rejecting it, he came to the conclusion that technology¶ was a question of balance. Although a technologist at heart, Lindbergh also loved nature¶ and he recognized that a balance was needed between spirit and nature and the world of¶ technology. As Lindbergh himself stated it: “I loved the farm, with its wooded river and¶ creek banks, its tillage and horses. I was fascinated by the laboratory’s magic: the¶ intangible power found in electrified wires, through which one could see the unseeable.¶ Instinctively I was drawn to the farm, intellectually to the laboratory.”14 In the end he¶ concluded that science was a means to reveal the workings of the divine, revealing both¶ the cosmic and microscopic rules governing the workings of the universe.¶ Technological Optimism versus Technological Pessimism¶ People generally have one of two opposing views when thinking about technology, and¶ their perception of technology dictates the levels of risk they are willing to accept. Socalled¶ technological optimists have the point of view that any problem has a technical¶ solution, that given the resources and with minimal government regulation, scientists and¶ engineers will find a solution. They suggest that in key areas such as food production,¶ environmental quality, and energy, technology will sustain quality of life even as human¶ population increases unabated. In this school of thought, running out of oil is not a cause¶ for concern because a yet as unidentified source of energy will be found. Indeed climate¶ change, caused in part by the depletion of oil, can also be resolved by technological fixes,¶ for example the carbon dioxide can be extracted from the atmosphere and stored in¶ caverns or dikes can be built that will prevent widespread flooding due to rising sea¶ levels. Alvin Toffler, author of The Third Wave and Future Shock and a poster child for¶ technological optimism, posited the notion that technological developments have led to a¶ sequence of so-called ‘waves’ over the centuries.15 The First Wave was agrarian society¶ in which farming replaced hunter-gather. The Second Wave was industrial society, from¶ the start of the Industrial Evolution in the 17th century through the mid-20th century.¶ Toffler referred to the Third Wave as the post-industrial era or Information Age. He was¶ confident that technology would increase wealth with a better life for all being the result.¶ Another technological optimist was Alvin Weinberg who invented the phrase,¶ technological fix.16 He proposed nuclear energy as the substitute for rapidly depleting¶ fossil fuels and as a source of cheap energy for developing countries, to include using it¶ to convert seawater into potable water. In general, technological optimists favor the¶ status quo, they do not support change that would reduce consumption, just more¶ technology to mitigate the impacts of consumption. They are likely to favor end of¶ pipeline solutions rather than changing the fundamental processes. For example, their¶ focus would be on converting the waste from manufacturing into useful products instead¶ of changing the manufacturing process to eliminate waste.¶ According to University of Michigan Law professor James Krier, technological optimists¶ tend to delude humanity by predicting the continual emergence of technological¶ breakthroughs at ever-increasing rates. As a result technology can increase pollution and¶ permit the human population, at least for the short term, to exceed planetary carrying¶ capacity.¶ Technological pessimists include such notables as the population biologist Paul Ehrlich¶ who wrote The Population Bomb in 1968 in which he predicted the world would¶ experience widespread famine in the 1970s. His remedy for countering this then looming¶ catastrophic situation was population control. Ehrlich also gained notoriety for a bet he¶ made with Julian Simon, a technological optimist, in 1980. Simon suggested that if¶ Ehrlich’s population predictions were correct, the price of commodities would rise over¶ time due to enormous demand for increasingly scarce resources. Simon believed in¶ human ingenuity and technology, and he bet Ehrlich that for any basket of five¶ commodities selected by Ehrlich, the total price would fall by 1990. Ehrlich took the bet¶ and selected tin, tungsten, copper, nickel and chrome as the commodities and purchased¶ $200 worth of each, a total of $1,000. If the price rose, Simon would owe Ehrlich the¶ increased value of the commodities. If the price fell, Ehrlich would owe Simon the¶ decrease in value. In 1990 Ehrlich wrote Simon a check for $576, the price of all five¶ metals had fallen. Ehrlich did underestimate human ingenuity and not only did¶ commodity prices fall, the number of famines and their death toll fell steadily during the¶ 25 year period after the book was written, and with a 50% increase in world population.¶ At about the same time as the publication of The Population Bomb, the Club or Rome¶ report, Limits to Growth was published in 1972 as an exploration of the consequences of¶ exponential growth among five variables: world population, industrialization, pollution,¶ food production and resource depletion.17 Although not intended to predict future¶ resource scenarios, it did provide ammunition for its critics by indicating scenarios for oil¶ depletion, among other resource issues. For oil it could be interpreted that depletion¶ would occur between 31 and 50 years from the time of the report, that is, as early as¶ 1992. The wild card that was ignored by the book was technology and how it could be¶ used to both extend existing resources as well as develop alternative resources.¶ It would seem that both technological optimists and their pessimistic counterparts have it¶ wrong, that the truth lies somewhere between these extremes. Ehrlich lost the bet with¶ Simon, indicating that at least for the short term, human ingenuity could trump resource¶ problems. However, the long term future is impossible to predict, but it is clear the Earth¶ is a finite planet with finite resources and at some point in time, if population and¶ consumption continue to grow, collapse will occur. By using a reductio ad absurdum¶ argument, if one were to assume the current annual population growth rate of about 1.7%¶ were to continue indefinitely, there would be a human standing in every square meter of¶ the Earth within five centuries. Clearly this is impossible, population cannot grow to this¶ extent. Similarly consumption per capita is also growing at about 1.7% annually and the¶ combination of population growth and consumption would consume the entire planet in¶ the same six century time frame. Either population or consumption but probably both¶ need to be limited to permit the sustainability framework, which seeks to meet the needs¶ of both present and future generations, to achieve the ends for which it was designed.¶ Deploying harmful, consumptive, wasteful technologies pose ethical challenges that need¶ to be addressed with sustainability oriented ethical principles that ensure the results of¶ technology development are not deployed should they violate the intent of the¶ sustainability concept.

### **New Tech Fixes Including CCS only provide a solution that justifies more consumption**

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Sustainability is inextricably linked to technology because the sustainability framework is¶ frequently applied to situations that involve technology. Climate change has been¶ defined as being due to anthropogenic effects, that is, it can be traced to human behavior,¶ and more specifically, to human behavior permitted by the technologies we have¶ developed. Power plants and automobiles are technologies that contribute directly to¶ climate change by burning oil-derived fuels and coal which produce carbon dioxide as¶ by-products. These technologies combined with technologies that enhance the extraction¶ of petroleum and coal have resulted in humans contributing enormous quantities of¶ carbon dioxide into the atmosphere. The human population of 6.5 billion annually¶ produces about 2.7 billion tons of carbon dioxide via respiration but produces almost a¶ factor of 10 more carbon dioxide (21.3 billion tons) annually by burning coal and oil. At¶ the same time that technology is being identified as a root cause of climate change, there¶ is the prospect that renewable energy technologies and carbon storage or sequestration.¶ Examples are solar photovoltaics and biofuels that generate energy in a carbon neutral¶ manner. Another set of technologies under development are aimed at sequestration by¶ separating the carbon dioxide from fossil fuel and storing it in geological formations such¶ as oil and gas reservoirs and unmineable coal seams. Even more novel technologies such¶ as genetic manipulation of trees to allow them to uptake more carbon dioxide and¶ advanced membranes to assist in carbon dioxide separation are being proposed. The¶ problem is that these are so-called “end-of-pipeline” approaches that rather than changing¶ society’s approach to energy generation, simply attempt to dispose of the consequences¶ in the least objectionable and least costly manner. The interplay of technology and¶ sustainability is basically axiomatic, they are inextricably coupled. Humans¶ characteristically have a difficult time anticipating the outcomes of developing specific¶ technologies and addressing the consequences of technology. Technology can be quite¶ complex and the ecological and human systems with which it interacts are even more¶ complex. In addition to the issue of both positive and negative interactions of¶ sustainability and technology, human behavior plays a role, with technological optimism¶ vying with technological pessimism as the dominant force in moving forward.¶ Consequences of Technology¶ New technologies have consequences, some of them known, others that are suspected,¶ and many that are unknown or unanticipated. In general technological consequences can¶ be categorized as Anticipated or Unanticipated. Anticipated consequences can be (1)¶ intended and desired; (2) not desired but common or probable; or (3) not desired and¶ improbable. Similarly unanticipated consequences can be (1) desirable; or (2)¶ undesirable. The development of hybrid automobiles brings with it the anticipated,¶ intended and desirable outcomes of reducing the need for petroleum, reducing air¶ pollution and reducing carbon emissions into the atmosphere. An anticipated, undesired¶ but probable outcome could be more automobiles on the road and more accidents¶ because hybrid cars will allow more miles to be driven. An anticipated, undesirable and¶ improbable outcome would be significant issues connected with disposal of vast¶ quantities of batteries needed by hybrid cars. The unanticipated consequences of¶ technology are of course the wild card, by definition they occur unexpectedly. It is true¶ that unanticipated but desirable consequences can occur. There have been several¶ pleasant outcomes from the DNA sequencing of the human genome, for example, a richer¶ understanding of how we are all related to one another. It has also opened the doors to¶ relatively easy genetic testing for predisposition to breast cancer, liver disorders, and¶ many other diseases. In contrast this same technology can result in unanticipated and¶ undesirable outcomes, for example, cherry picking of patients by health insurance¶ companies as they reduce their risk by rejecting people with a propensity to certain health¶ conditions.¶ The reason that the consequences of technology, both good and bad, are often not well¶ understood is that technologies have features that make it difficult to comprehend their¶ full effects. Dietrich Dorner suggested that there are four classes of these features that¶ contribute to the problem of grasping the consequences of technology: (1) complexity,¶ (2) dynamics, (3) intransparence, and (4) ignorance and mistaken hypotheses.18¶ Complexity addresses the many parts of a system and the wide range of interconnections,¶ many of which are not obvious and may be unknown. For example, ecosystems are¶ extremely complex and only a small fraction of the enormous number of ecosystem¶ relationships are known. Consequently, when ecosystems are disturbed by human¶ activities, the extent of the damage may be unknown because the interconnections are not¶ known. Robert Ulanowicz, the theoretical ecologist and philosopher, upon realizing the¶ complexity of ecosystems, abandoned a reductionist approach and instead developed¶ approaches, such as ascendancy, that tried to understand ecosystems as a whole.¶ Ascendency is a quantitative attribute of an ecosystem, defined as a function of the¶ ecosystem's food network and is intended to capture in a single index the resilience of an¶ ecosystem to disturbance by virtue of its combined organization and size. Similar¶ complexity can be found in virtually every technology and it presents a serious challenge¶ to society in assessing the deployment of technology. Complexity has evolved into a¶ theory of its own backed up by new mathematical and computer modeling techniques¶ designed to assist scientists in understanding highly complex phenomena such as weather¶ systems.¶ Dynamics describes the property of continuous and sometimes spontaneous change that¶ takes place in systems that often cannot be fully described and comprehended. The¶ movement of information across the internet, the flow of electricity through the grid, and¶ the behavior of high-definition televisions all exhibit dynamic behavior. The dynamics¶ of a system increase, often exponentially, as the number of actors in the system increases.¶ For example, the dynamics of traffic on an interstate highway increases as the number of¶ drivers increases, each driver with their own driving style, behavior, attitudes, and state¶ of mind.¶ The fact that many of the components of a system cannot be seen is the property called¶ intransparence. The more complex a system is, the greater its degree of intransparence.¶ Ecosystems, the economic system, and the internet are systems that exhibit a high level of¶ intransparence.¶ Sometimes humans simply get it wrong and the resulting model is badly flawed due to¶ ignorance and mistaken hypotheses. The economic collapse of 2008-2009 can be at least¶ in part attributed to the belief that the economy and the demand for housing would¶ continue to grow unabated and that highly speculative hedge funds and financial¶ instruments based on the growth in demand for housing would provide huge returns to¶ the financial institutions that created them. The hypothesis that the risk of these¶ instruments was manageable turned out to be false and the collapse of banks, insurance¶ companies, stock brokerages, and other financial institutions ensued.¶ When judging technologies, society is faced with difficult choices. The technology¶ developer is not the best person to ask whether or not there is a reasonable level of risk¶ associated with the technology because their judgment, as the inventor, may be clouded.¶ Yet because inventor best understand technology, society must often turn to them to¶ determine the likely outcomes. Remedying this situation so that the consequences of¶ technology are better understood is crucial. Frank Knight addressed this issue by¶ suggesting four ways that society could decrease the uncertainty and unintended¶ consequence of technology: (1) increasing knowledge, (2) combining uncertainties¶ through large-scale organization, (3) increasing control of the situation, and (4) slowing¶ the march of progress.19¶ Increasing knowledge by additional research, studies, and independent evaluations should¶ provide a better understanding of consequences. However there is no perfect knowledge¶ and any effort to gain additional insights will inevitably run into time and cost¶ constraints. Combining uncertainties through large-scale organization refers to the¶ potential for providing some type of insurance that will help protect society due to¶ catastrophic consequences. This is plausible to some degree because if there are¶ potentially high risks, the cost of deploying the technology could be prohibitive and¶ effectively block its implementation. Government can increase its control of¶ technologies by factoring in probable costs to society by imposing taxes that shift the¶ burden to the producers and effectively reducing the rate of uptake. Finally the rate of¶ change can be slowed to allow more time to effectively study and understand the¶ situation. In its extreme form this could take the form of a moratorium that would freeze¶ development until the risk could be adequately studied or understood. Immediately after¶ the cloning of the sheep Dolly was announced in 1996, President Clinton announced a¶ moratorium on cloning until more was understood about the implications of this¶ technology.

## Economy

### The Bigger-Cheaper-Faster Approach of the Economy is not the solution to Environmental Problems.

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 67-69)//EA

The political economy (I use this term, recall, to denote the entire institutional and cultural environment in which markets operate) of today is supremely well organized, and thus embodies organizing principles, to do the following: 1. Extract raw materials rapidly and thoroughly (the efficiency principle); 2. Convert those materials into products that people will buy (the consumers-rule principle, chapter 3); 3. Create markets everywhere (the growth principle); 4. Dispose of the wastes in the least costly, least visible manner possible (again, the efficiency principle, along with the out-of-sight-out-of-mind principle); 5. Do more and more of all this and do it faster and faster, cheaper and cheaper (the growth, efficiency, and cheaper-is-better principles). These are the very principles that got us into the current predicament. It defies all logic to think that the same principles will get us out—that they will do the very opposite of what they were chosen for. Instead, these principles lead would-be environmental saviors to say, in effect, “Let’s grow our economy with green products and pollute more efficiently; after all, consumers are buying it all.” They are buying, in truth, a bill of goods, an economic system that says, Trust us; have confidence that more consumption will be better consumption, that more efficiencies, despite their track record, will reduce the strain on ecosystems; that it’s okay if a few get fabulously wealthy, because you will too, someday, somewhere, somehow. They are buying a political economy that knows no bounds, that celebrates excess, that acts as if we have a few more planets to burn. They are buying a juggernaut that rolls over the landscape screaming “growth” and “progress” and “jobs” as it leaves destroyed communities—ecological and social communities—in its wake. The creation of sustainable economy requires that the juggernaut be stopped before its too late, and overhauled if not junked altogether. Then we need to build a new vehicle. For that we need new, principles, just as trading nations needed new principles after the grand failure of the old mercantilist trading order. And just as old principles wouldn’t do them, the principles of efficiency, growth, consumers-rule, out-of-sight-out-of-mind, and bigger-faster-cheaper won’t do now. We need principles that fit the needs of the times—namely, living on the regenerative capacities of current resources and waste sinks. In short, we need principles that are “ecologically consonant,” attuned to how ecosystems actually function.

### Current Economics Allow

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 82-84)//EA

If there were a single philosophical position in environmental thought, adhered to by all who are concerned about environmental destruction, it is that at the root of that destruction is humans’ separation from nature. Perhaps it sounds like a cliché, but that separation, that condition of “man apart from nature,” of alienation from the natural world, of distancing, is what drives overharvesting, overconsuming, overpumping, overdumping, and all other excesses of modern industrial life, amply documented in a multitude of state-of-the-environment reports. All this disconnection is spurred by mechanization, commodification, commercialization, urbanization, long-distance transport, packaging, central heating and cooling, electronic communication, formal education, reading, touring, zoos, and, well, just about every product and process that constitutes modern life. What all of them do is promote consumption, mobility, speed, entertainment, health (or, maybe better, longevity), information. And, of course, they promote growth, endlessly increasing throughput of material and energy in humans’ subsystem, what one might call its “economy,” of that larger system, what one might call the biosphere. At the same time, they skew perceptions away from the biophysical basis of economic activity, indeed, from the material basis of human life. The obvious mechanisms of separation are physical—the lack of direct contact with natural processes. Milk comes from cartons, paper from a box, gasoline from a pump. Drinking water flows form the tap, food from the grocery store. Less obvious but perhaps equally important are the concepts and technologies that drive a modern society. We don’t see the cow that produces the milk, let alone the farm, but we don’t need to: markets for feed and feedlots, for dairy products and packaging, for trucking and shelving all ensure supply. Milk is always available; just plunk down the cash. Concepts like “supply and demand” and “efficient production” and “food safety” join with actual distribution and financing systems to make it all happen. Consumers needn’t worry their pretty heads over where it comes from or what it looks like along the way or what goes in and what comes out in the process. Be a good consumer, we’re enjoined—just buy, and then buy some more. If separation from nature drives excess natural resource use, then connection would do the reverse. For many observers, this means people should better appreciate nature, and for that they need environmental education. But studying and environmental text (present author exclude, of course) or watching a nature program or spending time “in nature,” let alone spending money on “natural products,” tends, in a commercial society, to just reinforce a consumerist approach—buy it, use it up, go on to the next thing. Should it somehow result from educational measures, a heightened consciousness of nature is primarily about individual uplift and redemption, not about changing a society’s relationship with natural processes. Because “the environment” responds to total extraction and total waste filling—not to activities at the margin, not to individual action—these measures do little, if anything, to arrest trends. They do little to find a new path; instead, they ease the burden as we tread heavily up that ever more precarious ridge.

### **Capitalism Views Nature as a limitless resource bank. This justifies endless consumption.**

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

A new economic theory, ecological economics, is evolving to support sustainability and¶ plays such a key role that it is sometimes referred to as the science of sustainability.1¶ Ecological economics emerged in the late 1980’s after two decades of gestation as an¶ economic theory whose principles support sustainability.2 Capitalism, the dominant¶ economic system in the world, clashes with the concept of sustainability over several¶ issues, but especially over the role of the global ecosystem in the economy. Consequently¶ the contemporary economic theory underpinning capitalism, neoclassical economics, is¶ deficient when sustainability is being used as the guiding framework for shifting to a state¶ in which the economy produces goods and services, yet also protects and nurtures natural¶ and social systems.¶ The contemporary economic system is dominated by capitalism. Capitalism is a¶ relatively simple concept – it is based on private ownership of capital, assets that can be¶ used to produce yet more assets. Capital has several forms: financial capital or money;¶ physical capital such as buildings or machinery; human, social, and cultural capital,¶ assets that include knowledge, cooperation and collaboration, and the important artifacts¶ of society that may include art, music, architecture and traditions; and natural capital,¶ which may be thought of as nature, the environment, and ecosystems. Capitalism focuses¶ principally on the first two types of capital: financial and physical. Sustainability, while¶ considering all forms of capital, maintains that natural capital must not be degraded.¶ Where ecological economics values nature as one of the key factors in the quality of life¶ for future generations, capitalism treats nature as simply a factor of production.¶ Neoclassical economics models the production system as a black box with inputs and¶ outputs. It considers nature and natural resources to be unbounded and infinite while¶ ecological economics understands the Earth to be finite with limited resources and fragile¶ ecological systems that are critical for the survival of all forms of life. Neoclassical¶ economics assumes the Earth has infinite capacity for absorbing the waste generated from¶ production and consumption; ecological economics considers that nature has a limited¶ capacity to absorb some types of waste while others are unacceptable because they pose a¶ threat to life.¶ The focus of ecological economics is on the important role that nature and natural¶ systems play in the economy. In a paper by Robert Costanza and his colleagues in 1997,¶ they estimated the economic value of the world’s ecosystems. Published in Nature, the¶ article estimated this value as $33 trillion, with a range from $16 trillion to $54 trillion at¶ a time when the total global Gross Domestic Product was $27 trillion.3 This result meant¶ that the value of the world’s ecosystems at that time was 1.8 times greater than global¶ economic output. A wide range of ecosystem services are free and would have to be¶ replaced with high cost technology if the ecosystem were damaged to the point where¶ these services were compromised. For example, the pollination of wine grapes by bees in¶ Europe was estimated as a free service worth $2 billion because that would be the labor¶ cost of manually pollinating the flowers.¶ In comparing ecological and neoclassical economics, the major differences are:¶ 1. Ecological economics views human society as a subset of the sustaining global¶ ecosystem. Neoclassical economics ignores both systems and focuses only on human¶ production and consumption.¶ 2. Ecological economics acknowledges that the global ecosystem, including humans,¶ obeys the physical laws of thermodynamics (which physicists refer to as the supreme¶ laws of nature) as well as the laws of ecology. Neoclassical economics is silent on¶ physics and ecology but does make extensive use of mathematical models which treat the¶ economy as a black box of inputs and outputs.¶ 3. Ecological economics recognizes that the global ecological-economic system is highly¶ complex, non-linear and continually evolving and that simple answers or models to¶ difficult questions rarely exist. Neoclassical economics does not address the role of the¶ ecological system in the economy.¶ 4. Ecological economics requires a systems approach to economic theory and decision¶ making in order to address modern economic challenges and opportunities. Neoclassical¶ economics is fairly simplistic, focusing on one issue, business. Milton Friedman, an¶ American winner of the Nobel Memorial Prize in Economics in 1976, clearly articulated¶ its relatively simple outlook when he said, “The business of business is business.”

## Competitiveness

### The aff Justifies Endless Consumption IN the name of Competitiveness

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 52-53)//EA

Today there is nothing normal or inevitable about unending growth on a finite planet. There is nothing normal or inevitable about 10 percent of the world’s population holding 85 percent of global household wealth while a billion or two struggle day to day just to survive. There is nothing normal or inevitable about knowingly degrading ecosystems, permanently extinguishing entire species, causing irreversible changes in climate, or dislocating millions of people by failing to stop the resultant rise in the sea levels. And there is nothing normal or inevitable about justifying all this in the name of “economic growth” or “progress” or “consumer demand” or “efficiency” or “jobs” or “return on investment” or “global competitiveness.” So yes, many people in advances industrial countries are comfortable. They appear unlikely to change until a crisis affects them personally. They have done well by the current structures, economic and political. But just a bit of reflection, a glimmer of foresight, a glance at the biophysical trends, not to mention at financial trends where mounting debt threatens the entire confidence game, and the path’s end point is clear: collapse. All the market forces and technological wizardry will not change some basic facts: we have one planet, one set of ecosystems, and hone hydrologic cycle; and each of us has just one brain, one body, and one lifetime. Limits are real. If the current system cannot continue on one planet, just as slavery could not continue with trends in democracy and free markets and religious rights and human rights, then the action is with those with a bit of foresight, those with a vision of a different way of living on the planet, of living with nature, not against nature. The action is with those who can accept limits—indeed, embrace them. So readers of this book, I assume, may be comfortable, but they are not content. They are looking ahead, they are concerned, they are looking for change. And they know that a fundamental shift is inevitable. They know that all systems, from organisms to ecosystems, from household economies to global economies, have limits. They are the ones preparing the way, laying the groundwork, devising the principles and, yes, the technologies and markets that will allow everyone to live within immutable ecological constraints. They are the ones making sure the sand and the sandbags are on hand so that others can pitch in when the time comes. They are the ones building the compost piles, collecting the information, experimenting with new forms of community, speaking truth to power. The others, the people who need a crisis to act, are not the leaders. They will eventually act, to be sure they will act when personally threatened. But they will need guidance. They will need role models, concrete examples, opportunities to engage and do good as they protect themselves. And they will need enabling language., that’s where the real leaders come in. And now is the time to prepare—not when the crisis hits home and hits hard. So make no mistake, some people will act when there’s a crisis. But many others will be getting ready now,. These are the concerned and committed, the “moral entrepreneurs” who are already discovering that acting now is very satisfying, very engaging. It’s hard, yet at times quite simple.

## Efficiency And Tech Fixes

### Efficiency Through Technological Advances and Throughout the Economy Result in Endless Consumption

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 45-47)//EA

If there was ever a single statement that crystallizes the modern approach to modern problems, environmental and otherwise, it is this: new technologies will save the day. Sung from the heights of corporate boardrooms and government mansions to the depths of labor unions halls and grassroots activists’ basements, this mantra holds a mesmerizing spell over the body politic, especially in an advanced industrial country like the United States. At its core is a very simple concept: efficiency. I cannot do justice to the concept in this short space, let alone offer a thorough critique of Americans’ fixation on technological saviors. But bear with me as I play out some key underlying assumptions to show that the allure of efficiency is understandable, yet dangerous. Efficiency is, at root, an age-old commonsense idea. A person who extracts a resource or produces a crop with less effort does better. Applied to machines, it is a no-brainer: more horsepower, more illumination, more speed for a unite of energy expended is obviously a good thing; so is less energy expended for the same horsepower, the same illumination, the same speed. But at the turn of the last century a gentleman by the name of Frederick Winslow Taylor had an even better idea: apply the concept of efficiency not just to machines but to people, in particular to people (i.e., workers) who run machines. Soon labor became fabulously productive. And in the process, decision authority, judgment, and creativity shifted away from the craftsperson (now a mere wage earner) to managers and technologists (“efficiency exports”), those who could make technologies and workers serve their interests. Efficiency, so successful in the workplace, soon seeped out of the factory to infuse government, land management, schooling, even worship. An “efficiency craze” took over early twentieth-century America. A simple idea, a handy means of improving production, became a goal in its own right. As such, people lost sight of why efficiencies were useful. And into that political space stepped those who would use the concept for all sundry goals: increasing wages and controlling unionists; replanting forests and clear-cutting forests; urging people to shop judiciously and to buy impulsively; creating a productive economy with an optimal distribution of resources and stimulating that very economy to grow, and then grow some more, and more. It turned out that for all egalitarian and democratic promises of efficiency gains, it was those people who controlled the technologies that reaped most of the gains, material and political. What’s more, efficiency, as practiced, helped lay the groundwork for a consumerist society. In the process, efficiency became a means of not just determining who gets what and how (the standard economic justification), but a means of disguising and displacing full costs. It became a way of leading everyone to believe that society is marching forward, that we are all together on that endlessly productive, ever-ascending path. In fact, though, that path is eroding, its own material ground being eaten away by false beliefs in the beneficent rule of consumers and the come-to-the-rescue promise of new technologies. In the end, efficiency is a crutch, an excuse, a diversion. It is a handy guise for those who believe that perpetual industrial expansion on a finite planet is possible, indeed that this economy is scientific, modern, consumer-driven, and just. Disguising and displacing the true costs of mindless consumerism and endless material growth was made possible by the technologies themselves—indeed, by the very cost-benefit ratios that efficiency gains produced. Today, corporate CEOs bent on pleasing stockholders, politicians bent on pleasing key constituencies, government officials bent on raising revenues, and environmentalists bent on raising funds can all claim technology and efficiency as the elixir for all that ails the planet. Unfortunately for the true believers, the evidence is overwhelming that nothing of the kind is happening. As efficiencies increase, so does consumption.

### Efficiency And Productivity Result In Endless Consumption. We must Highlight these issues

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While the ethics of sustainability uses many of the same sources, approaches, and¶ thinkers as other branches of social ethics, sustainability raises new moral questions.¶ Perhaps the most important of these come in relation to the integration of social goods¶ with economic and environmental values (the latter will be discussed in more detail in¶ Chapter Seven.) We address economic ethics here, however, as a subfield of social¶ ethics. Economics by definition involves collective decisions and processes. Even¶ individual financial decisions are made only in relation to and subject to the influence of¶ larger economic forces. Economic ethics is concerned with the moral foundations,¶ characteristics, and consequences of economic activities and institutions. Economic¶ ethics may look at specific business practices or industries or at broader issues such as the¶ moral values, implicit or explicit, that undergird economic policies and practices. When¶ considering the ethical dimensions of economic systems, institutions, and decisions, a¶ number of significant questions related to sustainability must be taken into account. One¶ question concerns the definition of economic goals such as productivity, efficiency, and¶ security. Efficiency, for example, is usually defined as the maximization of output in¶ relation to certain inputs, and is a primary goal of many economic practices, systems, and¶ institutions. The inputs at stake can vary, and depending on which ones are selected –¶ e.g., labor time, energy, or capital investment – judgments of economic efficiency will¶ vary.¶ Contemporary North American agriculture provides an illuminating example of the way¶ differing economic approaches entail particular ethical consequences. Agriculture, like¶ sustainability more generally, is often assumed to be a practical, scientific, and technical¶ undertaking rather than an ethical one. Any agricultural system, however, involves¶ implicit or explicit efforts to live according to a particular definition of the good in the¶ standards or rules that farmers and ranchers follow, the goals they seek, and the¶ constraints by which they abide. Making explicit the values that underlie an agricultural¶ system enables us to evaluate agriculture in relation to other values that are important for¶ sustainability. This process is necessary in order to identify and transform unsustainable¶ practices. In other words, only if we know what social and scientific goods are being¶ enacted can we judge their compatibility with the broader goals involved in¶ sustainability.¶ A major value in Western agriculture, efficiency, is defined as a minimization of human¶ labor – fewer “man-hours” – in order to produce ever larger harvests. The drive to¶ reduce human labor has led to tremendous increases in the use of energy, mainly fossil¶ fuels, and to the establishment of a particular type of farm. First, contemporary North¶ American farms have become very large, often over 2000 acres. Such farms usually¶ grow one or at most a few crops or raise only one species of animal. This reduction of¶ diversity maximizes efficiency because you need fewer types of machines, but can create¶ additional challenges, including the use of large amounts of artificial fertilizers and¶ pesticides for plant production, and large amounts of waste in animal production. These¶ farms employ very few people to work very large areas and thus rely heavily on large¶ tractors and other machines. All these trends – stemming in large part from the drive for¶ a particular kind of efficiency – have led to a number of secondary consequences. These¶ include the depopulation of rural communities, the loss of topsoil and biological¶ diversity, and the contamination of soil, water, and air. A number of observers have¶ criticized the social, environmental, and economic consequences of the industrial model¶ for modern agriculture while pointing out that this kind of farming, along with its effects,¶ has arisen not accidentally, but because of a particular view of what values to prioritize¶ and what goals to seek. It is possible to define efficiency in different terms, for example,¶ in relation to the use of energy. Aiming for that sort of efficiency might lead to smaller,¶ more diverse, more labor-intensive farms that have much smaller carbon footprints –¶ farms, in short, that succeed according to economic values that are not dominant in¶ Western agriculture today.¶ Another important and related value for modern agriculture (and many other economic¶ undertakings) is productivity, which also entails implicit ethical priorities and generates¶ consequences that are not always benevolent. From the perspective of social justice, the¶ drive for productivity often leads to pressure for fewer workers to create more goods and¶ services, which can lead to higher unemployment rates and inequities between different¶ levels of workers, as well as stress for those doing the work. Further, environmentalists¶ point out that the high volume goals of productivity demand ever-increasing levels of¶ consumption, which consumes natural resources and produces more waste. However,¶ productivity, like efficiency, can be defined in more than one way. Productivity might¶ mean meeting people’s basic needs with a minimal expenditure of energy and labor.¶ Seeking this sort of efficiency would shift economic priorities away from continual¶ increases in production and consumption and toward the fulfillment of other goals, such¶ as equitable distribution of resources, greater community solidarity, and increased leisure¶ time.¶ These examples show how economic and social goals are intertwined. Decisions about¶ economic processes and institutions inevitably favor one social good or another, which¶ can ultimately favor one social class over another. Sustainability involves social and¶ economic values that are not priorities in contemporary U.S. society (or many other¶ societies). Agriculture, again, provides an illuminating example. Large-scale, fossil fuelintensive¶ industrial farms rarely promote the social, economic, or environmental values¶ that are central to sustainability. Unless those values are made explicit, however, it is¶ impossible to evaluate concrete practices and institutions or to develop alternatives.¶ Simply establishing standards does not, of course, necessarily lead to real life changes. It¶ may, however, constitute a necessary step in the movement toward more sustainable¶ farms and ultimately toward more sustainable societies. In order to pursue these goals,¶ professionals, scientists, policy makers, and citizens need accurate information and the¶ analytical tools that can help them to clarify the ethical dimensions of sustainability and¶ evaluate various decisions, projects, and in relation to those values.

# Alternative

## Alternative Texts

### Our Alternative is to Embrace the Consumption Angle

Pricen et al 5 - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, Michael Maniates, senior Visiting Professor of Environmental Studies at Oberlin College, Full Professor of Political Science and Environmental Science at Allegheny College, Ken Conca, Associate Professor of Government and Politics and Director of the Harrison Program on the Future Global Agenda at the University of Maryland, *Confronting Consumption*, http://web.utk.edu/~arouthe/mli/Confronting%20Consumption.pdf)//EA

Given our dissatisfaction with prevailing, fragmentary approaches to¶ consumption and its externalities, we seek an alternative perspective, a¶ new angle on the consumption problem. We highlight here three critical¶ themes as a provisional framework: emphasis on the social embeddedness¶ of consumption; attention to the linkages along commodity chains of¶ resource use that shape consumption decisions; and stress on the hidden¶ forms of consuming embedded in all stages of economic activity. These¶ themes stand in contrast to the ‘‘production angle’’ and its underlying¶ assumption of an economy with ever-expanding throughput of material¶ and energy in the human system—an assumption that exists as if ecological,¶ psychological, and social capacity were infinitely malleable and¶ extendable. From our ‘‘consumption angle,’’ we assume just the opposite:¶ that there are fundamental biophysical, psychological, and social¶ limits that can be ignored or stretched or disguised only in the short term¶ and only at increasing social, political, and economic cost. From the¶ production angle, ever-increasing production is logical; displacement of¶ costs onto others in time and space is normal competitive behavior. From¶ the consumption angle, ever-increasing throughput and displacement of¶ costs is ultimately destructive and self-defeating. In highlighting the dangers¶ of exceeding social capacity and risking ecological overshoot, our¶ intent is to question underlying assumptions, to stimulate thought, and¶ to point to new forms of intervention.

## Solvency

### The Alternative is A Prerequisite to Questions of Poverty and Tropical Storms

Cuellar 7 – Former Secretary-General of the UN (Javier Perez de Cuellar, Introduction, *Making Peace with the Earth*)//EA

The theme of sustainable development—which has emerged since the Bruntland report, *Our Common Future* (WCED, 1987), and the Rio summit—reflects this new awareness. Indeed, this concept presupposes a close understanding of the role played by a biodiversity and cultural diversity in the maintenance of ecosystems essential to life on our planet. Sustainable development is an ethical precept no less than a scientific concept. It implies that we recognize the interdependence between human needs and the natural environment. It is not possible to protect the environment and leave half the human race in poverty, nor is it possible to ensure the long-term development of a planet whose resources have been exhausted. Sustainable development calls for a twofold partnership—in space, between all human beings currently living on the earth, and in time, with future generations. The ideas defined by the Rio Earth Summit and the Commission on Sustainable Development are based on the proposition that current practices should jeopardize neither the living standards nor the environment of future generations. However, present generations have granted themselves drawing rights against future reserves to satisfy their immediate needs, bequeathing to future generations a crushing financial and ecological debt, and the responsibility for finding solutions. To ensure that future generations are not penalized in relation to present generations, sustainable development must link economic growth with the fight against poverty, social progress and environmental protection. How can we best profit from this reservoir of scientific knowledge inherent in our natural heritage and share the benefits of this knowledge more fairly? Mastering our mastery of nature, that is the motto of the “natural contract” that needs to be drawn up so as to serve development without enslaving nature. Inversion of the relationship of subordination between human kind and nature presupposes a corresponding inversion of the protective relationship. While the *Universal Declaration of Human Rights* (UN, 1948) makes no reference to the environment—for when it was drafted, only scientists were concerned about the environment; and as a matter of fact UNESCO launched the first major aridity studies programme at that time—we should remember that an increase in power also widens the scope of ethical responsibility. The United Nations system is therefore right to supplement the Declaration and the international human rights covenants with new normative instruments establishing environmental rights. For the first time in its history, humanity must therefore make political decisions of a normative and legislative character concerning the species and its future. It cannot do so without enunciating the principles of an ethic of the future, which should become the concern of all and a cornerstone of democracy, since science and technology by themselves do not always supply solutions to the questions they pose. Concerted action by governments, local and regional authorities, civil society, and industry could also help to bring about progress in areas such as the reduction of greenhouse gases. Yet an isolated approach of this kind is not sufficient. It is in the developing countries, moreover, that the degradation of the environment is most serious and the social and economic consequences most harmful. The countries of the South are also those most affected by tropical storms and disasters of all kinds, which can no longer be called “natural catastrophes” since it is obvious that their increasing incidence is the result of global climate change. A rational and equitable management of natural resources is therefore essential to ensure a sustained reduction of poverty.

### The Alt solves – We must change our usage of resources.

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It may be asked how our society can be beyond a limit. The answer is easy. It is like spending more money from one’s bank account than one saves. If one has been saving for many years, then for a short period of time one can take money out of one’s bank account faster than one put in. But soon that bank account will be exhausted, and then one’s monthly spending will have to decline until it is the same as one’s monthly savings. We are now spending down the resources of our planet. These resources were accumulated over millions of years. Forests, wildlife diversity, fossil fuels, clean and abundant ground water—all of these resources which were saved up, are now being spent down. The consequences of this are very plain to see. A couple quotations found recently in the meida and on the Internet illustrate the consequences. The first appeared recently as a headline in *Die Zeit* and read in German: “Can human beings still be saved?” (Vorholz, 2006*).* The fact that the leading newspaper in Germany can have a four-page feature article on this issue is amazing. If the article had appeared in 1970, it would have caused a Europe-wide furore. Now the notion is so commonplace that most people in Germany did not even notice it. My second example comes from the recent *Stern Review* (Stern, 2007), which says that if we do not act quickly, climate change will impose costs on the global economy that exceed those of the Second World War. The central question is: what is it that really has to decrease? And the answer is: energy and resource flows have to decrease. They are the result of three factors: number of people, standard of living and the amounts of energy and resources required to maintain a standard of living. One or more of these three factors will have to decrease in order to bring energy and resource flows back down within the limits of the planet’s carrying capacity. Efforts to reduce population growth are not considered politically acceptable in most cultures. And politicians do not wish to suggest reductions in standard of living. So we are forced to rely on the third factor—efficiency in the use of resources and energy to maintain a certain quality of life.

### Alternative Solves. Rejection Crashes the Original Normal

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 9-12)//EA

Yes, indeed, the foundations of a normal world, what we and our ancestors for generations have taken for granted, are being rocked. But the passive construction “are being rocked” is misleading. That rocking is done by agents—by us humans. Yet not by all of us, really. The real agents are those who have written the rules and set the expectations that constitute the old normal. They are the ones who created a normal that included the following claims, however implicit—claims that are now only being tested over an ecologically relevant time period and only now being questioned for their moral grounding. 1. Endless material expansion on a finite planet is possible, indeed desirable, dependent only on human ingenuity and the willingness to print money, incur debt, and take financial risks. 2. Cheap energy will, if access is ensured, flow continuously from any and every pool, no matter the geology or culture or politics, to its highest returns, which is to say to wherever in the world buyers are willing and able to pay the price. 3. Consumer demand determines what producers make, so what is made, goods and bads, is what consumers (read, all people or society) want. 4. Risks can be managed, traded, against each other and against economic production, including risks that cannot be foreseen, whose consequences cannot be contained, and whose time frame exceeds all human experience. 5. Economic, technological, and demographic growth will solve all problems, including the problems of economic, technological, and demographic growth. These claims, built into a belief system and welded into place by theories of economic growth and technological innovation, lead people to believe, to have faith, to participate as consumers and investors, but not to question. Above all, once absorbed as normal, these claims allow no one to let on that the “old confidence” is eroding—that the game, by all physical, biological, ecological, social, and economic measures, is really a confidence game, and the con men always get out early, leaving the mess for everyone else. This is all taken as normal, because to do otherwise is to expose the con. To question the assumptions, to challenge the prerogatives, is to crack the belief system. And then it all falls down. But when we view contemporary patterns as symptoms of fundamental shift, however uncertain their final outcome, we see that the old normal hardly needs the questioning and challenging because it is falling of its own weight. Each irreversible shift, each wobble in the legs, each failure to shore up a chinked foundation assures it. Instead, what is most needed, and what this book hopes to illuminate and lay the groundwork for, is a new normal. The time for a new normal is, indeed, now. On the environmental front, it begins with the observation, indeed the acceptance, that contemporary trends—environmental, economic, political—lead inescapably to one profound and disturbing conclusion: the era of “protecting the environment” is over, and the era of ensuring life support has begun. For several decades now environmental action has been a good idea to some, an annoyance to others. It has been a personal virtue, a cause, a rallying cry, a self-righteous plea, a haven for do-gooders and misfits. It has been a value of preference, a lifestyle choice, a contest of lobbyists and litigators. More recently, it has been a product of placement, a consumer choice, a marketing brand, a bandwagon to jump on and ride to ever greater commercial glory. No longer. “Protecting the environment”—that is, saving the odd species, setting aside the random tract, tagging the occasional pollutant for phaseout, greening an automobile fleet—is now, in light of fundamental shifts, quite beside the point. The point is (and here I reach for phrasing that itself has not been trivialized by the pervasive gloom and doom of modern environmentalism) that what humanity has always been able to take for granted—ample soil and water, a stable climate—are declining and disappearing and the risks cannot be manage in the conventional sense. The point is that present patterns of consumption are consuming life-support systems, locally and globally. The point is that we take for normal is actually excess. Yet what gets noticed as this age of excess falters is an increase in energy prices and threats to investments and jobs. Underlying it all, though, are vanishing natural resources and waste sinks (places where wastes can be deposited and eventually reassimilated), happening as if by magic. But the disappearing act is all of a piece with the energy and economic disruptions: it was by magic that we could displace costs so cleverly through the first couple of centuries of fossil-fuel-based economic expansion. It is no longer accurate to say that the environment is “threatened.” Presumably designed to convey seriousness, this military/security metaphor suggests that the battle has yet to commence, that the threateners are gathering far off in a foreign place, that if we act now we can deter or repel the attack, that life can continue if we all come together to vanquish the foe. The foe is that of the environment out there (or, even more preposterously but equally logically, the enemy that is the environment itself). Of course, there is no “other” that brings ruin to our resources; we are doing it ourselves. But now, with the aid of the physical and biological sciences, we see the enemy and it is us, especially the “us” who write the rules and capture the bulk of the benefits while the others absorb the costs.

### The lack of political will approach only hides the root cause and justifies imbalance of wealth. Rejection starts with the individual.

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 54-55)//EA

International development specialist Robert Chambers once said that “lack of political will just means that the rich and powerful have failed to act against their interests.” In other words, if there is a “lack of political will” when, for example, the nations of the world fail to act decisively to reduce greenhouse gases, it really means that those who are actually making the decisions are acting according to their own interests, that is, according to their own narrow self-interest. World leaders, is, according to their own narrow self-interest. World leaders, governmental and corporate, do very well by the status quo. They actually have abundant political will; it is just the will to keep the current system going. And they have the wealth and power to make it happen. They write the rules of the game. They mine on fossil fuel after another. They do not question the prerogatives of wealth and power, including their own wealth and power. They simply concentrate and perpetuate that power and that path of endless economic growth and impulsive consumption and needless depletion and gargantuan waste and horrendous imbalance of wealth between the haves and have-nots. Chambers goes on to say that this “lack of political will” lament “is a way of averting eyes from the ugly acts” –ugly facts like extreme wealth among thousands, abject poverty among billions. Ugly facts like extreme floods and fires, like disappearing rivers and groundwater, like grain and medicine shortages. “Lack of political will” puts the burden of finding a new path on the very people who have benefited so handsomely from the current path. As long as those of who are committed to finding a new path fall for it, we will be frustrated. We will cheer each new market development—another generation of fuel-efficient automobile engines, a new “sustainable” fuel, an “eco-friendly” cleanser—and then wonder why the path looks the same, why the tends persist, why it seems like we’re about to head over a cliff. “It is a convenient black box,” Chambers concludes. Convenient for those who wish to deflect attention. Convenient for those who divide the world between good guys and bad guys. Convenient for those who see in the failure to act only ignorance and stupidity (if only those leaders knew what I know, they’d do what I’d do), not the exercise of power. As I see it, the last few generations have seen enough convenience; it’s time for hard work, even sacrifice. Calling out the lack-of-political-will lament is another hard step onto that other path, a step to reversing the trend, living with our means. At the same time, I fully expect, it is a potentially rewarding step. Even more rewarding, we will see shortly, is positive sacrifice and good work (chapters 7,8, and 9).

### The Alternative Spills over and Results in Social Justice

Evans et al 3

[Bob Evans, Professor and Director of the Sustainable Cities Research Institute at the University of Northumbria, PhD in environmental planning and degrees in politics and sociology, Julian Agyeman, Assistant Professor of Environmental Policy and Planning at Tufts University, Robert D. Bullard, Professor of Sociology and Director of Environmental Justice Resource Center at Clark Atlanta University, Ph.D. in Sociology, "Just Sustainability," 2003, page 1]//SH

In recent years it has become increasingly apparent that the issue of environmental quality is inextricably linked to that of human equality. Wherever in the world environmental despoliation and degradation is happening, it is almost always linked to questions of social justice, equity, rights and people's quality of life in its widest sense. There are three related dimensions to this. First, it has been shown by Torras and Boyce (1998) that globally, countries with a more equal income distribution, greater civil liberties and political rights and higher literacy levels tend to have higher environmental quality (measured in lower concentrations of air and water pollutants, access to clean water and sanitation) than those with less equal income distributions, fewer rights and civil liberties and lower levels of literacy. Similarly, in a survey of the 50 US states, Boyce et al (1999) found that states with greater inequalities in power distribution (measured by voter participation, tax fairness, Medicaid access and educational attainment levels) had less stringent environmental policies, greater levels of environmental stress and higher rates of infant mortality and premature deaths. At an even more local level, a study by Morello-Frosch (1997) of counties in California showed that highly segregated counties, in terms of income, class and race, had higher levels of hazardous air pollutants. From global to local, human inequality is bad for environmental quality. The second related dimension is that environmental problems bear down disproportionately upon the poor. While the rich can ensure that their children breathe cleaner air, that they are warm and well housed and that they do not suffer from polluted water supplies, those at the bottom of the socioeconomic ladder are less able to avoid the consequences of motor vehicle exhausts, polluting industry and power generation or the poor distribution of essential facilities. This unequal distribution of environmental 'bads' is, of course, compounded by the fact that globally and nationally the poor are not the major polluters. Most environmental pollution and degradation is caused by the actions of those in the rich high-consumption nations especially by the more affluent of those societies. Even recent optimism about the Kyoto Protocol post-Marrakech hides a stark reality: affluent countries in the North are avoiding or delaying any real reduction in their greenhouse gas emissions through the so-called 'flexible mechanisms': emissions trading, the Clean Development Mechanism and the Joint Implementation (The Corner House, 2001). The emergence of the environmental justice movement in the US over the alst two decades was in large part a response to these distributional inequalities, as are the growing international calls for environmental justice (Adeola, 2000). The third dimension is that of sustainable development. The 'new policy agenda' of sustainability emerged after the publication of the World Commission on Environment and Developments report in 1987, but more fully after the 1992 United Nations Conference on environment and Development (UNCED) in Rio de Janeiro and its successor, the 2002 World Summit on Sustainable Development n Johannesburg. Sustainability is clearly a contested concept, but our interpretation of it places greater emphasis upon precaution: on the need to ensure a better quality of life for all, now, and into the future, in a just and equitable manner, while living within the limits of supporting ecosystems. In addition, we fully endorse Middleton and O'Keefe's (2001, p16) point that 'unless analyses of development being not with the symptoms, environmental or economic instability, but with the cause, social injustice, then no development can be sustainable'. Sustainability, we argue, cannot be simply an 'environmental' concern, important though 'environmental' sustainability is. A truly sustainable society is one where wider questions of social needs and welfare, and economic opportunity, are integrally connected to environmental concerns. This emphasis upon greater equality as a desirable and just social goal, is intimately linked to a recognition that, unless society strives for a greater level of social and economic equity, both within and between nations, the long term objective of a more sustainable world is unlikely to be secured. The basis for this view is that sustainability implies a more careful use of scarce resources and, in all probability, a change to the high-consumption lifestyles experienced by the affluent and aspired to by others. It will not be easy to achieve these changes in behavior, not least because this demands acting against short term self-interest in favor of unborn generations and 'unseen others' who may live on the other side of the globe. The altruism demanded here will be difficult to secure and will probability be impossible if there is not some measure of perceived equality in terms of sharing common future and fates.

### **Rejection Starts With The Individual. Only Then can we spill over to the rest of the world.**

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

It may be challenging for a scientifically minded professional to bypass a solution that¶ appears to be technologically sustainable in favor of a process that considers values,¶ ethics, justice, future generations, and the perspectives of naysayers who advocate for the¶ demise of your industry. But as the examples of the Frankfort airport and the¶ international GMO approval suggest, technological decisions are not sustainable in the¶ long term if they do not consider the varying perspectives of the environmentalists, the¶ rural poor, the neighbors, the unborn, and the non-human creatures on the planet.¶ Considering all those elements requires groups of stakeholders and representatives who¶ are probably not working for the same employer.¶ Implementing practices that lead toward sustainability in industries, businesses,¶ government agencies, municipal offices, and schools will take a process of working¶ together. Senge describes this as the process of developing a learning organization. The¶ Kaplans refer to the Reasonable Person Model (chapter 8) to guide the development of¶ situations and environments that enable people to flourish and use their creativity to solve¶ problems. Social learning is one description of the strategy that is engaged, and multistakeholder¶ processes are one method for facilitating social learning where complexity¶ and diverse perspectives are the rule.¶ These groups will engage people with different experience and expertise who may not¶ share the same vocabulary or biases. Communication within such groups begins with an¶ agreement to try, a shared vision of the purpose and goal, and a trust that working¶ together will result in something better than if everyone worked alone. As the world faces¶ greater challenges in balancing environmental limits with economic necessity and social¶ justice, it will not be hard to justify the importance of group efforts to design more¶ sustainable products and practices.¶ The groups that focus on sustainability will include the questions raised in chapters 4-7 of¶ this book. Perspectives on ethics can help people sort through the issues and weigh and¶ compare various options. In some cases, we are missing alternative perceptions and need¶ to challenge ourselves to always test assumptions and look for new considerations. We¶ need to shed old ways of knowing and thinking in order to perceive options for¶ sustainability. Is any outcome irreversible? Will future generations have the same¶ resources and options we enjoy? Are all those who are affected by this technology or¶ decision involved in the conversation? Are the costs of negative impacts included in the¶ price? The process of discussing, debating, and deciding is not easy, but is made more¶ effective when groups deliberately use the strategies of social learning and learning¶ organizations.

### **Only the Alt Solves**

Finger 94 - Ph.D. in Education in 1986 and his Ph.D. in Political Science in 1988, University of Geneva

(Matthias, “NGOs and transformation: beyond social movement theory”, *Environmental NGOs in World Politics*)//EA

Given the existence of this vicious circle, traditional problem-solving approaches appear today, at best, to be inadequate. At worst, they are now counter-productive, tending to further accelerate the overall trend in environmental degradation and the simultaneous erosion of the socio-cultural basis for dealing with the global crisis. For example, public information campaigns conducted in this era of the atomized individual and already high environmental awareness are likely to result in apathy, cynicism and even despair. Solutions of a purely scientific or technological nature, especially if lacking in any social perspective, will further erode the very social and cultural resources which could have transformed them into meaningful social and cultural action. Traditional politics and policies, generally aimed at the promotion of economic growth, will become increasingly defensive and reactive: indeed, the traditional political approach at the nation-state level will be to save what is left of industrial development without offering any way out. And it is not just industrial development which must be transformed: radical changes in the very nature of economic development are imperative if environmental degradation and cultural erosion shall be halted. In other words, the pursuit of exclusively economic, political, technological or educational solutions will not be sufficient to solve today’s increasingly global environmental crisis. Indeed, in the age of globally imposed limits to growth, it is very likely that each of these solutions stemming from the ear of development spiral will prove counterproductive. Only a change in perspective can help us learn our way through the crisis. Rather than trusting in the ‘miracle’ solutions mentioned above, we have to recognize the need for collectively learning our way out. All those actively promoting traditional problem-solving strategies must engage in this learning process. Experts promulgating counter-productive solutions should join groups of learners working collectively with real people on concrete problems. Teaching and preaching ready-made solutions to individuals must be replaced by collective, vertical, horizontal and cross-disciplinary learning. Such learning must be recognized as probably the only ‘resource’ still available to get us through and out of the ever-accelerating vicious circle.

# Impacts

## Future Generations

### Current Consumption Patterns Trade off with the ability of future generations to sustain themselves. You Should Evaluate These Impacts With Equal Importance to Questions of Nuclear War.

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

While an expanded time horizon is central to an ethics of sustainability, looking to the future has¶ a long and venerable history that far predates contemporary sustainability concerns. Edmund¶ Burke, the conservative 18th century British political thinker and parliamentarian, maintained that¶ the state was “a partnership not only between those who are living, but between those who are¶ living, those who are dead, and those who are to be born."7 Given this partnership, Burke argued¶ 4¶ that current generations ought to be mindful of “what is due to their posterity” and must, above¶ all, refrain from wasting their inheritance. We have no right, Burke insisted, to pass on to future¶ generations a “ruin” rather than a “habitation.”8¶ In America, and with a very practical bent, the founding fathers also voiced their sense of¶ obligation to future generations. Thomas Paine insisted that future generations ought not be¶ saddled with the repercussions of former generations’ choices. Both George Washington and¶ Thomas Jefferson maintained that each generation must pay its own debts and that the failure to¶ do so burdened posterity with deprivation and the threat of war.¶ Early national environmental laws and policies were explicitly grounded in ethical obligations¶ that spanned generations. In the United States, for example, the landmark National¶ Environmental Policy Act of 1969 issued the mandate to “Fulfill the responsibilities of each¶ generation as trustee of the environment for succeeding generations.”9 This intergenerational¶ ethics became a cornerstone for environmental thought and action. One of the first official¶ linkages of intergenerational ethics to the language of sustainability appeared in 1987. The¶ World Commission on Environment and Development (aka the Brundtland Commission)¶ famously defined development as sustainable when it “meets the needs of the present without¶ compromising the ability of future generations to meet their own needs.”10 While arguing for¶ economic development to improve the lives of the world’s poor, the report’s authors also wanted¶ to ensure that current economic growth did not cause environmental damage that would burden¶ future generations with diminished prospects. Current generations, the Brundtland Commission¶ maintained, did not have the right to benefit economically while future generations were saddled¶ with the cost of ecological reparations.¶ The World Commission aptly titled its 1987 report, Our Common Future. The title reflects two¶ important facts. First, we live at a time of global interdependence, and these interdependencies¶ are likely to grow. However separated and independent the lives of nations and peoples may¶ have been in the past, the future will be one of entwined fates. In a shrinking world increasingly¶ connected through global markets, media, environmental challenges, and intersecting cultures,¶ the future will be a common one. Second, the destiny of this planet and the human species is a¶ responsibility shared by all. Since our actions and interactions will create a common future, we¶ have a moral responsibility to shape this future in ways that conform to common principles and¶ ideals.¶ In 1997, a decade after Our Common Future first appeared, the General Conference of the¶ United Nations Educational, Scientific and Cultural Organization (UNESCO) endorsed a¶ Declaration on the Responsibilities of the Present Generations towards Future Generations.¶ Explicitly employing the language of sustainability, the Declaration held that “present¶ generations have the responsibility of ensuring that the needs and interests of future generations¶ are fully safeguarded.” Taking this responsibility seriously required that “each generation¶ inheriting the Earth temporarily shall take care to use natural resources reasonably and ensure¶ that life is not prejudiced by harmful modifications of the ecosystems and that scientific and¶ technological progress in all fields does not harm life on Earth.”11 The UNESCO declaration was¶ grounded in a sense of moral responsibility, but it was clear that such a statement of moral¶ purpose demanded empirical foundations. Accordingly, the U.N. initiated the largest study to¶ 5¶ date of the status of the earth’s natural resources and ecosystems. After five years of research by¶ more than 1300 scientists from 95 countries, the Millennium Ecosystem Assessment was¶ completed in 2005.12 The full report, over 2000 pages long, laid out in great detail how and why¶ the planet's ecosystems may prove incapable of being sustained owing to the strains placed on¶ them by contemporary humanity. The Millennium Ecosystem Assessment was grounded in a¶ sense of responsibility to future generations

## Tech Bad

### **New Technologies Are Only Short Term Fixes. This creates a sacrificial population**

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Virtually every technology is accompanied by some form of risk and the assessment of¶ the risk is essential for government and society to determine if the technology is suitable¶ for deployment. The transformations of matter and energy that occur as a result of the¶ application of science and engineering, although intended to benefit humans beings, can¶ have a wide range of consequences with negative impacts, some of which in fact damage¶ what humans in fact value, for example their health. Occasionally a technology will have¶ clearly undesirable consequences, for example pesticides such as DDT that had profound¶ impacts on natural systems and human health - these should be clearly avoided. Even¶ though DDT is a problematic chemical, it did result in wiping out malaria in the U.S. and¶ banning it could result in decimated populations in less developed countries. Most often¶ technology is a tradeoff between benefits and costs each of which may be technical,¶ social, economic, and/or environmental. Risk assessment and the resulting decision to¶ implement or shelve a technology represent the intersection of an ethics of sustainability¶ with technology. Weighing short-term, contemporary benefit against the welfare of¶ future people is characteristic of this type of ethical decision as would be decisions that¶ benefit wealthier people at the expense of vulnerable populations. Certainly the¶ assessment of risk must be based in science and research, but much of the assessment will¶ be statistical and the interpretation of the probability and intensity of impact makes it¶ extremely difficult to judge the risk. For example, pressurized water reactors (PWRs),¶ the most common variety of nuclear power plant in the U.S., have a very low probability¶ of a serious accident. A 1975 report by the U.S. Nuclear Regulatory Commission (NRC)¶ put the probability of a worst case accident with core meltdown and the failure of¶ containment at 1 chance in billion or about 1 in 10 million for 100 operating nuclear¶ reactors.20 Four years after the NRC report, the Three Mile Island PWR in Pennsylvania¶ suffered a core meltdown, calling into question the low probabilities cited in the report.¶ The Chernobyl disaster of 1986 resulted in a plume of radiation that spread around the¶ world and there is still a 17 mile radius exclusion zone around the reactor site.¶ Greenpeace maintains that over 200,000 deaths resulted from the accident and over 4,000¶ cases of thyroid cancer have been attributed to the accident in the Ukraine, Belarus, and¶ Russia. The RMBK reactors at Chernobyl did have serious design flaws that are not¶ present in contemporary PWRs. Yet government, and by extension, society, have opted¶ for the benefits of nuclear power in spite of the risk. Still largely ignored is the ever¶ growing volume of waste from the nuclear fission process which is stored on site at¶ nuclear power plants because the government, after over 50 years of futile attempts, has¶ yet to make a decision as to the long term storage strategy for this waste.¶ Presuming the consequences of a technology have been assessed, the result will be a¶ range of known outcomes from its deployment, some desirable and some undesirable.¶ The probability is that there are also a number of unknown consequences, some of which¶ may also be undesirable. The undesirable outcomes are those that are of concern to¶ society and despite the potential for negative results of a technology, the majority of¶ stakeholders may decide to permit its adoption. Risk is the probability of a negative¶ consequence causing widespread damage or turning into a disaster. When society¶ gambles that a technology will have a favorable outcome, it is deciding the risk is¶ acceptable. Technology is of course not the only source of risk. Where people live, their¶ lifestyles, where they work, how they travel, what they consume, and the waste they¶ generate all have risk associated with them. Natural disasters, terrorism, and the weather¶ all have risks associated with them. But risk associated with technology is a special class¶ of risk because, unlike the risk from natural disasters, risk from technology is avoidable if¶ society decides the risk is too great. Additionally the potential widespread impacts of¶ technology can be widespread, even global, and there can be a significant amount of¶ uncertainty. Genetically modified corn seeds can benefit developing countries because¶ of the possibility of reduced reliance on pesticides and herbicides, and reduced water and¶ energy requirements. However the potential risk is enormous because fewer strains of¶ corn are being planted, pests and weeds are likely to adapt to the genetically engineering¶ strategy, resulting in ‘superpests’ and ‘superweeds,’ and the farmer becomes dependent¶ on fewer sources of seed, all of which are patented. Additionally genetically modified¶ crops cross-pollinate with natural crops, with the result that the natural crops may¶ effectively disappear. The impacts on the larger planetary ecosystem are totally¶ unknown. A possible unknown negative risk that has been speculated but not proven is¶ the effect of genetically modified corn on beneficial insects, for example, butterflies. A¶ study by Cornell University showed that a gene for a bacterial toxin inserted into corn¶ proved poisonous to monarch butterfly larvae that ate the leaves of those plants. Similarly¶ soybeans that had been modified with a gene from the Brazil nut triggered allergic¶ reactions in people who were allergic to nuts. In spite of these risks, the benefits of more¶ robust crops with higher yield are resulting in increased sales of genetically modified¶ seeds each year. Stakeholders may differ on their perception of risk. Acceptance of¶ genetically modified organisms (GMOs) is more widely accepted in the U.S. than in¶ Europe, Korea, and Japan with 75% of U.S. corn now being genetically modified¶ versions.¶ The process of moving from recognizing risk to accepting it is a complex path because it¶ involves a process of making and justifying a judgment about the tolerability or¶ acceptability of a given risk. Tolerable means that the technology is worth pursuing due¶ to its benefits while acceptable implies that the risks have been reduced to the lowest¶ possible level. The acceptance of risk is the most difficult and controversial step in¶ deploying technologies. Risk associated with GMOs for many countries is considered to¶ be tolerable because for them, the benefits far outweigh the costs as they perceive them.¶ Nuclear power is certainly risky to present and future generations due to potential¶ accidents and the need for long-term storage of waste from spent uranium fuel rods. The¶ risk of an accident has certainly been minimized and therefore as a technology its¶ deployment is almost universally permitted.¶ Once the risk has been assessed and accepted, risk management is needed to ensure that¶ the risk of harm does not increase and that unintended negative consequences are¶ detected and handled. Climate change is an unanticipated negative consequence of fossil¶ fuel driven power generation and the international community is struggling to manage a¶ wide variety of options proposed to deal with this very serious global problem. Seed¶ banks have been established to preserve the genetic material of food crops and other¶ species in the event of catastrophic events such as natural disasters and war, as well as to¶ have them available should the now prevalent genetically modified seeds prove to be¶ failures.

### Even primitive Technology had environmental consequences. We should critically analyze the ramifications of technology before implementing a strategy. Only the alternative solves.

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

In previous centuries, before the industrial age, human technology was relatively rudimentary.¶ But, as Jared Diamond has demonstrated in his best-selling book, Collapse,23 many rudimentary¶ technologies, coupled with short-term thinking, led to disastrous consequences. Simple iron,¶ bronze, or even stone axes produced the deforestation of a number of ancient lands and the¶ demise of entire peoples, such as those occupying Easter Island. Agriculture based on primitive¶ mechanical methods of plowing and planting, prior to any use of artificial fertilizer and¶ machinery, led to the widespread erosion and salinization of soil, bringing about the collapse of¶ other ancient societies, such as the Anasazi of southwestern North America and the Maya of¶ Central America. Diamond underlines that environmental destruction is not the sole, or¶ sometimes even predominant, factor that leads to the collapse of civilizations. But, coupled with¶ overpopulation, environmental destruction has played a decisive role in many instances. While¶ technology is certainly implicated in these cases of social collapse, the technology involved was¶ not particularly advanced. A little technology can go a long way in bringing agricultural,¶ economic, and military benefits and in producing environmentally and socially disastrous¶ consequences.¶ Technology makes our impact on future generations potentially more potent and of longer¶ duration, so technology that produces greater and longer-lasting impacts would presumably¶ demand greater oversight in its development and use if we take our ethical responsibilities to¶ future generations seriously. Within sustainability circles, this measure of moral responsibility¶ often goes by the name of a “seventh generation” ethic.

## Environmental Degradation

### Consumption causes environmental degradation

**Jorgenson 03** Institute for Research on World-Systems, Department of Sociology at the University of California(Andrew K, 2003, “Consumption and Environmental Degradation: A Cross-National Analysis,” http://www.irows.ucr.edu/andrew/papers/jorgensonSP.pdf)//DR. H

The Ecological Footprint: A Missing Piece of the Puzzle¶ Having the ability to identify national-level differences in the amount of land and water required to produce commodities consumed would allow researchers to more adequately address questions regarding macrostructural causes of environmental and ecological degradation. Consumption is a critical factor affecting degradation, and unequal relationships between countries in the world-system enable more powerful countries to externalize the environmental and ecological costs associated with their domestic consumption of raw materials and produced commodities.¶ While it is very difficult to track, consumption in the core is likely a significant cause of environmental degradation in other zones of the world-system. This becomes even more pronounced over time as non-core countries produce manufactured goods and agricultural products, and extract natural resources for consumption in other parts of the world, particularly the core. (Burns et al. 2001:12)

### Consumption causes environmental degradation

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A key factor is relatively ignored in cross-national studies of environmental depletion and degradation: varied consumption levels and the associated natural resources required to produce the commodities in question (Burns et al. 2001; Princen 2002; Princen et al. 2002). The capitalist world-economy produces commodities through labor and natural resource exploitation that usually end up in core markets (Bunker 1985; Hornborg 2001). Although difficult to empirically identify, many social scientists argue that material goods consumed in the core have disastrous effects on the environment in other regions of the world (Burns et al. 2001; Clapp 2002; Conca 2002; Hornborg 2001; Tucker 2002). With the recent development of the national-level ecological footprint measure, consumption can now be adequately specified in cross-national research as both a dependent and independent variable for explaining various forms of anthropogenically caused environmental and ecological degradation, regardless of where it may occur. This measure identifies the amount of land and water required to produce commodities without needing to know the actual source of the resources.

### Current Consumption Rates lead to Loss of Biodiversity, disease, deforestation, desertification, and acidification

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Biodiversity refers to the number and variety of living organisms and the ecosystems in¶ which they occur. The concept of biodiversity encompasses the number of different¶ organisms, their relative frequencies, and their organization at many levels, ranging from¶ complete ecosystems to the biochemical structures that form the molecular basis of¶ heredity. Thus, biodiversity expresses the range of life on the planet, considering the¶ relative abundances of ecosystems, species, and genes. Species biodiversity is the level of¶ biodiversity most commonly discussed. An estimated 1.7 million species have been¶ scientifically documented out of a total estimated number of between 5 million and 100¶ million species. However, deforestation and climate change are causing such a rapid¶ extinction of many species that some biologists are predicting the loss of 20 percent of¶ existing species over the next 20 years.¶ Deforestation is particularly devastating, especially in rainforests, which comprise just 6¶ percent of the world’s land but contain more than 500,000 of the planet’s species.¶ Biodiversity preservation and protection is important to humanity since diverse¶ ecosystems provide numerous services and resources, such as protection and formation of¶ water and soil resources; nutrient storage and cycling; pollution breakdown and¶ absorption; food; medicinal resources; wood products; aquatic habitat; and undoubtedly¶ many undiscovered applications.15 Once lost, species cannot be replaced by human¶ technology, and potential sources of new foods, medicines, and other technologies may¶ be forever forfeited.¶ Furthermore, degradation of ecosystems contributes to the emergence and spread of¶ infectious diseases by interfering with natural control of disease vectors. For example, the¶ fragmentation of North American forests has resulted in the elimination of the predators¶ of the white-footed mouse, which is a major carrier of Lyme disease, now the leading,¶ vector-borne infectious illness in the United States. Finally, species extinction prevents¶ discovery of potentially useful medicines such as aspirin, morphine, vincristine, taxol,¶ digitalis, and most antibiotics, all of which have been derived from natural sources.16¶ Overfishing¶ The Earth’s ocean ecosystems contain a majority of all life found on earth and other¶ bodies of water contain over 22,000 species of fish and ocean mammals, ranging in size¶ from the 150 ton, 40 meter long blue whale to very small fish that feed on microscopic¶ phytoplankton. Unfortunately the world’s fishing fleets are two to three times larger than¶ the level that would produce a sustainable yield of fish, that is, a yield that does not¶ deplete the stocks of fish or destroy the biodiversity of the oceans. The methods used by¶ large commercial fishing are destructive in two ways: they result in overfishing and they¶ decimate the ocean bottom due to the use of bottom trawling. Overfishing can be defined¶ in terms of biological impacts or economic impacts. In an economic sense overfishing¶ occurs when the stocks of desirable fish have been depleted to a level that makes it¶ unprofitable for fishing companies to operate. Biologically, overfishing has occurred¶ when the stocks of fish have become so depleted that the survival of the species is in¶ question or the recovery of the fishery will take an extraordinarily long time. Much of¶ the world’s human population relies on fish, both from marine capture and from¶ aquaculture for their nutrition. In a report published by the UN Food and Agriculture¶ Organization, the scientists reported that 52% of fish stocks are fully exploited, 17% are¶ over-exploited, 7% are depleted, and 1% are recovering from depletion.17¶ Desertification, Eutrophication, and Acidification¶ In arid and semiarid regions land degradation results in desertification, or the destruction¶ of natural vegetative cover, which promotes desert formation. The United Nations¶ Convention to Combat Desertification, formed in 1996 and ratified by 179 countries,¶ reports that over 250 million people are directly affected by desertification.18¶ Furthermore, drylands susceptible to desertification cover 40 percent of the Earth’s¶ surface, putting at risk a further 1.1 billion people in more than 100 countries dependent¶ on these lands for survival. China, with a rapidly growing population and economy, loses¶ about 300,000 acres of land each year to drifting sand dunes.¶ Two environmental conditions that frequently threaten water supplies are eutrophication¶ and acidification. Eutrophication refers to the over-enrichment of water bodies with¶ nutrients from agricultural and landscape fertilizer, urban runoff, sewage discharge, and¶ eroded stream banks. Nutrient oversupply fosters algae growth, or algae blooms, which¶ block sunlight and cause underwater grasses to die. Decomposing algae further utilize¶ dissolved oxygen necessary for the survival of aquatic species such as fish and crabs.¶ Eventually, decomposition in a completely oxygenless, or anoxic, water body can release¶ toxic hydrogen sulphide, poisoning organisms and making the lake or seabed lifeless.¶ Eutrophication has led to the degradation of numerous waterways around the world. For¶ example, in the Baltic Sea, huge algae blooms, now common after unusually warm¶ summers, have decreased water visibility by 10 to 15 feet in depth.¶ Acidification is the process whereby air pollution in the form of ammonia, sulphur¶ dioxide and nitrogen oxides, mainly released into the atmosphere by burning fossil fuels,¶ is converted into acids. The resulting acid rain is well known for its damage to forests¶ and lakes. Less obvious, however, is the damage caused by acid rain to freshwater and¶ coastal ecosystems, soils, and even ancient historical monuments. The acidity of polluted¶ rain leaches minerals from soil, causing the release of heavy metals that harm¶ microorganisms and affect the food chain. Many species of animals, fish, and other¶ aquatic animal and plant life are sensitive to water acidity. As a result of European¶ directives that forced the installation of desulphurization systems and discouraged the use¶ of coal as a fossil fuel, Europe experienced a significant decrease in acid rain in the¶ 1990s. Nonetheless, a 1999 survey of forests in Europe found that about 25 percent of all¶ trees had been damaged, largely due to the effects of acidification.19

### The consumption of transportation causes climate change

**Reay 05** Marine Biology at Liverpool University, a PhD with the British Antarctic Survey and Essex University, Led Multiple Studies on Greenhouse Gases (Dave, 2005, “Climate Change Begins at Home,” pg. 25)//DR. H

So, what makes up an individual’s climate impact? As we saw with the Carbones, for most of us it centres on our behaviour at home and our burning of fossil fuels to get around (Figure 3).

Toping the lifestyle chart at close to half of all our greenhouse gas emissions is transport. The chief culprit here is the car: all those gas-guzzling saloons, people carriers and four-wheel drives make up a major part of the climate burden for the average developed-world family. Indeed, for those of us with big cars our love of driving can constitute well over half of all our contribution to global warming. Our deepening affair with flying, for work and pleasure, has also become significant part of most people’s emission budgets.

### Can’t adapt to warming

**Webersik 10** Associate Professor at the Centre for Development at the University Agder (Christian, 2010, “Climate Change and Security: A Gathering Storm of Global Challenges,” Security and the Environment, pg 67)

History tells us that humans are perfectly capable of adapting to a changing environment. Our survival during past ice ages is proof of our great adaptive capacity. Climate change will happen—and if unabated—with potentially catastrophic consequences. More extreme weather events, sea-level rise, and a hotter and drier climate are some of the predicted outcomes seriously affecting people’s choice of where to live on a much more crowded planet. At the time of writing in September 2009, world population is at 6.79 billion and on the rise.1 In the past, people had the possibility to move to less populated regions when faced by environmental change but today, population densities have increased dramatically and arable land has become more limited. In addition, large parts of the Earth’s fertile land has become more limited. In addition, large parts of the Earth’s fertile land became eroded and hence unsuitable for agriculture.

## Structural Violence

### Consumption causes environmental degradation, poverty, and destroys human rights

\*also an econ link

**Shah 11** Editor of Global Issues (Anup, March 6, 2011, “Consumption and Consumerism

Author And Page Information,” Global Issues, http://www.globalissues.org/issue/235/consumption-and-consumerism)//DR. H

Today’s consumption is undermining the environmental resource base. It is exacerbating inequalities. And the dynamics of the consumption-poverty-inequality-environment nexus are accelerating. If the trends continue without change — not redistributing from high-income to low-income consumers, not shifting from polluting to cleaner goods and production technologies, not promoting goods that empower poor producers, not shifting priority from consumption for conspicuous display to meeting basic needs — today’s problems of consumption and human development will worsen.¶ … The real issue is not consumption itself but its patterns and effects.¶ … Inequalities in consumption are stark. Globally, the 20% of the world’s people in the highest-income countries account for 86% of total private consumption expenditures — the poorest 20% a minuscule 1.3%. More specifically, the richest fifth:¶ Consume 45% of all meat and fish, the poorest fifth 5%¶ Consume 58% of total energy, the poorest fifth less than 4%¶ Have 74% of all telephone lines, the poorest fifth 1.5%¶ Consume 84% of all paper, the poorest fifth 1.1%¶ Own 87% of the world’s vehicle fleet, the poorest fifth less than 1%¶ Runaway growth in consumption in the past 50 years is putting strains on the environment never before seen.¶ — Human Development Report 1998 Overview, United Nations Development Programme (UNDP) — Emphasis Added. Figures quoted use data from 1995¶ If they were available, it would likely be that the breakdowns shown for the 1995 figures will not be as wide in 2005. However, they are likely to still show wide inequalities in consumption. Furthermore, as a few developing countries continue to develop and help make the numbers show a narrowing gap, there are at least two further issues:¶ Generalized figures hide extreme poverty and inequality of consumption on the whole (for example, between 1995 and 2005, the inequality in consumption for the poorest fifth of humanity has hardly changed)¶ If emerging nations follow the same path as today’s rich countries, their consumption patterns will also be damaging to the environment ¶ And consider the following, reflecting world priorities:¶ Global Priority $U.S. Billions¶ Cosmetics in the United States 8¶ Ice cream in Europe 11¶ Perfumes in Europe and the United States 12¶ Pet foods in Europe and the United States 17¶ Business entertainment in Japan 35¶ Cigarettes in Europe 50¶ Alcoholic drinks in Europe 105¶ Narcotics drugs in the world 400¶ Military spending in the world 780¶ And compare that to what was estimated as additional costs to achieve universal access to basic social services in all developing countries:¶ Global Priority $U.S. Billions¶ Basic education for all 6¶ Water and sanitation for all 9¶ Reproductive health for all women 12¶ Basic health and nutrition 13¶ (Source: The state of human development, United Nations Human Development Report 1998, Chapter 1, p.37)¶ We consume a variety of resources and products today having moved beyond basic needs to include luxury items and technological innovations to try to improve efficiency. Such consumption beyond minimal and basic needs is not necessarily a bad thing in and of itself, as throughout history we have always sought to find ways to make our lives a bit easier to live. However, increasingly, there are important issues around consumerism that need to be understood. For example:¶ How are the products and resources we consume actually produced?¶ What are the impacts of that process of production on the environment, society, on individuals?¶ What are the impacts of certain forms of consumption on the environment, on society, on individuals?¶ Which actors influence our choices of consumption?¶ Which actors influence how and why things are produced or not?¶ What is a necessity and what is a luxury?¶ How do demands on items affect the requirements placed upon the environment?¶ How do consumption habits change as societies change?¶ Businesses and advertising are major engines in promoting the consumption of products so that they may survive. How much of what we consume is influenced by their needs versus our needs?¶ Also influential is the very culture of today in many countries, as well as the media and the political institutions themselves. What is the impact on poorer nations and people on the demands of the wealthier nations and people that are able to afford to consume more?¶ How do material values influence our relationships with other people?¶ What impact does that have on our personal values?¶ And so on.¶ Just from these questions, we can likely think of numerous others as well. We can additionally, see that consumerism and consumption are at the core of many, if not most societies. The impacts of consumerism, positive and negative are very significant to all aspects of our lives, as well as our planet. But equally important to bear in mind in discussing consumption patterns is the underlying system that promotes certain types of consumption and not other types.¶ Inherent in today’s global economic system is the wasteful use of resources, labor and capital. These need to be addressed. Waste is not only things like via not recycling etc; it is deep within the system.¶ The U.N. statistics above are hard hitting, highlight one of the major impacts of today’s form of corporate-led globalization.¶ “Over” population is usually blamed as the major cause of environmental degradation, but the above statistics strongly suggests otherwise. As we will see, consumption patterns today are not to meet everyone’s needs. The system that drives these consumption patterns also contribute to inequality of consumption patterns too.¶ This section of the globalissues.org web site will attempt to provide an introductory look at various aspects of what we consume and how.¶ We will see possible “hidden” costs of convenient items to society, the environment and individuals, as well as the relationship with various sociopolitical and economic effects on those who do consume, and those who are unable to consume as much (due to poverty and so on).¶ We will look at how some luxuries were turned into necessities in order to increase profits.¶ This section goes beyond the “don’t buy this product” type of conclusion to the deeper issues and ramifications.¶ We will see just a hint at how wasteful all this is on resources, society and capital. The roots of such disparities in consumption are inextricably linked to the roots of poverty. There is such enormous waste in the way we consume that an incredible amount of resources is wasted as well. Furthermore, the processes that lead to such disparities in unequal consumption are themselves wasteful and is structured deep into the system itself. Economic efficiency is for making profits, not necessarily for social good (which is treated as a side effect). The waste in the economic system is, as a result, deep. Eliminating the causes of this type of waste are related to the elimination of poverty and bringing rights to all. Eliminating the waste also allows for further equitable consumption for all, as well as a decent standard of consumption.

### Current Practices have destroyed the Earth’s sustainability and caused mass poverty.

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

As the planet is transformed by the conversion of forests and habitat by agriculture,¶ extraction, and development, the inherent qualities of nature that humans enjoy for¶ recreation and in which they find wonder, peace, and relaxation, are disappearing at¶ alarming rate. These qualities are sometimes referred to as environmental amenity and¶ include the services of natural systems such as providing clean air and clean water. .¶ The destruction of forests and other ecological biomes, together with human impacts on¶ seas, oceans, lakes, rivers, and other bodies of water causes a reduction in the wide range¶ of services provided by ecosystems. Ecosystems provide a wide range of goods and¶ services to humankind at no cost that would otherwise be technically difficult and costly¶ to replace. These goods and services include production of food and water; control of¶ climate and disease; support from the major global-geochemical and nutrient cycles; crop¶ pollination; spiritual and recreational benefits; and the maintenance of biodiversity. In a¶ study conducted by Robert Costanza and his colleagues in 1997, they estimated the¶ economic value of these services was estimated to be almost double global Gross¶ Domestic Product.20 Over the past 2000 years, approximately 40-50% of Earth’s ice-free¶ land surface has been heavily transformed or degraded by anthropogenic activities, 66%¶ of marine fisheries are either overexploited or at their limit, atmospheric CO2 has¶ increased more than 30% since the advent of industrialization, and nearly 25% of Earth’s¶ bird species have gone extinct.21 The loss of both temperate forests and rainforests is a¶ major component of the loss of this amenity. Rainforests, which support 60% of the¶ world’s species, are disappearing at a rate of 15 million hectares per year.22 Temperate¶ forests found mostly in the U.S., Europe, and Russia, are being destroyed at an even¶ greater pace, with only 1% of the original U.S. and European forests remaining. One of¶ the outcomes of deforestation is the loss of animal habitat and unique flora and fauna¶ which future generations will not be able to experience.¶ Poverty and the Maldistribution of Wealth¶ The Brundtland Report was the result of an effort by the United Nations to determine¶ how to break the persistent grip of poverty on the vast majority of the world’s population.¶ Poverty depends on a wide range of variables and from country to country. The poverty¶ threshold or poverty line is generally accepted as a measure of poverty in any given¶ country and it is defined as the minimum income required to achieve an adequate¶ standard of living in that country. The standard of living is generally accepted as the¶ value of all resources consumed by a typical individual in one year and includes rent and¶ transportation. Adjustments are made to the standard of living based on status (single,¶ married, elderly), and other circumstances. In 2007, for example, the poverty threshold¶ for a single person under 65 was $10,787 in the United States. For a family group of¶ four, including two children, the poverty threshold was determined to be $21,027.23¶ Poverty in developed countries tends to be cyclical, that is, the number of impoverished¶ people rises and falls with economic conditions and unemployment. In the less¶ developed countries, poverty tends to be persistent. The terms absolute poverty and¶ extreme poverty are sometimes used to define the form of persistent poverty which is¶ independent of time and place. According to the United Nations, absolute poverty is “a¶ condition characterized by severe deprivation of basic human needs, including food, safe¶ drinking water, sanitation facilities, health shelter, education, and information. It depends¶ not only on income but also on access to services.” Absolute poverty can be defined as¶ the absence of any two of eight basic needs:24¶ • Food: Body Mass Index must be above 16.¶ • Safe drinking water: Water must not come from solely rivers and ponds, and must¶ be available nearby (less than a 15 minutes walk each way).¶ • Sanitation facilities: Toilets or latrines must be accessible in or near the home.¶ • Health: Treatment must be received for serious illnesses and pregnancy.¶ • Shelter: Homes must have fewer than four people living in each room. Floors¶ must not be made of dirt, mud, or clay.¶ • Education: Everyone must attend school or otherwise learn to read.¶ • Information: Everyone must have access to newspapers, radios, televisions,¶ computers, or telephones at home.¶ • Access to services: Access to typical services such as education, health, legal,¶ social, and financial (credit) services.¶ For the purpose of global aggregation and comparison, the World Bank uses reference¶ lines set at $1.25 and $2 per day. Poverty estimates released in August 2008 showed that¶ about 1.4 billion people in the developing world were living on less than $1.25 a day in¶ 2005, down from 1.9 billion in 1981. This amounts to a reduction of absolute poverty¶ from 1 in 4 people in 1981 to 1 in 2 people in 2008. The international poverty line of¶ $1.25 a day at 2005 prices is the mean of the national poverty lines for the 10-20 poorest¶ countries of the world.¶ In 2001, the then 192 United Nations member states adopted the United Nations¶ Millennium Declaration which laid out eight major development goals to be achieved by¶ 2015. Goal 1 of the United Nation’s Millennium Development Goals is to eradicate¶ extreme poverty and hunger. According to the World Bank, the developing world as a¶ whole remains on track to meet the first Millennium Development Goal which is to halve¶ extreme poverty from its 1990 levels by 2015.25 It could be said that global efforts to¶ reduce poverty are having some success based on these statistics. However the world is¶ entering an era of diminishing resources, including oil, metals, food, potable water and¶ output from fisheries. The world’s population continues to grow at a rate of about 1.7%¶ year, straining natural and mineral resources. The result could be a reversal in these¶ positive trends if population and consumption continue on their present trajectories.

## Economy

### The K Turns Econ. The Alt Solves

Cuellar 7 – Former Secretary-General of the UN (Javier Perez de Cuellar, Introduction, *Making Peace with the Earth*)//EA

What link is there today between the future of the human species and the future of the planet? The degradation of our ecosystems and the acceleration of climate change call into question our certainties concerning progress and undermine our confidence in the future of humankind. Humanity lives off the Earth, but the Earth is its host. When the parasite destroys its host, it condemns itself to death. How can we meet today’s needs without jeopardizing the capacity of future generations to satisfy their own needs? We must now become “symbiotes” of the Earth rather than its parasites. If we live in symbiosis with the Earth, we shall survive. If we persist in being its parasites, we shall mortally wound the biosphere and we shall perish. In the course of the last century, our natural environment had to cope with the pressures arising from the growth of human population, which has quadrupled since the start of the 20th century. During this time, the consumption of energy and raw materials increased ten-fold, and global economic production by a factor of eighteen. To meet their needs in terms of food, water, wood, fibre, and fuel, human beings have profoundly altered the Earth’s ecosystems, in the space of little more than fifty years, through the excessive exploitation of resources. For the source of humanity’s present sickness is excess, our failure to remember the maxim cherished by the sages of antiquity: Ne quid nimis!, “Nothing to excess!” The risk of causing irreparable to the environment is very real, then. One in every two jobs—in agriculture, forestry, and fisheries—is directly dependent on the viability of ecosystems. But the health of the planet—and our own heath—is also at stake. Do we want the world to become like the Aral Sea, a great dried-out lake, a “wasteland” in the words of the poet T.S. Eliot? Advances in science, technology, and medicine have freed us from the seemingly inescapable burdens that long oppressed us: high mortality rates (particularly among children), famine, short-ages, and sickness. But humanity is now responsible for replacing the apparently automatic functioning of nature and society by conscious modes of behaviour in order to safeguard its own future and that of the planet. When the world’s population reaches the predicted figure of 9 billion between now and 2050, we shall have to change our attitude if we are not to precipitate a collective suicide. Experts estimate that 60 percent of ecosystems are seriously threatened, and that this trend will be accentuated through the impact of global warming. The *Stern Review* (Stern, 2007) estimates that the price of doing nothing about climate change will be greater than the cost of the First and Second World wars and the Great Depression combined, while the other consequence of our negligence would be to render a large part of the planet uninhabitable. Humanity should prepare itself, the *Stern Review* says, for a 5-20 percent reduction in global GDP between now and 2050 and its likely to face a bill of €5,500 Billion if it does not take immediate measures to combat global warming. If sustainable development was thought to be too expensive, misguided growth and inertia in the end turn out to be more ruinously expensive still. More generally, over and above the problem of global warming, we are obliged to recognize that human activity has created new global risks: along with the risk of nuclear destruction, the loss of biodiversity and the exhaustion of natural resources essential to our existence. We must therefore start to play a conscious part in shaping our collective destiny on a planetary scale.

### **Current Politics And Economics Discount The Future Generations. This Leads to Extinction of the Human Race.**

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Discounting the future often makes good economic sense. After all, a bird in the hand is worth¶ more than one in the bush. A bird in the hand cannot fly away and is immediately available for¶ use. It might lay eggs, effectively producing income for its owner. Discounting the future at a¶ rate that reflects the inherent insecurities of future endeavors and the loss of income (or¶ compound interest) from current goods certainly makes economic sense. The problem is that¶ good economics often translates into bad ecology.¶ Would you prefer to be given $100 today or $121 in two years? Most of us would take the¶ money now (and run). That represents a fairly standard discount rate of ten percent a year.¶ Now consider an economic project that would create a $10 million depletion of ecological¶ resources within the century. At a ten percent discount rate, that project would make economic¶ sense as long as it produced a $725 profit today! You can see where this is going. As John¶ Dryzek observes, "a system may be judged economically rational while simultaneously engaging¶ in the wholesale destruction of nature, or even, ultimately, in the total extinction of the human race. The latter result holds because of the logic of discounting the future."28 When costs of¶ mitigating pollution, grappling with resource depletion, and responding to the effects of habitat¶ destruction are shifted to future generations, and these costs are discounted by present-day¶ decision-makers, then today’s economic rationality portends tomorrow’s social and ecological¶ disaster.29¶ So good economics today can become bad economics for future generations. It is natural for us¶ to value a bird in the hand more than one in the bush, but when the bird in question is stewing in¶ someone's cooking pot today, future generations who might have collected its eggs must go¶ without. In such situations, the depletion of “natural capital” (the bird, or perhaps an entire¶ species of birds) leaves future generations without the possibility of living upon the interest that¶ natural capital generates (the eggs).¶ Natural capital is a stock of natural resources that yields an ongoing flow of natural goods or¶ services. A stock of trees (i.e., a forest), for instance, produces timber that may be used for¶ lumber, energy conversion, or paper products. A stock of water (e.g. a lake) may provide for¶ drinking needs or industrial uses, a sink within which non-toxic wastes may be dispersed and¶ reabsorbed, and fish for consumption. Such natural stocks, if utilized in a sustainable manner,¶ may continue to produce valuable goods and services indefinitely. However, when the¶ exploitation of a stock becomes too great, its natural resources prove incapable of regenerating¶ themselves (fast enough). The natural “income” it produces – the flow of goods and services¶ that would normally be provided indefinitely – becomes tapped out. At that point, any further¶ exploitation exhausts the natural capital. As the stock is depleted, the income it generates also¶ diminishes. In the long term, the depletion of natural capital leaves one without both capital and¶ income.¶ If current generations are depleting natural capital, then future generations will face diminishing¶ returns. The ethical upshot, as a national report entitled Choosing a Sustainable Future¶ observes, is that current generations of natural resource exploiters are effectively "stealing the¶ environmental capital of future generations."30 Such ecological debts are created every time we¶ degrade the natural environment or deplete its resources to the point that future generations are¶ left with less than we ourselves inherited.¶ Our current predicament, then, is rather dire. Not only are we incurring large personal and¶ national debts and depleting our financial capital, but we are also running up massive ecological¶ debts, depleting the natural capital of the planet. Our descendants will be forced to pay these¶ debts -- that is an injustice and some would say that it is also undemocratic. We may reasonably¶ assume that future voters would not endorse their being burdened with reparations for debts¶ made before they were born, debts whose benefits they never enjoyed. Had they a chance to¶ vote on the issue, we may be assured that policies allowing such financial and ecological debts¶ would not be approved. So intergenerational injustice is also an undemocratic process. As one¶ spokespeople for sustainability insisted, "Ecologically responsible democracy must consider the¶ rights of the true majority -- those billions of people as yet unborn."31¶ The depletion of natural capital may ignore the principles of justice and the principles of¶ democratic politics, but it appears to be congruent with the principles of economics. “It is an¶ economic fact that posterity never has been, and never will be, able to do anything for us,"¶ William Ophuls writes. "Posterity is, therefore, damned if decisions are made ‘economically.’”32¶ Of course, it is not only in economic affairs that human beings discount the future. To be sure,¶ businesses chiefly concerned with the bottom line in a competitive global marketplace are often¶ focused on short-term profits at the cost of long-term sustainability. One might concede the¶ inevitability of this myopia in the business world, taking solace in the hope that longer-term¶ thinking predominates in other realms of life. But in the area of personal health, we know that¶ individuals often let the short-term pleasures of comfort (watching television rather than¶ exercising) and eating (too many fats and sugars and not enough fresh vegetables) jeopardize¶ their long-term health.¶ Likewise, politicians today – though one might expect them to have extended local, regional,¶ national or global interests at heart – are often equally myopic. Just as today’s corporations may¶ focus on quarterly earnings as they confront their self-interested shareholders, so politicians¶ encountering electoral pressures may forgo long-term concerns and perspectives. The temporal¶ horizon of politicians who face re-election in two to four years is often as short as the campaign¶ sound bites they produce. In this respect, the rights of voters yet to be born often get ignored.¶ Certainly, if current voters do not voice concern for the welfare of future generations, politicians¶ will seldom respond to the needs of those yet to be born and yet to vote. As Sierra Club¶ executive director Carl Pope observed, the vision of many politicians does not extend to "future¶ generations: an irrelevant class of people who can't vote, aren't consumers, and don't have¶ political action committees."33 Just as business people react to a challenging marketplace, so¶ politicians react to current pressure from powerful lobbyists and a demanding electorate. The¶ future and its citizens typically get discounted.34

## Climate Change And Value to Life

### Un Controlled Consumption Leads to Climate Change, Loss of resources, biodiversity, food, and quality of life

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Much has been said about the role of population as the cause of many global problems¶ due to the need to feed, clothe, and house Earth’s still rapidly growing human population.¶ In fact the combination of population and per capita consumption is challenging the¶ carrying capacity of the planet. In addition to the burden of a rapidly growing global¶ population on relatively scarce food, water, land, and materials resources, the wealthier¶ nations consume far more per capita than the poorer countries. The world’s wealthiest¶ countries, with less than 20 percent of the world's population, contribute roughly 40¶ percent of global carbon emissions, and they are responsible for more than 60 percent of¶ the total carbon dioxide that fossil fuel combustion has added to the atmosphere since the¶ Industrial Revolution began. But this picture is now changing rapidly, particularly in¶ China, where emissions are now rising at 10 percent a year, 10 times the average rate in¶ industrial nations. By 2007 China's fossil fuel emissions exceeded those of the United¶ States and continue to grow rapidly.9 Global population continues to grow at an alarming¶ rate, with a population the size of Mexico’s (about 80 million) being added to the planet¶ each year and almost 1 billion people per decade.¶ Consumption is another side of the problem, especially per capita consumption of key¶ natural resources which varies greatly around the world. Typically, the citizens of rich¶ industrialized nations use more of the world's resources and produce more waste. As a¶ result they sometimes deplete their own resources and often the resources of other¶ countries.¶ For many resources, the U.S. is the world's largest consumer in absolute terms and for¶ others it is the largest per capita consumer. For 11 out of 20 major traded commodities,¶ the U.S. is the greatest consumer. These include commodities such as corn, coffee,¶ copper, lead, zinc, tin, aluminum, rubber, oil seeds, oil and natural gas.10¶ A typical example is meat. China, with the world's largest population, is the highest¶ overall producer and consumer of meat, but the highest per-capita consumption in the¶ world is that of the United States. The average United States citizen consumes more than¶ three times the global average of 37 kilos per person per year. Africans consume less than¶ half the global average, and South Asians consume the least, under 6 kilos per person per¶ year. Other resources are used much more variably, depending on local circumstances.¶ Fish, for instance, has been a cheap source of protein for hundreds of millions of poor¶ people wherever it has been available. The highest consumption levels are in some of the¶ world's poorest states, such as the Maldives or Kiribati, where fish is plentiful. Per-capita¶ consumption is also very high in rich nations with well-established fishing traditions -- 91¶ and 66 kilos per capita in Iceland and Japan respectively; way above the global average¶ of 16 kilos per capita per year.11¶ To pursue sustainability, the so-called “twin horns of the dilemma,” population and¶ consumption, must both be addressed.¶ Climate Change¶ Changes in the Earth’s climate are the rule rather than the exception and there is ample¶ evidence that over the past several million years there have been significant shifts in the¶ Earth’s average annual temperature.¶ As defined by the National Oceanographic and Atmospheric and Administration¶ (NOAA), climate change consists of long-term fluctuations in temperature, precipitation,¶ wind, and all other aspects of the Earth's climate. The United Nations Framework¶ Convention on Climate Change describes the phenomenon as a change of climate¶ attributable directly or indirectly to human activity that alters the composition of the¶ global atmosphere, and that is, in addition to natural climate variability, observable over¶ comparable time periods. The Intergovernmental Panel on Climate Change (IPCC) was¶ established by the World Meteorological Organization (WMO) and the United Nations¶ (UN) in 1988 to assess, on a comprehensive, objective, open, and transparent basis, the¶ scientific, technical, and socioeconomic information relevant to understanding the¶ scientific basis of risk of human-induced climate change, its potential impacts, and¶ options for adaptation and mitigation. The Fourth Assessment Report of the IPCC,¶ published in 2007, concludes that the globally averaged surface temperatures have¶ increased by 0.3 ± 0.1°F (0.6 ± 0.2°C) over the twentieth century. For a range of¶ scenarios, the globally averaged surface air temperature is projected by models to warm¶ 0.8 to 3.2°F (1.4oC to 5.8°C) by 2100 relative to 1990. Furthermore, globally averaged¶ sea level is projected by models to rise 0.30 to 2.9 feet (0.09 to 0.88 meters) by 2100.¶ These projections indicate that the warming would vary by region and be accompanied¶ by increases and decreases in precipitation.12¶ Moreover, there would be changes in climate variability, as well as in the frequency and¶ intensity of some extreme climate phenomena. It is important to note that the behavior of¶ global systems such as climate are nonlinear. Each increase in carbon dioxide will not¶ necessarily produce a proportional change in global temperature. However, the dynamic,¶ chaotic character of the Earth’s climate is such that climate can suddenly “flip” from one¶ temperature regime to another in a relatively short time. Indeed, fossil records indicate¶ that previous flips have occurred, with temperature increasing or decreasing almost 10oF¶ (5.6°C) in about a decade. The potential for climate change has profound implications for¶ every aspect of human activity on the planet. Shifting temperatures, more violent storms,¶ rising sea levels, melting glaciers, and other effects will displace people, affect food¶ supplies, reduce biodiversity, and greatly reduce the quality of life.

## Mineral Loss

### And Loss of Key Minerals

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

The depletion of key resources needed to support the energy and materials requirements¶ of today’s technological, developed world societies, is a threat to the high quality of life¶ enjoyed by North Americans, Europeans, Japanese, and the other countries that make up¶ these societies. Evidence to-date seems to indicate that we have maximized our ability to¶ extract oil and that we are in an era of probably far higher prices for oil-based products,¶ among them gasoline, diesel, jet fuel, and oil-based polymers. A similar scenario is¶ playing out with other key resources, most notably metals. A recent study of the supply¶ and usage of copper, zinc and other metals has determined that supplies of these¶ resources--even if recycled--may fail to meet the needs of the global population.13 Even¶ the full extraction of metals from the Earth's crust and extensive recycling programs may¶ not meet future demand if all countries try and attain the same standard of living enjoyed¶ in developed nations. The researchers, Robert Gordon and Thomas Graedel, based their¶ study on metal still in the Earth, in use by people and lost in landfills. Using copper¶ stocks in North America as a starting point, they tracked the evolution of copper mining,¶ use and loss during the 20th century. They then applied their findings and additional data¶ to an estimate of global demand for copper and other metals if all nations were fully¶ developed and used modern technologies. The study found that all of the copper in ore,¶ plus all of the copper currently in use, would be required to bring the world to the level of¶ the developed nations for power transmission, construction and other services and¶ products that depend on copper. Globally, the researchers estimate that 26 percent of¶ extractable copper in the Earth's crust is now lost in non-recycled wastes; while lost zinc¶ is estimated at 19 percent. Interestingly, the researchers said that current prices do not¶ reflect those losses because supplies are still large enough to meet demand, and new¶ methods have helped mines produce material more efficiently. While copper and zinc are¶ not at risk of depletion in the immediate future, the researchers believe scarce metals,¶ such as platinum, are at risk of depletion in this century because there is no suitable¶ substitute for their use in devices such as catalytic converters and hydrogen fuel cells.¶ And because the rate of use for metals continues to rise, even the more plentiful metals¶ may face similar depletion risks in the not too distant future. The impacts on metal prices¶ due to a combination of demand and dwindling stocks has been dramatic. In a single year¶ 2005-2006, zinc and copper experienced a 300% rise, and metals such as nickel, brass¶ and stainless steel rose by about 250%. The good news is the there is a renewed emphasis¶ on recycling, using only the exact quantity of metals required, and insuring that all inplant¶ scrap is recovered during manufacturing.14

## Root Cause

### What We Call Problems are Only Symptoms of Excessive Consumption. New Technology fails, and Only The Alt Addresses the Root Cause of Climate Change

**Meadows 7** – Director of the Club of Rome’s Study on Global Problems, BA from Carleton College, a Ph.D. in Management from the MIT Sloan School of Management (Dennis, “How and when will we experience limits to growth?”, *Making Peace with the Earth*)//EA

First, what we call problems (soil erosion, deforestation, climate change, loss of agricultural soils, and contamination of ground-water) are really not problems but rather symptoms. If you have cancer, you may have a headache. However, the headache is not the problem but a symptom. You can eliminate the headache with drugs, but doing so does not solve the problem. The cancer will simply manifest itself in other ways. Our problem is physical growth in a finite world. And so long as we have industrial and population growth on this planet, we shall have these ever-intensifying symptoms in one form or another. Even the *Stern Review* (Stern, 2007) talks about symptoms, albeit pressing symptoms. Of course, it is useful to develop low-carbon energy sources. But the solution to climate change does not lie within the energy system. It requires stabilizing population and material consumption. Secondly, we are already past the limits. This statement used to be controversial, but it is no longer so. The *Stern Review*, for example, says that we are emitting carbon at five times the allowable. And if you look elsewhere, you will see evidence that we are above the limits in many other areas as well. Thirdly, population and industrial growth will become negative over the next ten to thirty years. When you speak about the period between now and 2050, do not imagine that it is just going to offer more and more resources, more and more growth. Fourthly, we shall see on this planet over the next twenty-five years—in France, in Europe, in Africa—more change than we saw in the last hundred years. Think for a moment of the changes that occurred in Europe or the United States or Africa between 1900 and 2000. There was enormous political, social, economic, technical, environmental, and cultural change. Those changes are smaller than those that most of us will see over the next several decades. Fifthly, the coming change still lies to some extent under our control. If we look ahead, we can exercise some influence on our future path. But if we ignore these problems, we will relinquish that modest control. Then it will be the planet that decides our future. In 1972, thirty-four years ago, we published our first book about the dynamics of growth on a finite planet (Meadows et al., 1972). In those days, we had only our own analysis to show that problems lay ahead. We were widely criticized at the time, because almost no one could conceive that it would be possible for humanity’s activities to become big enough to damage essential processes of the planet. Now, everywhere we look, we see concrete evidence of that damage. Newspapers and the evening television news give ample daily evidence of the problems that were only our forebodings over three decades ago. There are many different kinds of limits to growth: social, psychological, governance, even dynamic limits. I shall focus here on one kind, namely physical limits—limits on humankind’s ability to deplete non-renewable natural resources and destroy renewable resources through overuse. Let me start by noting that in thirty-four years our basic conclusions have not change, but there is an enormous change in the status of our society. In 1972, humanity was within its limits, now it is beyond them. In 1972, the main goal was to slow down. Now the main goal is to get back down: we have to bring the global population and its economy back within its limits, and we need to achieve this without doing enormous damage to the natural systems of the planet, and without widespread conflict. Our use of materials and energy will decline under any circumstances, whether we want it or not. The question is simply whether we shall be the ones who choose the means of reduction. New technologies will be very helpful to us but they will not be enough. We will need changes in culture and ethics as well.

# AT’s

## A2: Renewables Solve

### **Renewables Fail. They only slow the process, but don’t solve the root causes**

Kibert et al. 12 Charles J. Kibert (Charles J. Kibert is a Professor and Director of the Powell Center for Construction and Environment at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. He has been vice-chair of the Curriculum and Accreditation Committee of the U.S. Green Building Council (USGBC) and helped create the first ever student chapter of the USGBC for which he serves as faculty advisor.), Leslie Thiele (teaches political theory and serves as Director of Sustainability Studies at the University of Florida. His interdisciplinary research focuses on sustainability issues and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. ), Anna Peterson, (Department of Religion at the University of Florida. She received her PhD from the University of Chicago Divinity School. Her main research and teaching areas are environmental and social ethics, religion and politics, and religion in Latin America.), and Martha Monroe (Professor of Environmental Education and Extension, at the School of Forest Resources and Conservation of the University of Florida), *The Ethics of Sustainability*, http://www.cce.ufl.edu/current/ethics/Ethics%20of%20Sustainability%20Textbook.pdf)//EA

Humans are also appropriating enormous quantities of the natural flow of water on the¶ planet for their uses, much of it connected to the economy. In 1996, a research project¶ led by Sandra Postel found that total sustainable potable water available to the earth’s¶ land mass was about 110,000 km3, comprised of 70,000 km3 of evapotranspiration (ET)¶ by plants and 40,000 km3 of runoff (R). Of the R portion, only 12,500 km3 is actually¶ available (AR) for human use due to temporal and geographic factors. At the time of the¶ research it was found that humans were appropriating 26% of ET and 54% of AR for¶ their own uses, or about 30% of all the potable water powered by the natural water cycle.¶ Because water consumption is roughly proportional to population it is likely that at¶ present 40% of ET and 60% of AR are being used to meet human needs.14¶ Non-renewable resources are key ingredients of the human economy, from fossil fuels¶ such as coal, oil, and natural gas to metals such as iron, copper, and aluminum. Some¶ non-renewables are indeed being regenerated, but at a rate so slow that for all practical¶ purposes the regeneration rate is zero. Fossil fuels are an example of this latter case.¶ Non-renewable resources are all dwindling and as the rich deposits are depleted, ever¶ more energy is required to remove more dilute, lower concentrated, and distant deposits.¶ The extraction of iron ore, for example, requires the removal of overburden and the¶ extraction of the rock containing the iron ore. As the rich deposits of iron ore are¶ exploited, the remaining sources have lower concentrations of ore, requiring even more¶ overburden and rock removal. A concentration of 0.1% iron ore requires 10 times more¶ materials movement than a deposit with a concentration of 1.0% iron ore. Thus the¶ combination of economic growth and the exhaustion of high concentration deposits¶ results in an exponential rise in materials movement and natural system destruction. The¶ phenomenon of mass materials movement to extract non-renewable resources is¶ sometimes referred to as the ecological rucksack. The ecological rucksack of a material¶ is defined as the total mass of materials movement required to obtain a unit mass of the¶ material. For example, the ecological rucksack of aluminum is 85 because 85 kilograms¶ of materials must be extracted and processed to produce 1 kilogram of aluminum. In¶ comparison the ecological rucksack of recycled aluminum is 3.5 while that of gold¶ extracted from ores is 350,000.15¶ Renewable resources are also inputs to the economy and the desired utilization of these¶ resources to maintain a sustainable economy is to extract them at a rate that is equal to¶ the regeneration rate of the resource. Sustainable forestry, for example, relies on good¶ management practices in which wood is extracted from the forest not only at its¶ regeneration rate, but also in a manner that will not cause damage to the ecosystems of¶ which the forest is a part. Sir John Hicks, a winner of the Nobel Prize in economics,¶ defined sustainable income, sometimes referred to as Hicksian Income, as the maximum¶ amount that can be produced and consumed in the present without comprising the ability¶ to do likewise in the future. He specifically defined sustainable income as the maximum¶ amount that a person or a nation could consume over some time period and still be as¶ well off at the end of the period as they were at the beginning.16 When applied to¶ renewable resources this could be interpreted as using the surplus or interest of the¶ natural system, rather than consuming the core of the natural system itself.¶ Of course the economy consumes both renewable and non-renewable resources and by¶ definition non-renewable resources are being depleted while renewable resources, with¶ sustainable management can be consumed indefinitely. In the context of sustainability,¶ there are practical and ethical questions about the consumption of non-renewable¶ resources in the sense that, once consumed, they are unavailable for future generations.¶ Even with aggressive recycling programs, non-renewable resources are lost in each cycle¶ of recycling, dissipating into the environment at their background concentration. J.¶ Hartwick suggested that some of the income from the sale of non-renewable resources¶ should be invested in the expansion of renewable resources.17 This is commonly refer¶ For example, a country such as Saudi Arabia with large deposits of oil, could invest some¶ of the income from its sale into the education of its citizens, thus creating a renewable¶ resource, an educated population that can develop a diverse economy to substitute for one¶ based on a finite resource.

## **A2: Ending Consumption Crushes the Economy**

### Endless Consumption Inevitably Collapses the Economy Along with the Environment

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 32-33)//EA

It is true that consumption drives the current economy. Some 70 percent of this economy, economists say, is consumption. Take that away, and the economy we have collapses. What’s more, because an economy must grow, say economists, policy makers, businesspeople, labor leaders, educators, and nearly everyone else in a leadership position in an advanced industrial society, consumption too must grow. So, yes, any change in the accustomed patterns of consumption will result in serious dislocations. This is real and worrisome. But notice a couple of things. One, this position presumes that nothing we are doing now might hurt the economy. And two, the question—how do we consume less without hurting the economy?—presumes that the economy itself is doing just fine, that when there are problems, such as a recession, what’s needed is a bit of stimulus here, some productivity gains there, and it’ll keep on doing what it is so good at doing—growing, providing jobs, generating a return on investments. Here is the paradox: the economy depends on increasing consumption, but ever-increasing consumption strains ecosystems, both resources (soil and water, for instance) and waste sinks (the oceans and atmosphere). Before tackling this paradox head-on, let’s turn the above question of consuming less on its head. A system that grows endlessly crashes. Think of cancer cells, debt-ridden mortgages, fisheries. It defies logic, not to mention a few well-known laws of physics (like thermodynamics), to presume that with continuing growth in consumption—that is, continuing growth in the total throughput of material and energy through our economy—the current economy will not crash. So this is the first: unendingly increasing consumption cannot continue on a finite planet with finite ecosystem capacity, with a fixed amount of water, with slowly regenerating soil, and so forth. No one has proven otherwise. In fact, when the question is turned upside down—from less consumption hurting the economy to more consumption hurting ecosystems and the economy—the burden of proof shifts. Now defenders of endless growth must somehow show that endless material growth is possible, that certain laws of physics can be disregarded. How do they do that? Faith. Their faith is just that—faith. Based on little more than extrapolations from the past—historically speaking, a very recent past, just a hundred years or so, a past with abundant, cheap, and readily controlled fossil fuels, especially oil. Or it is based on a belief that the economy will “dematerialize,” which is just a fancy way of saying that GDP will continue to increase, along with jobs and income and spending, but we will not use more resources. It’s a wonderful idea. And it’s a wonder it hasn’t happened. Maybe someday…when the prices are right…and when new technologies come along to make it all so easy. Meanwhile, back in the real world, back where clean water and fertile soil and a stable climate can no longer be assumed, throughput increases—hugely, beyond anything remotely sustainable.

## A2: Permutation

### Even with New Technologies, Unless Problems of Consumption are Addressed, they mean nothing

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In this chapter I shall address the issue of the limits to growth from a different angle than that adopted by Dennis Meadows by posing the question of whether we can actually achieve sustainable development. My direct answer to this questions, “Probably, yes,” and one way of achieving it is through what is known as “dematerialization.” When the term “sustainable development” was coined more than thirty years ago, it clearly meant that the patters of development being pursued were not sustainable. We had to refocus our attention and make serious plans for achieving a genuinely sustainable form of development. *Agenda 21* (UN, 1993), adopted at the 1992 Earth Summit, charted the general path in that direction. We all now agree that the answer to our sustainability problems lies in distinguishing growth from development, where growth is mere accumulation of wealth and development is improvement in quality of life. A large body of researches now dealing with the issue of sustainability consider the root cause of our sustainability problems to be the persistent imbalance between the growth and the dematerialization rates of our current economic activities, leading to growth’s runaway demands on the Earth’s natural resources. There are theoretically two courses of action we could take to rein in runaway growth: one is to stop growth and the other is to change the way we grow so that the accumulation of environmental damage will stop. Can growth be stopped? The answer is certainly “No.” If we cannot do away with growth, then the only way to make development sustainable is to achieve growth with minimal negative environmental impact. How do we do this? Essentially by dematerializing as fast as we grow. Dematerialization denotes acts that reduce the consumption of materials (energy, water, land, forest, minerals) in each unit of economic output. The dematerialization rate is measured as the rate of decrease of material intensity, which in turn is defined as units of certain materials consumed, like kiloliter oil equivalent in the case of energy per unit of economic output (euros or dollars) or per unit of GDP. Dematerialization is nothing new. Part of our evolution has always been to become more efficient, to use less and less energy and materials, to produce more and more goods and services. However dematerialization needs to be looked at with considerably more care than it has been in the past. Dematerialization should always be measured against growth. So if in a given year the energy intensity of a certain country is 1 kilolitre oil per Euro or dollar and in the next year the figure goes down to 0.97, the dematerialization rate for that country in that year would be 3 percent per year. This is not a measure of achieved sustainability in and of itself. Dematerialization deficit, which is the growth rate minus the dematerialization rate (rather than dematerialization itself) is the important parameter. It is the size of the deficit that measures how close we are to, or far away from, a state of sustainability. For example, we are better off achieving a 1 percent dematerialization rate when the growth rate is 3 percent (yielding a deficit of 2 percent) than having a 2 percent dematerialization when the growth rate is 5 percent, which yields a deficit of 3 percent. Technology always dematerializes. Historically, each new generation of technologies has almost always been more efficient and less material-intensive. So technology in and of itself in not bad, but the trouble is that it has always done a lot more for the growth side of the equation than for the dematerialization side. When we talk about dematerialization, we usually associate it with pollution prevention, efficiency improvements, use of renewable energy, industrial ecology, and other familiar actions. These are usually grouped together under the term “cleaner production.” Unlike pollution control, which draws upon technologies developed for its specific purposes, cleaner production relies largely from the dematerialization attributes of mainstream technologies. Yet the development of these mainstream technologies is driven mainly by competition and growth. They can certainly become cleaner, but it is not realistic to expect these technologies, created with the aim of promoting continued growth, to do more for dematerialization than for growth. We can see this from the fact that we did not bridge the dematerialization gap even during the energy crisis years. So to bridge the dematerialization gap, we need something outside the realm of the industrial age, when cleaner production spawned.

### The Rhetoric of the 1AC Hides All other Alternatives. Only By Critically Analyzing their attempts to “move forward” can we find a clear path towards a sustainable world.

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 39-41)//EA

To begin, in the climate debate, after the skeptics became marginalized in the face of overwhelming evidence, the signal would go something like this: Okay, climate change is real and it’s largely caused by humans. As leaders in politics and business, we get that. And we know there are other problems like tainted food and polluted water. We get that, too. But listen, there’s no point dwelling on the past. What’s done is done. We’ve gotta move forward. How often does such a statement sound right (no use crying over spilled milk; the past is past), and yet somehow suspicious? What this rhetoric does is divert people’s attention. It deflects real action. It lets off the hook those who have written the rules of the game—the game of endless extraction and consumption—and who themselves have profited so handsomely from that game. And it perpetuates that very same game, only with a green gloss. Here’s how. First, the very phrase move forward sounds reasonable. In fact, in one sense, it is the only option: one cannot go back to the past. What’s more, it is very agreeable: Yes, we burned fossil fuels and warmed the planet. Yes, we consumed voraciously. But we can’t go back and undo our wrongs. No point in trying. All we can do is, well, move forward. If the phrase move forward has a modern ring to it, that’s because it is the quintessential rhetorical expression of progress. Progressives never look back. Theirs is a steady march forward, right up that ridge, never looking back or down or sideways. Second, the phrase is suspicious because those who use it do not spell it out. “Move forward” is a journey metaphor. We’re all on a path to our destination—a distant mountain peak, say—and we’ve been stopped by a fallen log or we’ve slipped on loose grave. Gotta pick ourselves up, dust of, and get going again—forward, of course; on the same path, of course. No mention of other paths. No questioning whether this path or this mountain is the right one. Third, to proclaim the need to “move forward” is to claim that what we have always done is what we will always do, what we must do. And what we must do is stay the course. Progressives (and they span the political spectrum, from left to right) use the phrase to justify the status quo. It justifies the current path and absolves of responsibility those who tread this path. It lets off the hook those who have promoted endless growth and mindless consumption, who haven’t a qualm about displacing the costs onto the poor and weak and onto future generations, who have manipulated and deceived others for self-gain. And, fourth, the “move forward” order is convenient, especially in a society dedicated to progress, to seeing bounteous plenty in the future and backward misery in the past. It is a convenient rhetorical tool for painting opponents (including those of us who question the path of continuous industrial expansion and the mountain of consumer goods) as anti-progress, as ne’er-do-wells acting against all that makes modern life good. But all kinds of “progress” are hidden in the “moving forward” rhetoric. Failures are excused, misdeeds forgiven. Everything continues, unchallenged, unchallengeable. And for defenders of endless industrial growth, commercialization, commodification, and consumerism, it means business as usual, just greener and more efficient. What to do? First, whenever the term is used, assume, until proven otherwise, that it is self-serving, self-justifying, and manipulative. It cannot, needless to say, be a basis for getting on a sustainable path. Second, do not let apologists for the status quo get away with painting the alternative to their path as going backward, turning off the lights, crawling inot the cave and shivering in the dark. There are other paths and other mountains and new valleys. They exist. And so they are possible. One might call these alternative paths “restrained consumption,” “healthy community,” “sustainable living.”

### The Perm Fails. The government refuses to address problems of consumption, only production. Rejection starts at the Individual

Pricen et al 5 - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, Michael Maniates, senior Visiting Professor of Environmental Studies at Oberlin College, Full Professor of Political Science and Environmental Science at Allegheny College, Ken Conca, Associate Professor of Government and Politics and Director of the Harrison Program on the Future Global Agenda at the University of Maryland, *Confronting Consumption*, http://web.utk.edu/~arouthe/mli/Confronting%20Consumption.pdf)//EA

How might ordinary people living in high-consumption societies begin¶ to clarify and act on these unsettling intuitions? Where can they turn for¶ insight, systematic analysis, support, intervention strategies, or hope of¶ effective action? Certainly not to the policymaking arena. There one¶ finds processes of thought and decision dominated, perhaps as never before,¶ by two forces: a deeply seated economistic reasoning and a politics¶ of growth that cuts across the political spectrum. According to prevailing¶ economistic thought, consumption is nothing less than the purpose of¶ the economy. Economic activity is separated into supply and demand,¶ and demand—that is, consumer purchasing behavior—is relegated to the¶ black box of consumer sovereignty. The demand function is an aggregation¶ of individual preferences, each set of which is unknowable and can¶ only be expressed in revealed form through market purchases. Thus analytic¶ and policy attention is directed to production—that is, to the processes¶ of supplying consumers with what they desire. Getting production¶ right means getting markets to clear and the economy to grow. If a¶ problem arises in this production-based, consumer-oriented economy,¶ corrections are naturally aimed at production, not consumption.¶ Running in tandem with this reasoning is a simple but compelling¶ political fact: expanding the stock of available resources and spreading¶ the wealth throughout the population carry a much lower political¶ price tag than trying to redistribute resources from the haves to the¶ have-nots. Economic growth, facilitated at every turn by public policy,¶ becomes the lubricant for civic processes of democratic planning and¶ compromise.9¶ The dominance of economistic reasoning and the pragmatism of¶ growth politics conspire to insulate from policy scrutiny the individual¶ black boxes in which consuming is understood to occur. As a result, an¶ entire realm of questions cannot be asked. No one in public life dares—¶ or needs—to ask why people consume, let alone to question whether¶ people or societies are better off with their accustomed consumption¶ patterns. People consume to meet needs; only individuals can know their¶ needs and thus only the individual can judge how to participate in the¶ economy. Consumption becomes sacrosanct. If water supplies are tight,¶ one must produce more water, not consume less. If toxics accumulate,¶ one must produce with fewer by-products—or, even better, produce a¶ cleanup technology—rather than forgo the production itself. Goods are¶ good and more goods are better. Wastes may be bad—but when they¶ are, more productive efficiencies, including ecoefficiencies and recycling,¶ are the answer. Production reigns supreme because consumption is beyond¶ scrutiny.

## A2: Consumption Inevitable

### Consumption is Human Nature. The degree to which we consume is not. Only the alternative moves away from excessive consumption

**Pricen 10** - Ph.D., Political Economy and Government, 1988, Harvard University, M.P.A., 1983, Harvard University, B.A. cum laude, Biology, 1975, Pomona College (Thomas, *Treading Softly: Paths to Ecological Order*, pg. 33-34)//EA

So now let’s tackle the question head-on: how can we consume less and not hurt the economy? This is probably the most common question I get in discussions of overconsumption, suggesting that people accept the notion of overconsumption. They just cannot envision and alternative. Nobody is saying that we should “stop consuming.” All organisms consume. Consumption is essential to life. But there are different kinds and levels of consumption, some that sustain lives without risking life-support systems—for example, only harvesting the surplus growth in a forest—and some that degrade such systems—for example, overpumping groundwater to the point that rivers run dry. So the real question is not “How can we continue to increase consumption and not hurt the economy?” This is like an overweight adult asking how to continue to eat more every day and be healthy. It’s like an addict asking how to continue to shoot up and not lose her job. It’s like a homeowner taking out yet another mortgage with even higher interest rates and expecting not to lose the house. Rather, the real question is this: how can we consume in a way that does not undermine our economy, that does not consume the very basis of that economy, that does not consume the very basis of that economy, namely its waters and soils and the atmosphere and the oceans? To ask this question is necessarily to ask how much is enough, and how much is too much. It is to ask what kinds of consumption can be sustained, and what kinds cannot. These are hard questions. Policy makers don’t like them. Most citizens in a consumerist society don’t either: “Don’t tell me what I can and can’t buy!” And to ask these hard questions is to entertain the idea that “the economy” is more than what is captured in measures like GDP and trade flows, let alone capital flows. It is to consider that the real economy is grounded in “real estate,” in natural systems. So the everyday observation that we’re consuming too much and it can’t continue combines with the scientific truth that no organism or species can increase its material and energy consumption without eventually crashing. All this then leads to one simple conclusion, one absolutely contrary to what one would take from the original question: the consumption of vital life support systems cannot continue indefinitely. The consumption of products of that system can continue indefinitely, provided the system is maintained, but no advance industrial society is currently maintain the system. Nor are the great bulk of less industrialized societies, all trying to get on the growth bandwagon by exporting their natural wealth. Each is consuming the system. It can’t go on.

## A2: You Reject All Technology

### There is a difference between Effective Technology and Technology that avoids questions of consumption

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Sustainability is in part tied to the notion that humans need to live within the carrying¶ capacity of the planet, which ultimately means a slowing of population growth and¶ reducing per capita consumption of resources The ability of the human population to both¶ grow and increase its per capita consumption is tied directly to technology, because¶ without agricultural, energy, and medical technologies, it would not be possible for¶ humans to exceed the planet’s carrying capacity. Thus, technology can be considered to¶ be one of the core issues faced by organizations and individuals intent on applying¶ sustainability to the resolution of many of the world’s most difficult and persistent¶ problems. And any effort to analyze technology for the suitability of its deployment¶ inevitably encounters ethical dilemmas, many of the linked to sustainability. As noted in¶ a report on ethical issues of nanotechnology, “Because technology structures our¶ experiences and shapes how we live, it has enormous ethical significance.”1¶ While technology is certainly one of the challenges faced by sustainability, it may¶ provide at least some partial remedies to solving resource and environmental problems by¶ finding ways to reduce resource consumption, emissions, and waste; developing¶ chemicals, materials, and processes that are environmentally benign; linking nature’s¶ processes to human needs and development; and making possible the shift from nonrenewable¶ to renewable resources as the basis for the economy. Consequently¶ technology also provides its own twin-horned dilemma or paradox, being both a¶ significant concern as well as a potential source of solutions for many of the problems¶ being addressed by sustainability.¶ An excellent example of technology that fits very well into the sustainability framework¶ is biomimicry. Defined by its originator, Janine Benyus, as “the conscious emulation of¶ nature’s genius,” biomimicry provides an approach to creating an enormous range of¶ materials and processes from nature that can be adopted in the human sphere and which¶ have the attributes of being biodegradable, originating from local resources, and being¶ less harmful to the environment.2 The powerful adhesives secreted by mussels, the hard¶ ceramic coatings of seashells, and the ability of plants to convert sunlight to other energy¶ forms via photosynthesis are examples of natural system materials and processes that are¶ effective and benign and which have application in the human sphere. The development¶ new generation of adhesives b Biomimicry is nothing more than understanding and¶ adopting the results of 4.5 billion years of trial and error by nature that has resulted in¶ materials and processes that run off the sun, are made from local resources, and that¶ biodegrade into valuable nutrients for nature.¶ Sustainability, ethics, and technology are tightly connected because humans have choices¶ as to which technologies to develop and implement. A wide range of ethical issues, many¶ of them connected to sustainability, have emerged due to the development of a vast array¶ of chemicals; the alteration of the earth’s surface, waters, and atmosphere by human¶ activities; and of course, the development of newer, ‘high’ technologies such as¶ genetically modified organisms, robotics, nanotechnology, antibiotics, and nuclear¶ energy, to name but a few. Sustainability provides developers of technology numerous¶ challenges, from evaluating their inventions for their impacts on present and future¶ humans and non-humans, to the redirection of technology to ends consistent with the¶ sustainability framework. In the former, the fundamental questions posed by¶ sustainability might be of the form: Do the benefits far outweigh any impacts on humans,¶ other species, and the environment, both immediately and over the long term? In the¶ latter, the questions posed might be: Does the technology have a precedent in nature? Is¶ it harmless?3 Does it support life and natural systems?

## AT: Policy Failure

**Cutting consumption doesn’t hurt social objectives – their argument is**

**based on flawed assumptions**

McLaren 3

 [Duncan, MSc Rural Resources and Environmental Policy, head of Policy and Research at Friends of the Earth Trust Ltd, widely written on environmental policy issues, "Just Sustainabilities," 2003, page 21]//SH

If dramatic cuts were achieved in the current system, who would bear the costs? Whose personal consumption would be cut? Would it be the rich and the powerful, or the poor and weak? The social dimension of sustainability is inescapable. The implication might appear to be that we must trade off our environmental objectives for social ones. If poorer groups must increase consumption, surely we must accept a higher level of environmental damage. But this conclusion is fallacious - it is based on at least two erroneous assumptions. First is the belief that sustainable development is about extending Northern levels of wealth, consumption and well-being to Southern countries (albeit without triggering economic, social or environmental disruption). This belief assumes that sustainable development s simply a more efficient, better managed process of conventional economic development – with further extension of the Anglo-Saxon cultural model of business, markets, indicators and aspirations. This would leave power relations – a key issue in current resource distribution to which I return at some length below – almost untouched. The second false assumption is that higher wealth and consumption directly translate to higher well-being and quality of life. Empirical evidence demonstrates that in reality there is not a direct correlation between income and quality of life at all levels (Veenhoven, 1987, Seabrook, 1994). Above a certain level of income any correlation breaks down, and other factors, notably health, come to play a critical role in quality of life (Oswald, 1996, Wilkinson, 1996). This creates scope for policies which can reduce inequalities in well-being without increasing aggregate material consumption.