Economic Growth or the Flourishing of Life: The Ethical Choice Climate Change Puts to Humanity

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Introduction: the Threat

According to the 4th Assessment Report of the Intergovernmental Panel on Climate Change, released in 2007, global climate change (GCC) constitutes a grave threat to human wellbeing and to the flourishing of earth’s other species. With “high” or “very high confidence,” the IPCC predicts the following, regarding the likely effects of GCC (all quotes below from IPCC 2007a, pp.48-52):

**In Africa,** “by 2020, between 75 million and 250 million are projected to be exposed to an increase in water stress due to climate change.”

“By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%. Agricultural production, including access to food, in many African countries is projected to be severely compromised. This would further adversely affect food security and exacerbate malnutrition.”

**In Asia,** “coastal regions, especially heavily-populated mega-deltas in South, East, and Southeast Asia, will be at greatest risk due to increased flooding.”

“By the 2050s, freshwater availability in Central, South, East and South-East Asia, particularly in large river basins, is projected to decrease.”

According to the IPCC, GCC threatens the health, happiness and even survival of literally hundreds of millions of people, through increased risk of malnutrition and starvation, and increased frequency of deadly weather events like the 2008 flooding in the Irawaddy river delta in Burma.

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Grave as are these threats to people, the dangers to other species from climate change are even greater, since beyond harms to individual organisms, they threaten mass extinction. Again according to the IPCC:

**In Latin America**, “By mid century, increases in temperature and associated decreases in soil water are projected to lead to gradual replacement of tropical forest by savanna in eastern Amazonia.”

“There is a risk of significant biodiversity loss through species extinction in many areas of tropical Latin America.”

**In Australia**, “significant biodiversity loss is projected to occur by 2020 in some ecologically rich sites, including the Great Barrier Reef.”

The Amazon rainforest—the greatest reservoir of biodiversity on earth—is vulnerable to wholesale collapse and ecological replacement, while coral reefs around the world—by far the greatest ocean-based biodiversity sites—are extremely vulnerable to small increases in ocean temperatures. GCC thus bids fair to accelerate and ensure the sixth great extinction event in earth’s 4.6 billion-year history (and the first to be consciously and deliberately caused). Overall, according to the IPCC:

“There is medium confidence that approximately 20-30% of species assessed so far are likely to be at increased risk of extinction if increases in global average warming exceed 1.5-2.5 C (relative to 1980-1999). As global average temperature increase exceeds about 3.5 C, model projections suggest significant extinctions (40-70% of species assessed) around the globe.”

A 3.5 C increase in average global temperatures by the end of the century is solidly in the middle of projections considered plausible by the IPCC under “business as usual” greenhouse gas emissions scenarios.

Dire as the predictions in the 4th Assessment Report were, the scientific literature has grown even grimmer in the two and a half years since its publication. Polar ice across the Arctic is melting much faster than expected (Wang and Overland 2009). The amount of carbon stored in permafrost (and likely to be released as it melts) may be much higher than previously estimated (Tarnocai 2009). There may be more warming already “banked” into the global climate system than was previously thought. For these and other reasons, noted climate scientist James Hansen now argues that humanity must reduce greenhouse gas emissions more quickly than previously thought, in order to avoid catastrophic climate change (Hansen 2007, Hansen et al. 2008). Many scientists agree.
The Case for Action

On the factual/empirical side, the 4th IPCC report and subsequent scientific studies greatly strengthen the case for action to curb greenhouse gas emissions. Looking at the ethics of the matter, arguments for vigorous action to prevent catastrophic GCC appear to be over-determined (Singer 2002, chapter 2). For our own sakes, for the sake of the world’s poorest people (Brown et al. 2007), for future human generations (Gardiner 2006) and for the sake of other species, we need to act now to limit and then roll back GCC. Attention to any one of these four areas of practical concern should be enough to convince us that prudence or justice demand serious action. Together, they make an overwhelming case that prudence and justice make this demand.

Broadly speaking, then, GCC provides further confirmation of Bryan Norton’s “convergence hypothesis”: the theory that biocentric and (enlightened) anthropocentric moralities will tend to converge on similar pro-environment policy positions (Norton 1994). I think the issue also demonstrates a similar convergence between altruistic and (enlightened) self-interested concerns (Wenz 2005). Of course, these convergences are not perfect. It seems clear that the more biocentric and altruistic we are, the more we will be willing to do to check GCC. Such value commitments constitute additional reasons for action and additional values to place “on the scale,” balanced against the immediate comforts we may be asked to forego or the resources we may be asked to contribute in order to limit GCC.

All this granted, however, the key points remain. First, that reining in GCC appears necessary to safeguard the flourishing of all life on earth, human and non-human. Second, that safeguarding the flourishing of life is a supremely important practical imperative. Yet despite this morally and factually compelling case for action, little has been done globally to check GCC. Meanwhile the United States—the nation that has done the most to create the problem—has not only failed to act, but has worked hard to undermine the efforts of other nations to do so. These failures have been due less to genuine uncertainty about GCC or real concerns about the fairness of proposed emissions reduction schemes (the usual suspects) than because of a largely unquestioned belief in the goodness of growth.

A Curious Disconnect

There is a disconnect in climate change discourse between discussions of the causes of GCC and discussions of possible solutions. The 4th IPCC report makes it clear that GCC is caused primarily by human economic and demographic growth. As the “Mitigation” report succinctly puts it:
“GDP/per capita and population growth were the main drivers of the increase in global emissions during the last three decades of the 20th century. ... At the global scale, declining carbon and energy intensities have been unable to offset income effects and population growth and, consequently, carbon emissions have risen” (IPCC 2007b, p.107).

Four factors—economic growth/per capita; population (the number of “capitas”); energy used per unit of GDP; and greenhouse gases generated per unit of energy—determine overall greenhouse gas emissions. Over the past three and a half decades, improvements in energy and carbon efficiency have been overwhelmed by increases in population and wealth. Here are the numbers: “The global average growth rate of CO2 emissions between 1970 and 2004 of 1.9% per year is the result of the following annual growth rates: population 1.6%, GDP/per capita 1.8%, energy-intensity (total primary energy supply (TPES) per unit of GDP) –1.2%, and carbon-intensity (CO2 emissions per unit of TPES) –0.2%” (IPCC 2007b, p.107).

Crucially, the IPCC’s projections for the next three decades see a continuation of this trend. More people living more affluenty mean that despite technical improvements in efficiency, greenhouse gas emissions will continue to rise under “business as usual.”

You might think that a rational response to this might be: “Whoa! We’ve got to cut back on human numbers and the pursuit of ever more wealth. We’re bumping up against some basic limits here to the system that we all depend on for survival.” Or: “Wow! We’ve got our work cut out for us. We need to start working on this problem with all the tools at our disposal. Increasing energy and carbon efficiency, to be sure; but also decreasing the pursuit of affluence and overall consumption; and stabilizing or reducing the human population.” But no such revaluation of the goodness of growth has occurred (Czech 2002). Instead, we have seen a near-total focus on technological solutions to the problem by politicians, scientists, and even environmentalists and environmental philosophers.

The problem, the IPCC tells us, is growth. The solution, therefore, would seem to be an end to growth. Beyond this, perhaps, an actual reduction in the scale of the human economic enterprise might be necessary, or prudent (there is no guarantee that we haven’t already overshot the capacity of the world’s atmosphere to assimilate our pollution). At a minimum, slowing growth would seem a likely contributor to serious attempts to deal with the problem of GCC. But even this is rarely considered by analysts or policymakers.
Evasion

Of the many examples I might provide, consider Stephen Pacala and Robert Socolow’s influential “wedge” approach, first presented in their article “Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies” (2004). The wedge approach is a heuristic designed to help people think about the steps needed to address GCC and to compare alternatives. If you’ve seen An Inconvenient Truth, you’ve seen a version of it; recent research and even a downloadable version of the “Carbon Mitigation Wedge Game” can be found at the website for the Carbon Mitigation Initiative (www.princeton.edu/~cmi).

Figure 1a. Stabilization Triangle. Courtesy of the Carbon Mitigation Initiative, Princeton University.
Each wedge in the “stabilization triangle” above represents a technological change or (much less frequently) a decrease in consumption which, if fully implemented, would keep one billion metric tons of carbon from being pumped into the air annually, fifty years from now. It would also prevent 25 billion metric tons of carbon from being released during the intervening fifty years. The authors reckon eight such wedges must be implemented—not to reduce atmospheric CO2; not to stabilize CO2 levels—but simply to keep atmospheric carbon from pushing past potentially catastrophic levels during this period.

Here are the fifteen wedges Pacala and Socolow propose as most feasible for reducing carbon emissions in a big way:
<table>
<thead>
<tr>
<th>Potential Wedges</th>
<th>Option</th>
<th>Effort by 2054 for one wedge, relative to 14 gigatons of carbon per year (GtC/year) BAU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Efficiency and Conservation</strong></td>
<td>1. Efficient vehicles</td>
<td>Increase fuel economy for 2 billion cars from 30 to 60 mpg</td>
</tr>
<tr>
<td></td>
<td>2. Reduced use of vehicles</td>
<td>Decrease car travel for 2 billion 30-mpg cars from 10,000 to 5,000 miles per year</td>
</tr>
<tr>
<td></td>
<td>3. Efficient buildings</td>
<td>Cut carbon emissions by one-fourth in buildings and appliances projected for 2054</td>
</tr>
<tr>
<td></td>
<td>4. Efficient baseload coal plants</td>
<td>Produce twice today's coal power output at 60% efficiency compared with 32% efficiency today</td>
</tr>
<tr>
<td><strong>Fuel Shift</strong></td>
<td>5. Gas baseload power for coal baseload power</td>
<td>Replace 1,400 GW coal plants with gas plants (4 times the current production of gas-based power)</td>
</tr>
<tr>
<td><strong>CO2 Capture and Storage (CCS)</strong></td>
<td>6. Capture CO2 at baseload power plant</td>
<td>Introduce CCS at 800 GW coal or 1,600 GW natural gas plants</td>
</tr>
<tr>
<td></td>
<td>7. Capture CO2 at Hydrogen (H2) plant</td>
<td>Introduce CCS at plants producing 250 MtH2/year from coal or 500 MtH2/year from natural gas, compared with 40 MtH2/year today</td>
</tr>
<tr>
<td></td>
<td>8. Capture CO2 at coal-to-synfuels plant</td>
<td>Introduce CCS at synfuels plants producing 30 million barrels per day from coal (200 times Sasol), capturing half of feedstock carbon</td>
</tr>
<tr>
<td>Nuclear Fission</td>
<td>9. Nuclear power for coal power</td>
<td>Add 700 GW nuclear power (twice the current capacity)</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Renewable Electricity and Fuels</td>
<td>10. Wind power for coal power</td>
<td>Add 2 million 1-MW-peak windmills (50 times the current capacity) occupying 30x10-to-the-sixth ha, on land or off shore</td>
</tr>
<tr>
<td></td>
<td>11. Photovoltaic power for coal power</td>
<td>Add 2,000 GW-peak PV (700 times the current capacity) on 2x10-to-the-sixth ha</td>
</tr>
<tr>
<td></td>
<td>12. Wind H2 in fuel-cell car for gasoline in hybrid</td>
<td>Add 4 million 1-MW-peak windmills (100 times the current capacity)</td>
</tr>
<tr>
<td></td>
<td>13. Biomass fuel for fossil fuel</td>
<td>Add 100 times current Brazil or U.S. ethanol production, with the use of 250x10-to-the-sixth ha (1/6 of world cropland)</td>
</tr>
<tr>
<td>Forests and Agricultural Soils</td>
<td>14. Reduce deforestation, plus reforestation and new plantations</td>
<td>Halt tropical deforestation instead of 0.5 GtC/year loss, and establish 300 Mha of new tree plantations (twice the current rate)</td>
</tr>
<tr>
<td></td>
<td>15. Conservation tillage</td>
<td>Apply improvements to all world cropland (10 times the current usage)</td>
</tr>
</tbody>
</table>

**CCS** = carbon capture and storage  
**GW** = gigawatts  
**Mha** = million hectare  
**MW** = megawatts  

**CCS** = carbon capture and storage  
**GW** = gigawatts  
**Mha** = million hectare  
**MW** = megawatts  

**GtC** = gigatons of carbon  
**ha** = hectare  
**Mpg** = miles per gallon  
**PV** = photovoltaics

Figure 2. Courtesy of the Carbon Mitigation Initiative, Princeton University (figure slightly modified)
These wedges are worked out in detail in the “supporting online material” to Pacala and Socolow (2004). Despite a stated desire to consider only alternatives that are technically feasible today, scaling up the carbon capture options (wedges 6-8) would rely on future technological improvements that may not pan out (Synapse Energy Economics 2008, pp.29-30). While a few of the wedges could pay for themselves over time, most, on balance, would involve significant economic costs. Most wedges also carry significant environmental costs, which in some cases may equal or outweigh the environmental benefits they would provide in helping mitigate GCC. Given problems with waste disposal, this is arguably the case with the proposed nuclear wedge, while even seemingly benign alternatives such as wind and solar power could result in massive habitat loss if pursued on the scale demanded to achieve a full wedge.

Here is the key point. Of the fifteen wedges proposed by Pacala and Socolow, fourteen focus on technological changes in energy and materials production (more solar, more nuclear, more natural gas) or improved energy efficiency (increased auto fuel efficiency, increased energy efficiency in buildings); one arguably focuses on limiting human consumption (cutting the miles driven by automobile drivers); and none of them focus on limiting human population growth.

This is hardly a peculiarity of Pacala and Socolow. Most discussions of GCC ignore the possibility of limiting consumption or stabilizing population. The goal, always, seems to be to accommodate more consumption by more people with less environmental impact.

Numerous illustrations can be cited from the IPCC 4th Assessment Report itself. For example, the report’s authors recognize agriculture as a major contributor to GCC. Yet they simply accept projections for greatly increased demands for all categories of agricultural products (including a doubling in worldwide demand for meat) and focus on changes in tillage, fertilizer use and the like, as means to limit increased greenhouse gas emissions (IPCC 2007c). Similarly, the Assessment Report notes that among significant greenhouse gas sources, aviation is the fastest-growing sector worldwide. It considers numerous changes to aviation practices, including relatively trivial improvements in airplane technology and changes in worldwide flight patterns, while avoiding the obvious alternative of reducing the number of flights (IPCC 2007d; see also IPCC 1999). Many similar examples could be given.

**The Reason for this Failure**

The failure to consider policies focused on less consumption or smaller populations can’t be chalked up to these factors’ unimportance: the scientists assure us that they are all-important in generating GCC. Nor is it because there aren’t policies that might reduce consumption or slow population growth: there are many policy alternatives in these areas. Nor is it because such policies necessarily would be more expensive, harder to implement, more coercive, or in any other way less ideal than the technological
approaches being considered. Some may be, of course. But there are almost certainly consumption and population wedges that could be developed and implemented at less economic, environmental and social cost than most of the wedges proposed by Pacala and Socolow, and even with considerable overall benefit.

The real problem, I submit, is that the majority of policy-makers and analysts considering these matters are in the grip of a pro-growth ideology that makes it impossible for them to consider the full range of alternatives. This failure could prove disastrous. The evidence strongly suggests that an exclusive focus on technofixes is unlikely to prevent catastrophic GCC (Huesemann 2006). Meeting the GCC challenge almost certainly depends on ending human population growth and either ending economic growth or radically transforming it, so that some economic growth in some sectors of the modern economy can be accommodated without radically destabilizing earth’s climate. All the technofixes we can muster will probably be necessary to enable this transition to a post-growth future—not as an alternative to it (McKibben 2007). By and large, however, policymakers can’t even imagine such a future, much less rationally consider whether it might not be required by morality or prudence.

We need to at least consider alternatives to continued growth. Given the immense costs and potential disruptions in attempting to seriously mitigate GCC and given the stakes involved in our success or failure, we should consider our full range of options.

**Alternative Wedges: Consumption**

Consider two potential consumption wedges, focused respectively on food consumption and transportation. According to a recent comprehensive study, livestock production accounts for nearly 80% of agriculture’s contribution to greenhouse gas emissions and for 18% of all greenhouse gas emissions today (UNFAO 2006, pp. 112). The 4th Assessment Report states that 2004 greenhouse gas emissions were 49 billion tons CO2 equivalent (IPCC 2007a), 18% of which equals 8.82 billion tons of CO2 equivalent. Since one ton of CO2 equals 0.27 tons of carbon, meat-eating contributes approximately 2.38 billion tons carbon equivalent to greenhouse gas emissions today. Moreover, the U.N. Food and Agricultural Organization projects a worldwide doubling in animal production between 2000 and 2050, from 60 billion to 120 billion animals raised annually (UNFAO 2006), which under “business as usual” will double greenhouse gas emissions. According to I.P.C.C. Chairman Rajendra Pachauri, eating less meat is one of the most effective things people can do to cut greenhouse gas emissions (Scientificblogging 2008).

How might we carve a “meat wedge” out of this economic sector? Cutting worldwide meat-eating in half immediately would provide the equivalent of more than a full wedge, but we cannot turn on a dime, as the wedge approach recognizes. More realistically, holding worldwide animal food production steady over the next fifty years
would provide nearly 2 ½ carbon wedges (2.38 billion tons increase), while merely preventing half the projected doubling during that time would supply more than one full carbon wedge (1.19 billion tons increase) (Eshel and Martin 2006). The latter goal might be accomplished non-coercively by increasing the price of meat, through removing subsidies for cattle production, banning confined animal feedlot operations (CAFO’s) as the European Union is in process of doing, and directly taxing meat to discourage consumption. Such measures could accommodate a reasonable increase in meat-eating in poor countries where many people eat little meat, while providing environmental and health benefits in wealthy countries where people eat more meat than is good for them (Cafaro et al. 2006). They could complement efforts to improve the conditions under which food animals are raised, changes which may be expensive but which are arguably morally demanded in terms of animal rights or welfare (Rollin 2006, Compassion in World Farming 2007).

Consider now a transportation consumption wedge. According to the 4\textsuperscript{th} Assessment Report, “civil aviation is one of the world’s fastest growing transport means” and the fastest-growing important area of greenhouse gas emissions worldwide. Analysis shows that aviation traffic “is currently growing at 5.9% per year [and] forecasts predict a global average annual passenger traffic growth of around 5% – passenger traffic doubling in 15 years – with freight traffic growing at a faster rate that passenger traffic, although from a smaller base” (IPCC 2007d, p.334). In addition to emitting CO2, airplanes increase “radiative forcing” through emissions of other greenhouse gases and by creating contrails and cirrus clouds, thus changing atmospheric conditions. Although the science remains uncertain, it appears that these contributions to global warming may be much greater than airplanes’ CO2 emissions. As an earlier IPCC study put it: “Over the period from 1992 to 2050, the overall radiative forcing by aircraft (excluding that from changes in cirrus clouds) for all scenarios in this report is a factor of 2 to 4 larger than the forcing by aircraft carbon dioxide alone” (IPCC 1999, “Summary for Policymakers,” Section 4.8).

This scientific uncertainty regarding the full contributions of airplanes to GCC make calculating airplane wedges somewhat difficult. However, given the rapid increase in airplane flights projected to occur over the next fifty years under business as usual, it seems likely that one or two “plane wedges” might be found by instead holding airplane travel steady at current rates, or by slowing the rate of increase. Under current projections, CO2 emissions from aircraft might increase from 0.2 billion tons of carbon per year to 1.2 billion tons of carbon annually, over the next fifty years (IPCC 1999). Preventing half this increase would give us half a wedge from CO2 alone, while holding total flights at current levels would supply a full wedge (respectively 0.5 billion tons or 1.0 billion tons less carbon annually). If the other effects of aviation add up to twice the impact of CO2 emissions, preventing half the projected growth would provide 1 and ½ wedges, while holding total flights at current levels would supply 3 wedges (1.5 billion tons or 3 billion tons less carbon equivalent annually). Once again, such
reductions could be achieved (relatively) non-coercively, by increasing the cost of air travel by taxing it. Alternatively, countries might decide that GCC is important enough to demand sacrifices from all their citizens, even rich ones, and limit the number of allowable discretionary flights per person. The United States strictly rationed gasoline use during World War II; perhaps GCC demands an equally strenuous and across-the-board response.

The 4th Assessment Report does not consider such demand-reduction alternatives, nor do most governments or policy analysts. But recent studies suggest that with efficiency improving three times slower than the rate of increased demand and with no transformative technologies on the horizon, the air transport sector cannot make a sufficient contribution to mitigating GCC without limiting demand for air travel (Macintosh and Wallace 2009). Similarly, it seems unlikely that animal agriculture can double output without increasing its greenhouse gas emissions. Meanwhile total emissions may need to decrease 60% to 80% in the next fifty years in order to avert catastrophic GCC and clearly this cannot happen while major economic sectors increase their emissions. Something has to give. It is our choice whether that something is ever-increasing consumption, or a safe and nurturing climate for life on earth. The good news is that demand reduction is possible, perhaps without significantly decreasing people’s quality of life (see below). Other possible wedges include a general consumption-reduction wedge utilizing an across-the-board carbon tax, and a luxury consumption-reduction wedge targeting unnecessary, energy-intensive, status-driven activities by the global elite.

**Alternative Wedges: Population**

When we turn to potential population wedges, we need to remember that population growth is one of the two main drivers of GCC. Again according to the 4th Assessment Report: “The effect on global emissions of the decrease in global energy intensity (-33%) during 1970 to 2004 has been smaller than the combined effect of global per capita income growth (77 %) and global population growth (69%); both drivers of increasing energy-related CO2 emissions” (IPCC 2007e, p. 3).

The current global population is approximately 6.8 billion people. Here are recent fifty-year United Nations population projections at low, medium and high rates of growth:

<table>
<thead>
<tr>
<th>Projection</th>
<th>annual growth rate</th>
<th>2050</th>
<th>2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0.40 %</td>
<td>7.4 billion</td>
<td>8.0 billion</td>
</tr>
<tr>
<td>Medium</td>
<td>0.77 %</td>
<td>8.9 billion</td>
<td>9.6 billion</td>
</tr>
<tr>
<td>High</td>
<td>1.12 %</td>
<td>10.6 billion</td>
<td>11.8 billion</td>
</tr>
</tbody>
</table>

(U.N. Department of Economic and Social Affairs 2004, p. 4)
The original projections were made to 2050; I projected to 2060 by using the annual rates provided. The medium projection is considered the “most likely” scenario, although all three projections are considered possible depending on a variety of factors, including public policy choices.

How might we calculate population wedges? In 2000, world per capita greenhouse gas emissions were 1.84 tons carbon equivalent. Assuming this emissions rate, each 543 million people added to Earth’s population adds another 1 billion tons of annual carbon emissions; conversely, preventing the existence of 543 million people fifty years from now provides a full carbon reduction wedge. If we follow the U.N. report and take 9.6 billion as our “most likely” business as usual scenario, then successfully holding world population growth to the lower figure of 8.0 billion would provide 2.95 global population wedges. Conversely, allowing the world’s population to balloon to the high projection of 11.8 billion (still within the realm of possibility, remember) would create 4.05 population destabilization wedges and almost certainly doom efforts to mitigate catastrophic GCC.¹

These figures suggest that reducing population growth could make a huge contribution to mitigating GCC (Meyerson 1998; O’Neill et al. 2005, chapter 6). How might humanity accomplish this? One way might be through coercive measures, such as China’s “one-child” policy, which restricts how many children couples may have. This approach has been condemned on moral grounds, perhaps justly, yet it isn’t clear that the freedom to have as many children as one wants is justified in an ever more crowded world. As John Stuart Mill put it in On Liberty:

In a country either over-peopled, or threatened with being so, to produce children, beyond a very small number, with the effect of reducing the reward of labour by their competition, is a serious offence against all who live by the remuneration of their labour. The laws which, in many countries on the Continent, forbid marriage unless the parties can show that they have the means of supporting a family, do not exceed the legitimate powers of the state; and whether such laws be expedient or not, they are not objectionable as violations of liberty. (Mill 1966, 138)

¹ One caveat: most of the population growth projected for the next fifty years is expected to be in poorer countries, which have lower-than-average greenhouse gas emissions. This might decrease the emissions benefits associated with slowing population growth. However, such lower emissions are primarily a function of poverty, which we presumably want to alleviate. Almost all attempts to come up with an equitable worldwide division of the effort to mitigate GCC allow for some increase in greenhouse gas emissions from the world’s poorest countries. So as we calculate population wedges, it seems reasonable to keep world per capita greenhouse gas emissions of 1.84 tons carbon equivalent as our “business as usual” default setting. From the opposite side, we should also realize that the U.N. figures I’ve used might be somewhat rosy. More recently, the U.S. Census Bureau projected that world population will grow from 6 billion in 1999 to 9 billion by 2040 (U.S. Census Bureau 2009).
If restrictions on procreative freedom can be justified as a means to maintain wage levels, decrease indigence, or promote other social goals, they would appear even more justified for the more important global goal of preventing catastrophic GCC, so future generations can be assured of inheriting a habitable planet. In any event, it can’t be denied that China’s policy has significantly reduced its greenhouse gas emissions. As a recent article noted:

China, which rejects criticism that it is doing too little to confront climate change, says that its population is now 1.3 billion against 1.6 billion if it had not imposed tough birth control measures in the late 1970s . . . Avoiding 300 million births ‘means we averted 1.3 billion tonnes of carbon dioxide in 2005’ based on average world per capital emissions of 4.2 tonnes,’ according to Su Wei, China’s lead delegate to the Vienna climate talks. (Reuters 2007)

Fortunately, there are non-coercive measures which are almost as effective at reducing birth rates, and these are the ones we should pursue. First, providing free birth control and accessible, appropriate information about how to use it has proven very effective in lowering birth rates in many poor countries (Speidel et al. 2009, pp.3-4). Poor people who want to have fewer children often cannot do so, since even relatively cheap birth control may be too expensive for them. Providing free birth control allows those who want to have fewer children to do so, increasing reproductive freedom while decreasing population growth. Second, policies which improve the lives of women have been shown to reduce fertility rates in many developing countries (Sen 1994). These include guaranteeing girls the same educational opportunities as boys, promoting female literacy, and improving women’s economic opportunities (and thus their status in society). Some of the very same aims written into the U.N.’s Millenium Development Goals—such as improving maternal health and increasing the percentage of children receiving a full primary school education—turn out to be among the most effective means to reduce birth rates in poor countries (Butler 2007, p. 87). Like providing free birth control, these measures can directly improve people’s lives at the same time that they help reduce population growth.

Given that these non-coercive methods have proven successful at reducing fertility rates in many places and given the huge unmet need for contraception in the developing world, a well-funded effort to apply them globally seems capable of reducing population growth from the “most likely” scenario of 9.6 billion people to the lower level of 8 billion people in 2060. 1.6 billion fewer people fifty years from now represents 2.95 carbon reduction wedges. That would make an immense contribution to mitigating GCC, nearly equal to deploying all three of Pacala and Socolow’s carbon capture and sequestration wedges. Unlike carbon capture, however, the proposed population reduction measures rely on proven technologies that are available right now. Population wedges would also provide numerous other environmental benefits, in
contrast to the massive environmental harms that would be caused by continued coal-mining under the carbon capture wedges.

Securing women’s rights and furthering women’s opportunities can effectively help stabilize human populations. There are plausible win/win scenarios which could aid women and their families directly, increasing human happiness and freedom, while helping meet the grave danger of GCC (O’Neill 2000, O’Neill et al. 2005). In addition, a recent study from the London School of Economics argues that reducing population growth is also much cheaper than many other mitigation alternatives under consideration (Wire 2009). Given all this, policies to stabilize or reduce populations should be an important part of national and international climate change efforts.

Talk of limiting or reducing human numbers makes many people uncomfortable, despite the fact that we are not talking about killing people, but preventing births that would otherwise occur. Many of us have held a newborn baby and felt a sense of infinite possibility and value radiating out from that little form. How could the world possibly be better without him or her? It seems an abominable thought. Nevertheless, most of us do not have as many children as we are biologically capable of having. Resources are limited. People living in many developing nations well understand the human costs of crowding, urban populations that outgrow basic services, and large numbers of unemployed young people; meanwhile, even confirmed anthropocentrists might well hesitate before accepting the total displacement of wild nature in order to maximize human numbers. People are wonderful, but it is possible to have too many people: in a family, an apartment, or a nation. GCC may be telling us that it is possible to have too many people on the earth itself. Part of its message may be that with freedom to reproduce comes responsibility to limit reproduction, so as not to overwhelm global ecological services or create a world that is solely a reflection of ourselves.

**Fully Considering Our Alternatives**

Some of the consumption and population wedges I’ve outlined above might sound far-fetched. Others might turn out to be unworkable, morally unjustified, or otherwise unsound. But if GCC is as serious and intractable a problem as it appears, then perhaps they need to be considered. Scientists are telling us that we might have to ratchet down emissions faster than we had anticipated in order to avoid catastrophic GCC. If they are right, these alternative wedges may become necessary, even if they are unpalatable.

However, some consumption reduction and population stabilization wedges might actually be preferable to the usual proposals to deal with GCC. For example, it is not clear that doubling or tripling the world’s nuclear reactors is superior to simply cutting back on per capita electricity use by reducing unnecessary consumption. Cutting consumption might be cheaper and less dangerous. Again, some of us would prefer that
our tax dollars go toward helping poor women in developing countries improve their lives, rather than subsidizing energy companies’ research and development (and profits), as required by Pacala and Socolow’s “clean coal” wedges. Again, limiting consumption and population growth seems less selfish and more responsible than relying solely on efficiency improvements that pass significant environmental harms on to nonhuman beings and future generations, or on futuristic technologies that may or may not work.

Whether or not I’m right about any of this, getting a full range of alternatives on the table would seem to be our best hope for opening up the debate and finding the fairest and most efficient strategies to mitigate GCC.2 The main impediment to doing so appears to be an uncritical acceptance of the goodness of growth.

**Human Flourishing and Economic Growth**

Earlier, I claimed that GCC is a grave threat to the flourishing of all life, human and nonhuman. But there is another way to look at the situation. GCC constitutes a threat to human flourishing, but in an important sense GCC is caused by human flourishing. After all, the major cause of GCC is ever more people living ever longer, more secure, more luxurious and energy-intensive lives. From this perspective, GCC can be seen as yet another example of humanity selfishly monopolizing key natural resources and flourishing at the expense of the rest of nature. We are the globe’s kudzu (kudzu is an invasive weedy vine in the U.S. Southeast that blankets whole forests, choking out other forms of life).

Just here, a further question becomes crucial: what do we mean by humanity “flourishing,” now and in the future? Is it truly a matter of ever more people living ever more luxurious lives? Our answer to this question could greatly influence what we are willing to do to mitigate GCC. For example, it could determine whether we are willing to significantly limit our own consumption to avoid catastrophic GCC; or, from the other side, determine whether we accept radical geo-engineering schemes which might safeguard humanity at the cost of sacrificing habitat essential to many other species.

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2 In comparing alternatives, I think we should focus on their overall impact on human and nonhuman wellbeing. Such an analysis will also include consideration of the costs, both in money and in freedom, of implementing particular wedges. Some of my alternative wedges restrict human freedom (limiting airplane flights), while others would increase it (empowering women in developing countries). In the end, we might decide that successfully mitigating GCC is worth restricting some important human freedoms—since catastrophic GCC will also limit human freedom and opportunities in the future. Perhaps, too, in a world with 6.8 billion people, many deploying powerful modern technologies, we will have to choose between incompatible freedoms.
Currently, America’s population stands at 308 million people. Will we be a more flourishing nation when we have doubled that to 600 million—as we are on track to do in the next fifty or sixty years? Currently, the average American family earns about $55,000 per year. Would we be a more flourishing country if household incomes averaged $110,000 per year, and we consumed goods and services at the levels that such wealth would make possible?

My answer to both these questions is “no.” Doubling America’s population would constitute increased flourishing if people flourished like kudzu. But people and the nations they constitute are different and can achieve things that matter more than reproductive success, or sheer organic bulk. Among these we might rank creating great art, literature and music, furthering the progress of science, and sharing the benefits of these cultural achievements widely through excellent education for all; raising children in loving and nurturing families; engaging in careers that challenge us and provide real benefits to society; and treating one another justly, by meeting our moral responsibilities to fellow community members and to past and future generations. There is little reason to think that such achievements, or anything else of real importance, will be furthered by doubling our population.3

Doubling American’s per capita material wealth might constitute increased flourishing if it helped us achieve any of our important goals, or even if it just made us happier. But the evidence suggests that it would not. Studies have repeatedly shown that while increasing wealth in poor countries does augment happiness, once a society becomes sufficiently prosperous, further increases in wealth no longer boost subjective wellbeing (Layard 2005, p.22; McKibben 2007, p.35). Throughout the world, the cutoff line seems to be around $10,000, far below the average American income. Meanwhile, psychological studies show that a materialistic outlook is actually an impediment to individuals achieving happiness (Lane 1998, Kasser 2002, Kasser 2006). This is partly because such an outlook interferes with highly valuing people, and good relationships with spouses, friends and co-workers turn out to be very important in securing happiness. All in all, there is little evidence that doubling our wealth will increase Americans’ happiness or flourishing.

Those are my answers to these questions. Our answers to them may prove crucial to GCC policy. Most people in the United States today appear willing to “do something” to help mitigate GCC. But as we consider how much to do our calculations will depend on how important we consider the economic costs of mitigation. The average person

3 It is true that twice as many people might well generate twice as much artistic creation. But without increasing the percentage of works of genius to dross, I would not count this a society-wide improvement. Again, twice as large a population could provide twice as many scientists and thus increase the pace of scientific progress. But since doubling America’s population will lead to a tremendous displacement of wild nature, I would not count this an overall improvement either. Increased knowledge of an impoverished reality seems a poor trade-off.
considering his greenhouse obligations doesn’t seem to get hung up on the philosophical complexities of our duties to future generations, common action problems, or any of the other issues that philosophers have worked so hard to untangle in recent years. Put to the test, he knows that wealthy people shouldn’t harm poor people by destroying the ecological services they depend on for their survival. Put to the test, he knows that we owe it to our children and grandchildren to leave them a better world. Opponents of climate action don’t engage these topics. Instead, they speak of the great costs of GCC mitigation, in terms of higher gasoline prices, lost jobs and slower economic growth. To the extent proponents can honestly say that taking on these economic costs will make a negligible difference to our happiness or flourishing, the argument for action is greatly strengthened. Unfortunately, many people have a grossly inflated idea of the value of increased wealth to securing happiness, particularly, it seems, in the United States.

**Enter the Philosophers**

Here is one area where philosophical ethicists can greatly strengthen the case for action to avert GCC. Philosophers are particularly well-placed to argue for the relative unimportance of increased wealth to human flourishing, since we have a tradition, reaching back thousands of years, of advocating non-materialistic conceptions of the good life. Consider Aristotle, on the proper role of economic activity in a complete human life:

> With expertise in business there is no limit with respect to the end, [which] is wealth and possession of goods. But of expertise in household management (οἰκονομία) as distinguished from expertise in business there is a limit . . . Some hold that [business expertise] is [true] expertise in economy (οἰκονομία), and they proceed on the supposition that they should either preserve or increase without limit their property or money. The cause of this state is that they are serious about living, but not about living well; and since that desire of theirs is without limit, they also desire what is productive of unlimited things. (*Politics*, book 1, chapter 9)

Wealth has real but limited value as a means to human flourishing. Its’ pursuit is not a proper end in itself, however, and possessing great wealth should not be confused with living well. Our economic activities should be held up against an independent standard of human wellbeing.

Similar discussions on the proper roles of wealth, work, consumption and other key economic matters are found among all the leading schools of ancient ethical thought (East as well as West). Here is Epicurus:
Natural wealth is both limited and easy to acquire. But wealth as defined by groundless opinions extends without limit. (*Principle Doctrines*, maxim XV)

Becoming accustomed to simple, not extravagant, ways of life makes one completely healthy, makes man unhesistant in the face of life’s necessary duties, puts us in a better condition for the times of extravagance which occasionally come along, and makes us fearless in the face of chance. So when we say that pleasure is the goal we do not mean the pleasures of the profligate or the pleasures of consumption, as some believe. (‘Letter to Menoeceus’)

And here is Seneca, on many issues opposed to Epicurus, but not in this:

In the case of human beings, it is wholly beside the point how much land they have under plough, how much money they have invested, how many people pay their respects, how expensive are their couches or translucent their cups, but how good they are. (‘Letters to Lucilius,’ letter 79)

Luxury has turned her back on nature, daily urging herself on and growing through all the centuries, pressing men’s intelligence into the development of the vices. (ibid.)

The life that is happy is in harmony with its own nature. This can only come about when the mind is in a healthy state and in permanent possession of its own sanity, robust and vigorous, capable of the noblest endurance, responsive to circumstances, concerned for the body and all that affects it but not to the point of anxiety, conscientious about the other accoutrements of life without being too enamored of any one thing, ready to make use of the gifts of fortune without being enslaved by them. (letter 90)

Current scholars of Hellenistic ethics tend to skip over such passages (Nussbaum 1994). But in their own day, these economic views were seen as central to these philosophies (as shown by their prominence and the care with which they were debated) and grappling successfully with economic issues was seen as central to living a good life. The existence of GCC brings home forcefully the continued relevance of these issues.

The ancients’ general approach to economics was taken up and further developed in the medieval Christian philosophical tradition:

*External riches are necessary for the good of virtue: since by them we support the body, and help others . . . Now, things directed to an end, must take their measure from the exigency of the end. Wherefore riches are good forasmuch as they serve the use of virtue: and if this measure be exceeded, so that they hinder*
the practice of virtue, they are no longer to be reckoned as a good but as an evil. (Thomas Aquinas, *Summa Contra Gentiles*, chapter CXXXIII)

Such views gained most of their authority, of course, from the many clear statements on the unimportance of wealth and the danger of mammon-worship repeated throughout the Gospels. Recently they have supported many religious statements regarding the moral imperative to combat GCC, by leaders as diverse as Pope John Paul II and the members of the Evangelical Environmental Network (2009). As the Pope put it: “Modern society will find no solution to the ecological problem unless it takes a serious look at its life style. In many parts of the world society is given to instant gratification and consumerism while remaining indifferent to the damage which these cause . . . Simplicity, moderation and discipline, as well as a spirit of sacrifice, must become a part of everyday life” (John Paul II 1990, section 13, emphasis in the original).

Similar quotes from the philosophical tradition could be multiplied many times over. And when we turn our attention to modern environmental philosophers, we find many of the same themes (migrated there, as it were, from a philosophical mainstream which had largely lost interest in them). Here is Henry David Thoreau:

> When a man is warmed by the several modes which I have described, what does he want next? Surely not more warmth of the same kind, as more and richer food, larger and more splendid houses, finer and more abundant clothing, more numerous incessant and hotter fires, and the like. When he has obtained those things which are necessary to life, there is another alternative than to obtain the superfluities; and that is, to adventure on life now, his vacation from humbler toil having commenced. The soil, it appears, is suited to the seed, for it has sent its radicle downward, and it may now send its shot upward also with confidence. Why has man rooted himself thus firmly in the earth, but that he may rise in the same proportion into the heavens above? (*Walden*, chapter one)

> There is no more fatal blunderer than he who consumes the greater part of his life getting his living. (“Life Without Principle”)

And here is Aldo Leopold:

> The ‘key-log’ which must be moved to release the evolutionary process for a land ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise. (*A Sand County Almanac*, “The Land Ethic”)


Nothing could be more salutary at this stage than a little healthy contempt for a plethora of material blessings. (*A Sand County Almanac*, “Foreword”)

So insistent and consistent have philosophers been in making these points, across otherwise differing ethical systems, that they can easily seem to be philosophical platitudes. But in the end, do we really have anything more important to say? Perhaps GCC is reminding us yet again of the importance of these platitudes. Perhaps it even constitutes evidence, on a massive global scale, for their truth.

In any case, coming to understand the real value of all this economic growth that is threatening our planet is an important part of the equation as we decide what to do about GCC. Since worries about economic costs are the primary impediment to effective action on GCC today, philosophers’ efforts here could have real practical benefits.

Philosophers can make it easier for people to consider a wider range of alternatives, by reminding them of the truth that wealth is not the key to human happiness or flourishing (Cafaro 1998). But we should move beyond this and try to specify comprehensive alternative visions of flourishing lives and societies, based on the full development of our human capabilities, rather than on ever-increasing wealth (Alexander 2009). Here we can link up with some very interesting work being done by “positive psychologists.” Tim Kasser (2002), Ed Diener (Diener and Biswas-Diener 2008) and others have marshaled impressive empirical evidence that a materialistic approach to life undermines human health and well-being. Philosophers can also make use of the writings of ecological economists like Herman Daly, who are working out the details of what a sustainable economy might look like (Daly and Cobb 1989, Daly 2007). This work shows that there are alternatives to the endless growth economy that is both the cause of our problems and (probably disastrously) the background to most proposed solutions to them.

**Climate Change Rhetoric**

I believe a broadly Aristotelian and Thoreauvian approach, grounded in the value of human and non-human flourishing, offers our best hope for ethical guidance, as we search for ways to move beyond endless growth and successfully mitigate GCC. This will necessarily involve both individuals and societies putting economics in its proper place. But doing so will not be easy, particularly here in America, where economic growth comes close to being a sacred value. Consider the rhetoric around popular efforts to encourage action on GCC.

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4 Positive psychology focuses on fully specifying and promoting human well-being, in contrast to mainstream psychology’s primary focus on specifying and curing mental illness.
Mass initiatives like Focus the Nation and Al Gore’s Wecansolveit.org are morally earnest, yet optimistic. They emphasize that the GCC challenge is manageable and can be met without drastically harming standards of living. In fact, they claim, GCC is chock full of economic opportunities. In a section on their website proposing “Solutions” for a “Clean Energy Economy,” Wecansolveit.org exclaims: “Thousands of new companies, millions of new jobs, and billions in revenue generated by solutions to the climate crisis—this is the clean energy economy we can adopt with today’s technologies, resources, know-how, and leadership from our elected officials.” Furthermore: “A recent report showed that investment in a clean and efficient economy would lead to over 3 million new green-collar jobs, stimulate $1.4 trillion in new GDP, add billions in personal income and retail sales, produce $284 billion in net energy savings, all while generating sufficient returns to the U.S. treasury to pay for itself over ten years." They conclude: “This is the opportunity of our generation—to lead the transformation to an economy that is robust without causing environmental harm.”

There are good practical reasons to be optimistic in tone and emphasize the economic positives in talking to our fellow citizens. If the only way for Americans to do our part to stop GCC is to give up our cars or keep our houses heated to 55 degrees during the winter, I don’t think we’ll make the effort. Fortunately, Al Gore and other optimists are right that many of the steps needed to limit greenhouse gas emissions will save us money and that the new energy technologies we need to develop and deploy can be growth industries for the U.S. economy. Estimates that the world might meet the global climate challenge by devoting only 2% of world GDP to the effort really do give grounds for optimism (Stern 2005).

Above all, the “positive” approach recommends itself because it has led to some successes. For example, in my home state of Colorado, we have—through a direct citizens’ referendum and subsequent government action—committed the state to billions of dollars of new investments in alternative energy in the next decade. We didn’t achieve this by hanging crepe, but by combining moral exhortation with optimism. “Global warming is our generation’s greatest environmental challenge,” states Governor Bill Ritter, in his introduction to the Colorado Climate Action Plan. “Can Coloradans really make a difference? I believe we can, and that we have a moral obligation to try.” “[O]ur success depends on everyone doing his or her part. We can reduce global warming and keep our economy strong and vibrant. This is an exciting time for Colorado as we look toward an expanded New Energy Economy with new jobs, new businesses and new investments” (Ritter 2007, p.2). Colorado’s plan is one of the most far-reaching alternative energy mandates in the United States. Score a point for the power of positive thinking.

However, this approach engenders two worries. First, it might not be able to support all the measures needed to adequately address the problem. What happens when mitigating GCC doesn’t save us money or contribute to growth, but instead costs us money and
inhibits growth? Second, this approach’s boosterism might further solidify the economic paradigm that is causing GCC and the rest of our environmental problems in the first place, and further entrench the economic mindset which makes it so difficult to solve them. Can we really “expand” our economies and keep them “vibrant and strong” (i.e., growing even more) while also “reducing global warming”? Can an economy really be “robust [that is, rapidly growing] without causing environmental harm”?

The evidence suggests not. Hence we need to learn the most important economic lesson GCC has to teach us: that the endless growth economy is unsustainable and must be replaced by a fundamentally different alternative.

Climate Change Reality

What is GCC? We are cooking the Earth, radically destabilizing the climate of the only home we or our descendants will have (at least for the foreseeable future). We are doing this at great risk to ourselves and great cost to the other species with whom we share this planet.

How are we creating GCC? Not by accident, now, but consciously, as a byproduct of ever more human economic activity.

Why are we creating GCC? Because we believe—or act as though we believe—that ever more economic activity is the key to living good human lives. Or because we believe that there is no real alternative to ever more economic activity: that it is either as inevitable as Newton’s laws of motion, or that the alternatives are so dismal that we could never accept them. So, in responding to GCC, the assumption so far has been that we can continue to have growing economies while generating less greenhouse gas emissions, as long as we make some (perhaps difficult and costly) technological and managerial changes. But this assumption is becoming less plausible with each year’s reports of melting tundra and receding glaciers.

In the short term, we might make impressive strides in lowering the greenhouse gas emissions of various human activities (driving, providing electricity for our homes, etc). But there are also limits to how far we can push down these emissions: technical limits, economic limits, physical limits, and the limits associated with human inertia. Meanwhile, all else being equal, more people mean more greenhouse gas emissions and wealthier people mean more greenhouse emissions. The “Environmental Kuznets Curve”—whereby societies, once they become sufficiently rich, start to “purchase” increased environmental protection and clean up their messes—is a very comforting idea, which apparently does not hold for GCC (Stern 2004). So, under the endless growth status quo, all our economic successes make mitigating GCC more difficult.
In the long term, it seems clear that an ever-growing economy—with more people consuming more, producing more goods and services per capita, and generating ever more wealth—will sooner or later lead to dangerous GCC. Unless you imagine a way of life that creates no greenhouse gas emissions per capita, you have to accept that at some point continued growth in population, consumption and production will generate dangerous greenhouse gas emissions and catastrophic GCC.

Imagine a benign, post-fossil fuel economy, where people generate no greenhouse gases at all. Even in this advanced state, shouldn’t we assume that an endlessly growing human economy will create other strains on basic ecosystem services? No one anticipated stratospheric ozone depletion as a byproduct of the growing world economy; almost no one anticipated GCC. One of the main lessons of GCC should be that we are likely not at the end of this career of unanticipated consequences. According to the recent Millenium Ecosystem Assessment, currently fifteen of twenty-four key global ecosystem services are being degraded or used unsustainably (Reid et al. 2005). GCC is not the only area where humanity is pushing up against global ecological limits.

Imagine, furthermore, that we can continue to grow indefinitely and somehow avoid eco-catastrophes like ozone depletion and GCC. Even then, ever more people consuming and producing ever more stuff will certainly demand the continued taming of the earth and the continued displacement of nonhuman species. Some of us rank these environmental trends right up with GCC as environmental and moral disasters (Crist 2007). Many proposed responses to GCC, from seeding the oceans with iron to covering the earth with solar collectors to floating vast armadas of balloons up into the stratosphere, would move humanity further toward a bland technological utopia in which we press every acre of land (and even the depths of the seas and the heights of the atmosphere) into service to our vast needs, turning the earth into an artificially-controlled human life-support system, while totally displacing wild nature. This would constitute a monstrous injustice toward the rest of life on earth—and a dangerous bet on our own foresight and technological abilities.

What all this suggests is that sooner or later (and in any case not all that much later) we are going to have to shift out of the endless growth economic paradigm if we hope to avoid the worst of GCC, meet our other environmental challenges and act prudently and morally as a species. But the political path to doing so is not clear.

A Conundrum

At the heart of mitigating GCC there is a conundrum common to many environmental issues. If environmentalists call for what we believe is needed to fully meet a problem, we often put ourselves outside the mainstream of society, which believes in the goodness or inevitability of continued economic growth. It can be hard to get a hearing for our proposals, from politicians or the general public, and we risk irrelevancy and
failure. On the other hand, if we accept continued economic growth and make our policy suggestions within this framework, we often cannot propose solutions that might really solve the problems we’re worried about. Again, we risk irrelevancy and failure. Furthermore, by accepting the “growth is good” framework we legitimize it and ensure a steady stream of future environmental problems.

What makes this problem so difficult is that it is not just a matter of taking the blinders off our eyes and heroically challenging “growth is good.” In order to do good work, environmentalists often have to put aside our scruples and work within the dominant paradigm. For example, some of us in northern Colorado are working to prevent a new reservoir that would dry up the river that flows through Fort Collins. In order to maximize our chances of killing this project, we decided early on to get with the program. “Of course,” we say in our public presentations: “this area is going to grow. People will need more water. But we can provide all the water we need, if we implement serious water conservation efforts and some innovative supply solutions. Not only that, but it will be much less costly to water ratepayers in affected communities.” I think that this approach has been more effective in convincing the general public and local politicians to stand with us than an approach challenging growth would have been. And when we comment formally to government regulators, or sue the project’s promoters in federal court, we have to accept that a certain amount of projected growth is a valid reason for developing water projects. Our only hope of winning over regulators, or winning at law, is to argue that this growth can be met in other ways. A similar dynamic comes into play when area environmentalists try to influence state transportation policies, sway local planning and zoning decisions, or run for public office. Get labeled a “no growther” and you lose your place at the table.5

For these reasons, I can’t fault Governor Ritter for playing up the economic benefits of “the new energy economy” as a way to sell voters on doubling Colorado’s renewable energy mandate, or blame We cansolveit.org for accentuating the positive in promoting similar steps at the national level. Such efforts are part of the difficult, long-term objective of “turning the ship” in a more sustainable direction. If environmentalists want to be involved in politics, we will often have to make concessions toward this “smart growth” model.

On the other hand, when we ignore the role of growth in creating our environmental problems, we pass up opportunities to challenge endless growthism: challenges which, even if they didn’t work in particular cases, would help get the idea of limits to growth out in the culture. Instead, our environmental debates often perversely run the “growth is good, growth is inevitable” ruts even deeper.

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5 Chances are that your town and state are similar. It may be possible to get elected to California’s Marin County Commission as a “no growther,” just as it’s possible to get elected a Socialist Senator from Vermont. But these are the exceptions.
On the other hand, accepting endless growth perpetuates Americans’ childishness, which seems to be at the root of our inability to solve many of our environmental (and other) problems. Childhood is and should be a time of rapid physical growth and often thoughtless exuberance. Adulthood is the time when such physical growth ends and we take on adult responsibilities (while hopefully continuing to grow in other ways).

On the other hand and most basically, accepting endless growth ensures continued environmental deterioration. It ensures that we will lose, long-term. The rivers will be dammed, the farmlands will be paved over, wild species will retreat from the landscape, greenhouse gas emissions will continue to increase and temperatures will continue to rise. Environmentalists are sometimes urged to take the long view and think “seven generations” out into the future. Projecting current economic and population growth rates out two hundred years presents a truly dismal picture.

**Conclusion**

What is to be done? I think the answer must involve tactical acceptance of “growth is good” in particular political contexts, but a firm strategic rejection of “growth is good” in our ethical philosophies and overall environmental goals. Just here is where GCC most challenges us to rethink ethical fundamentals (Jamieson 1992, pp.290-292). Philosophers should take the lead in exposing the fallacy that economic growth is any longer the key to human flourishing in wealthy industrial democracies. We should emphasize the need to pursue intellectual/spiritual/personal/relationship growth rather than increased wealth, if we hope to live better lives. Environmental philosophers should also deal honestly with population issues, something we have rarely done in the recent past (Hardin 1993). At a minimum, we should acknowledge the role population growth plays in environmental destruction, rather than continuing to sweep this unpleasant fact under the rug.

We also need to begin to bring “growth is bad” into politics, as well. It is difficult to see how this might be accomplished, however, at least from an American vantage point. For Americans, economic growth is not one goal among many, or a by-product of some more fundamental goal. It is the primary goal of our society, organizing much of our activity, individually and collectively. Every major-party candidate for President, for at least the past eighty years, has run on a pro-economic growth platform. Every major-party candidate for Congress in 2008 did likewise. One hundred and sixty three billion dollars in advertising were directed at the American public in 2006—almost half the

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6 When I read an article about Denmark’s or Norway’s enlightened environmental policies, I often wonder: “How come they can do that?” And usually wind up answering: “Oh that’s right, they’re grown-ups.”
total world advertising budget—in order to keep Americans consuming at high levels (World Advertising Research Center 2007).

In the face of this vast system in the service of economic growth, environmentalism is a puny force indeed. The wonder is not that it has accomplished so little, but that it has accomplished anything at all. Nevertheless, it is better to face reality, since, as GCC suggests, we will be forced to do so sooner or later. In order for environmentalists to win our important battles, including preventing catastrophic GCC, we must end the endless growth economy.7

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