



Dancing at the Edge of the Precipice - After Peak Oil

Posted by [Gail the Actuary](#) on October 1, 2009 - 10:25am

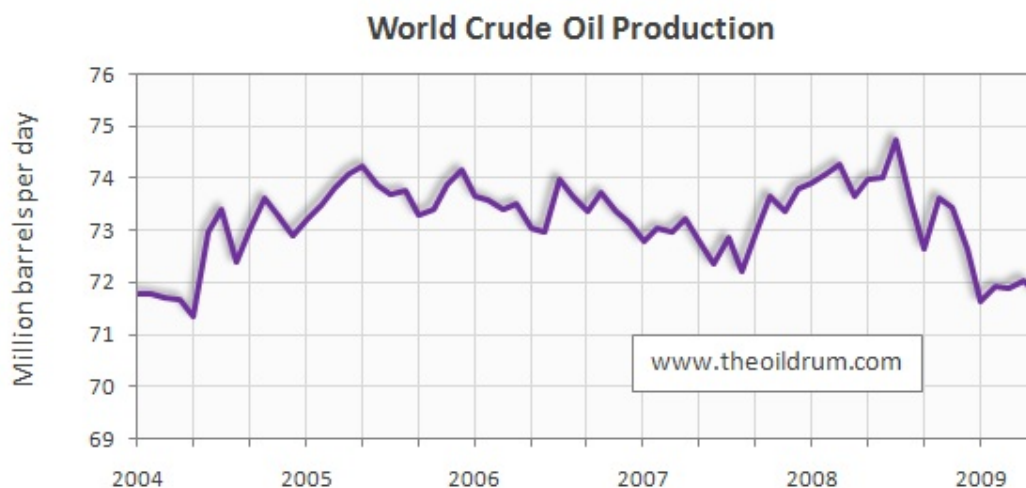
Topic: [Policy/Politics](#)

Tags: [alexis ziegler](#), [peak oil](#) [[list all tags](#)]

This is a guest post by Alexis Ziegler. Alexis is a communitarian, builder, orchardist and environmental activist living in central Virginia. He is the author of a recently published book, "Culture Change: Civil Liberty, Peak Oil, and the End of Empire". More information can be found at coneuv.org.

In the couple of years since *Culture Change* was first published, much has changed. *Culture Change* predicted that in 2007 we were "at or near" global peak oil production, and that we would face a "large economic contraction" as a result.¹ In July 2008 oil production hit an all-time high of 74.8 million barrels per day and oil prices reached an unprecedented height of \$147.27 in daily trading.² Since then, the global economy has collapsed into the worst recession since the Great Depression. Oil prices have oscillated wildly, and oil production has declined as global demand has decreased.

Meanwhile, production from the giant oil fields which make up the lion's share of global production has continued to decline. There is a growing consensus, at least among those concerned about peak oil, that the July 2008 peak of production will probably remain as the all-time historic high for global oil production.³ As of the most recent measure, more than 60% of global oil fields are past peak and are now in permanent decline.⁴



World Oil Production from [August Oil Watch Monthly](#)

And the response has been.... silence.

Among peak oil devotees, the discussion has continued; but in the popular media, the concept of

peak oil has been all but forgotten. We have stopped talking about the most powerful limit to growth humanity has ever faced just at the precise historical moment that it sinks its teeth deeply into the global economy. The irony is mind-boggling. The impacts of peak oil are transforming our political culture before our very eyes, but the connections between ecological limits and political change remain absent from public awareness. These changes demand with new urgency that we address the problem of blind culture, of finding a way to make our society socially intelligent.

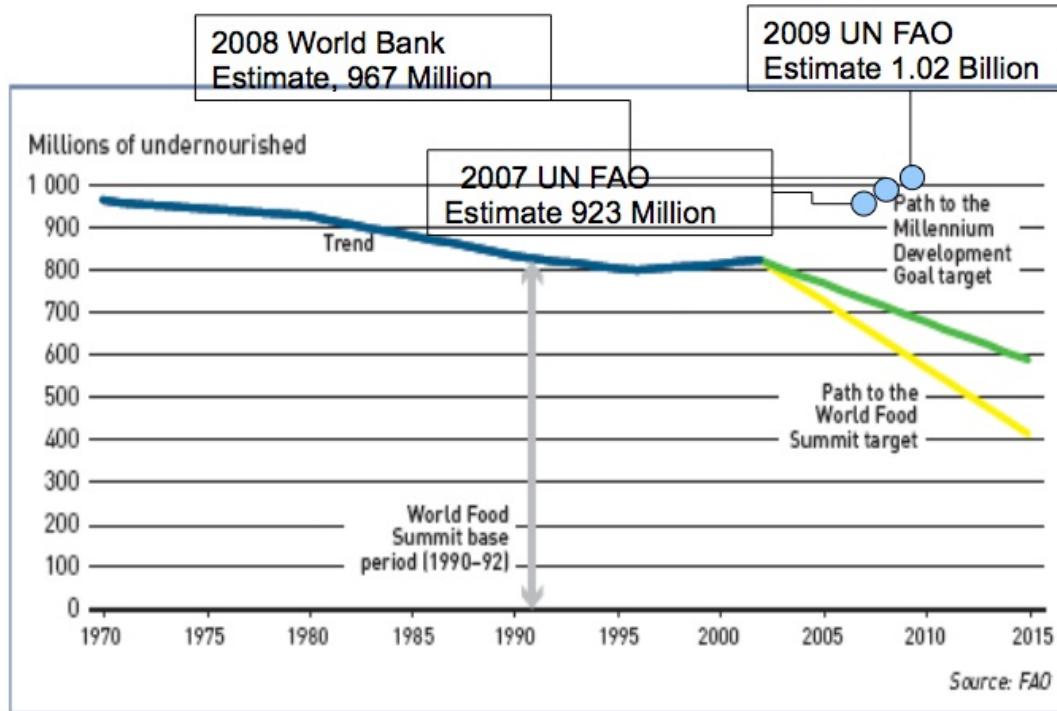
Oil Supply Constraints and the Rise of the New Caesars

Peak oil seems to be causing considerable economic fall out. Though there are many "causes" for the current economic downturn, one can be certain that the availability and limitations of energy supply have had an enormous impact.

The economic fallout of peak oil is rippling its way through our economy, but we are being distracted from the realities of what is occurring around us. The Housing and Urban Development Department recently released the stunning claim that the "number of homeless has remained steady since 2007."⁵ Meanwhile, in the real world, newspapers are reporting "61 percent of local and state homeless coalitions say they've experienced a rise in homelessness since the foreclosure crisis began in 2007." (MSNBC),⁶ "Cities Deal With a Surge in Shantytowns" (NY Times),⁷ and "There are reports of tent cities popping up across the country as unemployment rises in a worsening economy..." (Huffington Post)⁸ The social impacts of the global financial meltdown are rippling their way through the American economy, though we are loathe to admit it.

The economic impacts of the limits of oil supply extend well beyond the border of the United States. Globally, the number of hungry people in the world was decreasing up until the mid 1990s. Beginning then, because of the global debt crisis and the austerity measures imposed on poor countries by the International Monetary Fund, hunger began to climb. Since then, hunger is on a steepening curve upward because of the rapid expansion of biofuel, the expansion of meat consumption among the global upper class, and the impacts of global warming on agricultural production. (Biofuel is now consuming about 5% of the global food supply, and meat consumption has been growing twice as fast as population itself.)⁹

Why is the United States in an undefined "War on Terror" with no end? The graph below tells the story. When this graph was first created, the authors optimistically predicted that hunger would fall on one of the two lines to the right of the graph. The dots inserted show what has actually happened since the creation of this graph. For every person starving in the world, there are many who suffer less severe privation. The upturn of hunger is a stark manifestation of the global polarization of wealth, driven to ever more bitter manifestations by a contracting energy supply. Revolutionary movements, congealed by religious fervor, are the face of the reaction from the bottom. The "War on Terror" is the witch hunt from the top down. This escalating war cannot be ended by a change of administration or policy. It can only be ended by a fundamental restructuring of our economy.



From World Bank and FAO¹⁰

We live on a finite Earth. That is obvious. Oil production has been declining, and we will likely never again surpass the production levels reached in 2008. Stalled oil production has triggered an economic contraction. But the connections between oil supply and political change remain hidden from us. Global class warfare under the banner of the "War on Terror" is escalating even as tent cities pop up around American cities. Meanwhile, the U.S. has elected the first black president, a Democrat who has promised to bring a more thoughtful and humane approach to politics in our country. The Bush administration was blamed for many of the ills that developed under its reign, but are those policies and problems being reversed? Or are they continuing to grow, fed by unrecognized resource constraints?

President Bush was vilified for his assertion of unlimited power in a time of war under the title "Commander in Chief." The Bush Administration set up the prison at Guantanamo Bay, ordered the military incarceration of "enemy combatants" without judicial review, ignored long standing principles of habeas corpus, set up military trials resembling those that operate under dictatorships around the world, established targeted killing of enemies on foreign soil, established a policy of the "rendition" of enemies to foreign governments or secret prisons where they might be tortured, ignored the Geneva Conventions concerning the treatment of prisoners, approved the use waterboarding and other forms of torture on prisoners, and established an extensive domestic spying program. How has President Obama responded to these challenges that he inherited?

"Obama is actually strengthening (rather than "changing") the Bush/Cheney approach to Terrorism even more effectively than Bush did by entrenching those policies in law and causing unprincipled Democrats to switch from pretending to oppose them to supporting them, thus transforming them into bipartisan dogma." Glenn Greenwald, Salon online magazine¹¹

"The new administration has copied most of the Bush program, has expanded some of it, and has narrowed only a bit. Almost all of the Obama changes have been at the level of packaging, argumentation, symbol, and rhetoric." Jack Goldsmith, The New Republic ¹²

"If you mean the actual policy of how are we detaining people, how we are monitoring communication in order to gain intelligence, what we are doing with Predator drone strikes in Pakistan and so forth, the substance of what is happening now, and what was happening on, say, January 20, 2009 before noon, when Bush was president, is very similar, and there's some superficial changes like they're going to try to close Guantanamo, but the policy of indefinite detention without trials for terrorism suspects who are deemed too dangerous to release, but too difficult to put on trial, remain. So the essence of that policy is the same, whether it's at Guantanamo or somewhere else. Charlie Savage of the New York Times¹³

There is no objective way to measure President Obama's record on civil liberties or to weigh that record against his more ameliorative statements on foreign policy issues. But, to re-frame the question: Imagine we are back again in the year 1999, ten years ago. Imagine that we could foresee the future enough to know that a Republican administration would be followed by Democratic one. Would you have guessed at that time that the aforementioned policies of detention without warrant or trial, domestic spying, or oversees rendition and execution would be unfolding as they have under a nominally liberal president?

Getting lost in the right-vs-wrong, ethics-vs-political necessity debate only buries the truth about what is currently unfolding in our society deeper in the mythological mud. The reality is that the United States is changing. We are part of an aging Empire that is now facing a constriction of energy supply, which will in turn exacerbate the impacts of other ecological and resource limits. Put simply, if the global supply of energy and resources is shrinking, and if the global upper class is intent on maintaining its lifestyle at current or expanded levels, the consumption of the rich must be supported by a reduction of consumption among the poor. If the energy pie is shrinking and we intend to continue to eat the same or more, than everyone else must eat less.

What are the political and cultural ramifications of these changes? They are manifest in the changes we see in our political system. Maintaining current levels of consumption demands strong-handed intervention around the world, as well as growing state power at home. The number of starving people on the Earth has been growing substantially, and the number of people left out of economic growth has been growing even more rapidly. This economic polarization will of necessity breed political resistance. But we are loathe to recognize that our economic choices drive political change in our own society. We want to see ourselves as the masters of our own destiny. Now we have "liberal" democrats pursuing policies that we could not have imagined ten years ago. These changes are driven by the structural changes in our society, in our economy, and will continue to be so in the future.

The moral fabric of our society is not created by our conscious intent, even if we are hell-bent on believing that we are the conscious masters of our political universe. If we allow the ecological and economic foundation of our society to unravel, then the impacts of that unraveling will be

overwhelming, and will be far more powerful than our ability to overcome poverty, racism, sexism, homophobia, or any other form of oppression by means of moral exhortation.

We see the unthinkable before us; large-scale domestic spying and state sanctioned extra-judicial killing around the world, initiated by conservatives but emboldened and carried forward by liberals. Large scale economic growth is over -- forever. For now President Obama is trying to clean up the mess he inherited. Soon, it will be his mess. Already, there is a vocal movement on the far right to vilify him. When the economy takes its next dip, or fails to recover as his presidency matures, he will be blamed. It is hard to say exactly which social movements will succeed, or what symbolism they will employ or precisely what policies they will enact. The general trends are, however, predictable.

The form of civil liberty that we have enjoyed until now was a product of economic growth. The demand to maintain very high levels of consumption under conditions of constricting energy supply will demand a further concentration of state power and a very aggressive foreign policy. Just as Caesar Augustus took Rome from being a limited democracy back to a dictatorship, our presidents will in the coming years enforce whatever measure of state power necessary to maintain access to resources. Civil liberty has always been to some extent constrained by class status. Civil liberty will become increasingly limited by class status as this process matures.

Real Problems, Real Solutions

If you listen to the news every day, you will hear stories about bombings in Iraq and Afghanistan, the health reform debate, the state of the economy and the timeline for recovery, perhaps a story about the latest organization to take a stance for or against gay marriage. The myopic nature of our political and academic debate is dangerous. Instead of building the machines we will need to support ourselves as energy supplies decline, we continue to use the steel, glass, electronics, and energy to build the old economy. Even the most radical news outlets rarely mention limitations of energy supply, or the other limits we inevitably face.¹⁴ And even then, a recognition of the connections between the limits of energy supply and current political changes is utterly absent.

The limitations we face are going to manifest in ever-hardening global class lines. The escalating price of energy means that those who can afford to pay the higher prices will grumble and pay, while those who cannot will starve. As this crisis matures, the political obfuscation will only intensify. It is as if we are standing on the deck of the Titanic. The warnings have been issued, but not heard. We are waiting until we feel the water at our ankles. Remediation only becomes more difficult with each passing day.

In the larger perspective, we do not face an energy crisis at all. Even as oil supplies decline, we will still have a greater supply of energy and other resources at our disposal than our grandparents had. The vast majority of people live very frugally, simply because they have to. Even in industrialized nations, some people live much more frugally than others. The real issue is power. As we discussed in *Culture Change*, consumption is power, throughput is power.¹⁵ The desire of the global upper class to hold on to power drives them to continue to consume, and that is creating a conflict over dwindling resources.



Dancing Rabbit Common House, fully solar powered. House in the left corner of the picture is strawbale. Dancing Rabbit uses about 90% less energy per capita compared to the American average. Dancing Rabbit is an ecovillage in Missouri.

Since the publication of *Culture Change*, I became curious about the difference in energy consumption as it relates to differing ways of living in the U.S. To explore that curiosity, I conducted a small, non-scientific survey of the energy use of my friends and acquaintances, all dedicated environmentalists. I also conducted a survey of various groups who choose to live cooperatively, both rural and urban.¹⁶ I was curious how the energy consumption of these various groups compared to each other and to the American norm.

The results were startling. Among the people living in private homes, each using their own strategy to conserve, domestic energy use was *higher* than the American average. How could that be? The answer to the riddle is that the American average includes many people living in urban settings in apartments. An apartment with other apartments around it uses less energy because the apartments have shared walls. Single family homes, even when occupied by conscientious individuals, use more energy because they stand alone.

Various environmental groups have made the radical assertion that we need to decrease energy use by 80% or more over the next 50 years in order to address global warming. The startling discovery about people living cooperatively is that many of these folks are already using 75% to 90% less energy than the average American *today*, not 50 years from now. This subject has been pursued in greater depth in a book by the author, *Beyond Greenhype, Real Solutions for Global Warming*.¹⁷



Twin Oaks residence, with solar electricity, solar water heating, passive solar design and super-insulated. Twin Oaks uses about 75% less energy per capita compared to the American average. Twin Oaks is the largest, secular income sharing intentional community in the U.S., and is located in central VA.

Clearly, we have already discovered the solution to our energy problem. Real solutions involve living differently, and using alternative energy cooperatively. Alternative energies such as wind and solar are, relative to fossil fuel, expensive to produce, intermittent, and modest. Alternative energy is very poorly suited to private use, and well suited to cooperative use. If the solution is that simple, why have we not adopted it already? Because throughput is power. The voracious consumption of resources among industrialized nations ensures they will remain on top. We have a crisis of power, and the concentration of power is the single most significant factor driving the creation of blind culture. Social stratification and blind culture are two sides of the same coin.

To assert that "we" should live cooperatively or conserve energy is not likely to yield much result when speaking to the privileged classes. All of the graphs plotting the rates of consumption of vital resources remain nearly vertical. While many are aware of the serious nature of our environmental problem, very few take it seriously. The vast majority of even highly informed citizens of industrial society continue much as before: traveling, living, and eating as they choose. Many people feel overwhelmed by the complexity and scale of the issues we face. Some focus on one particular aspect of the problem by obsessively recycling or vehemently espousing veganism.

But there is no identifiable movement towards the basic structural change of industrial society that is so desperately needed. This is not surprising given that, even in the environmental literature, readers are assured over and over that they can continue to live in their own private homes, drive private cars, and eat as they choose, as long as they make small adjustments over time toward conservation. In his latest book Bill McKibben even goes so far as to tell his readers that they "don't have to join a commune," without defining what terrible fate must await those who do cooperate, or why that fate is more terrible than global ecological collapse.¹⁸ Over and over again, Americans are assured that token conservation measures will suffice. The bottom line is the consumption is power, and those who have the power to consume will hold on to that power tenaciously.

Some people within the U.S. and other industrial states are truly committed to a sustainable transition, but they are not numerous enough to constitute a real movement. One has to assume that token gestures that leave current power structures completely unchanged will remain the norm for the near future in industrialized states.

Globally, the situation is much more complex. There is growing resistance to the neoliberal agenda that seeks to further concentrate wealth and power. There are many movements and projects that are working toward real sustainability among people who are willing to live more simply, or heaven forbid, cooperatively, because they always have. Can those movements coalesce into a global movement toward real sustainability? Perhaps. Can that be achieved without severe class conflict? Probably not.

Our future is messy and uncertain. The collapse of industrial civilization, if it manifests as a disorderly disintegration, will cause great destruction of people and the natural world, and it will not resolve the fundamental cause of the problem -- the polarization of power and the blinding of cultural evolution. It's up to us to do that.

Notes

1. Zeigler, Alexis, *Culture Change: Civil Liberty, Peak Oil, and the End of Empire*, Ecodem Press, Charlottesville, 2007, p.15, 41.

2. Oil production numbers from <http://www.postcarbon.org/peak-oil-day>

3. Heinberg, Richard, <http://www.postcarbon.org/peak-oil-day>

"On July 11, 2008, the price of a barrel of oil hit a record \$147.27 in daily trading. That same month, world crude oil production achieved a record 74.8 million barrels per day." "Maybe it's a stretch to say that the production peak occurred at one identifiable moment, but attributing it to the day oil prices reached their high-water mark may be a useful way of fixing the event in our minds. So I suggest that we remember July 11, 2008 as Peak Oil Day."

4. <http://www.theoil Drum.com/node/5576>

5. Homeless Numbers Include More Families, KEVIN FREKING, Associated Press Writer Kevin Freking, Associated Press Writer, http://news.yahoo.com/s/ap/20090709/ap_on_go_ca_st_pe/us_homeless_americans

6. Associated Press, Thurs., Sept . 18, 2008

7. Jesse McKinley, March 25, 2009, <http://www.nytimes.com/2009/03/26/us/26tents.html>

8 .A Tent City Near You? Tell Us About It, March 13, 2009 10:10 AM http://www.huffingtonpost.com/2009/03/13/a-tent-city-near-you-tell_n_174...

9. <http://www.theoil Drum.com/node/2431>, Brown, Lester, Plan B 2.0; Rescuing a Planet Under Stress and a Civilization in Trouble, Norton, NY NY, 2006, p.176

10. World Bank: *Global Food and Fuel Crisis Will Increase Malnourished by 44 Million*, Press Release No:2008/107/EXC

UN FAO: Briefing paper: Hunger on the rise, Soaring prices add 75 million people to global hunger rolls <http://www.fao.org/newsroom/common/ecg/1000923/en/hungerfigs.pdf>

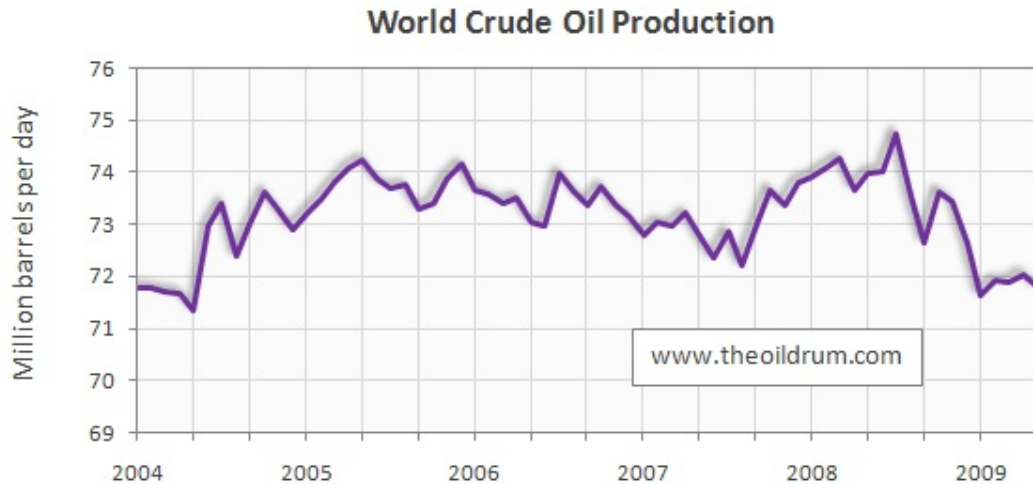
<http://www.fao.org/news/story/en/item/20568/icode/>

11. <http://www.salon.com/opinion/greenwald/radio/2009/07/02/savage/index.html>, Glenn Greenwald Thursday July 2, 2009
12. <http://www.tnr.com/politics/story.html?id=1e733cac-c273-48e5-9140-80443e...> Jack Goldsmith, May 18, 2009
13. <http://www.salon.com/opinion/greenwald/radio/2009/07/02/savage/index1.html> Thursday July 2, 2009
14. We face innumerable limits to continued industrial growth on the Earth, and each of these limits it made more difficult by decreasing energy supply. Resource substitutions, such as using steel instead of wood as a building material, requires more energy. Limits such as soil erosion, water supply, declining mineral ore density are each made more difficult by declining energy supply. See Meadows, Donella, Jorgen Rogers, Dennis Meadows, *The Limits to Growth, The 30 Year Update*, Chelsea Green, White River Junction, VT, 2004 or Heinberg, Richard, *Peak Everything, Waking up to a Century of Declines*, New Society Publishers, Gabriola Island BC, 2007
15. "Throughput is the volume of resources that must be passed through (extracted, processed, and sold) in the industrial economy to maintain employment, profit, and growth. Throughput results in; 1) economic stimulus, 2) political power, and 3) military dominion." See *Culture Change*, p.62.
16. <http://www.ic.org/>
17. Alexis Zeigler, *Beyond Greenhype, Real Solutions for Climate Change*, Ecodem Press, Charlottesville Virginia, 2009, ISBN 0-9665048-3-6, <http://conev.org/greenhype15.pdf>
18. McKibben, Bill, *Deep Economy: The Wealth of Communities and the Durable Future*, Times Books, Henry Holt and Co., NY 2007, p.105

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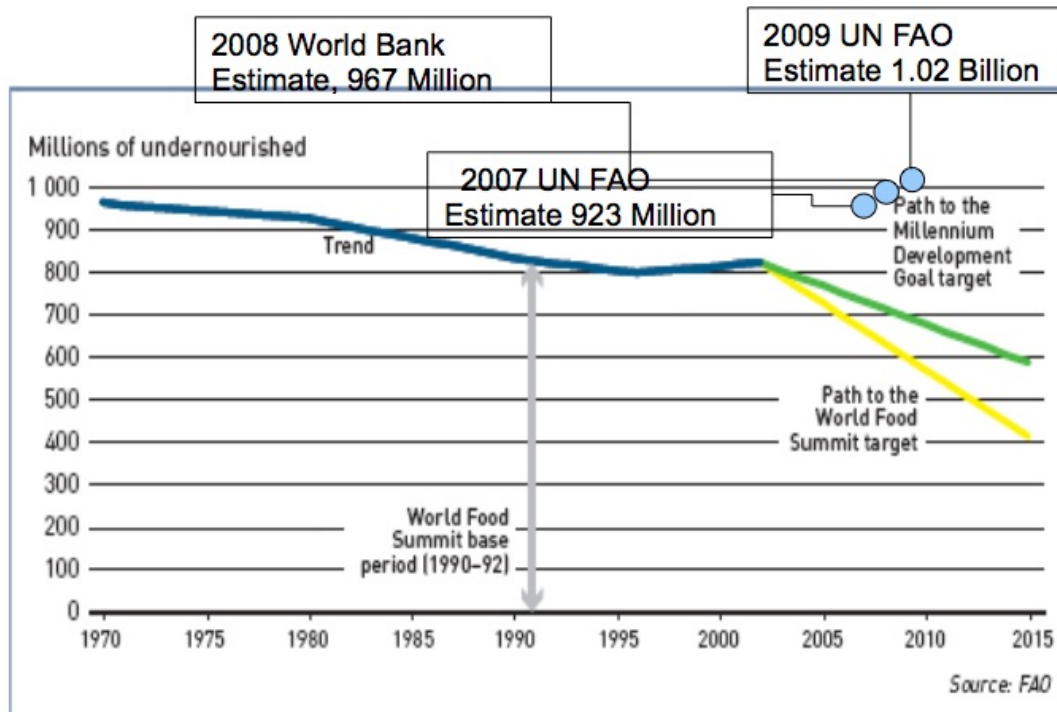
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The limitations we face are going to manifest in ever-hardening global class lines. The escalating price of energy means that those who can afford to pay the higher prices will grumble and pay, while those who cannot will starve. As this crisis matures, the political obfuscation will only intensify. It is as if we are standing on the deck of the Titanic. The warnings have been issued, but not heard. We are waiting until we feel the water at our ankles. Remediation only becomes more difficult with each passing day.

In the larger perspective, we do not face an energy crisis at all. Even as oil supplies decline, we

will still have a greater supply of energy and other resources at our disposal than our grandparents had. The vast majority of people live very frugally, simply because they have to. Even in industrialized nations, some people live much more frugally than others. The real issue is power. As we discussed in *Culture Change*, consumption is power, throughput is power.¹⁵ The desire of the global upper class to hold on to power drives them to continue to consume, and that is creating a conflict over dwindling resources.



Dancing Rabbit Common House, fully solar powered. House in the left corner of the picture is strawbale. Dancing Rabbit uses about 90% less energy per capita compared to the American average. Dancing Rabbit is an ecovillage in Missouri.

Since the publication of *Culture Change*, I became curious about the difference in energy consumption as it relates to differing ways of living in the U.S. To explore that curiosity, I conducted a small, non-scientific survey of the energy use of my friends and acquaintances, all dedicated environmentalists. I also conducted a survey of various groups who choose to live cooperatively, both rural and urban.¹⁶ I was curious how the energy consumption of these various groups compared to each other and to the American norm.

The results were startling. Among the people living in private homes, each using their own strategy to conserve, domestic energy use was *higher* than the American average. How could that be? The answer to the riddle is that the American average includes many people living in urban settings in apartments. An apartment with other apartments around it uses less energy because the apartments have shared walls. Single family homes, even when occupied by conscientious individuals, use more energy because they stand alone.

Various environmental groups have made the radical assertion that we need to decrease energy use by 80% or more over the next 50 years in order to address global warming. The startling discovery about people living cooperatively is that many of these folks are already using 75% to 90% less energy than the average American *today*, not 50 years from now. This subject has been pursued in greater depth in a book by the author, *Beyond Greenhype, Real Solutions for Global Warming*.¹⁷



Twin Oaks residence, with solar electricity, solar water heating, passive solar design and super-insulated. Twin Oaks uses about 75% less energy per capita compared to the American average. Twin Oaks is the largest, secular income sharing intentional community in the U.S., and is located in central VA.

Clearly, we have already discovered the solution to our energy problem. Real solutions involve living differently, and using alternative energy cooperatively. Alternative energies such as wind and solar are, relative to fossil fuel, expensive to produce, intermittent, and modest. Alternative energy is very poorly suited to private use, and well suited to cooperative use. If the solution is that simple, why have we not adopted it already? Because throughput is power. The voracious consumption of resources among industrialized nations ensures they will remain on top. We have a crisis of power, and the concentration of power is the single most significant factor driving the creation of blind culture. Social stratification and blind culture are two sides of the same coin.

To assert that "we" should live cooperatively or conserve energy is not likely to yield much result when speaking to the privileged classes. All of the graphs plotting the rates of consumption of vital resources remain nearly vertical. While many are aware of the serious nature of our environmental problem, very few take it seriously. The vast majority of even highly informed citizens of industrial society continue much as before: traveling, living, and eating as they choose. Many people feel overwhelmed by the complexity and scale of the issues we face. Some focus on one particular aspect of the problem by obsessively recycling or vehemently espousing veganism.

But there is no identifiable movement towards the basic structural change of industrial society that is so desperately needed. This is not surprising given that, even in the environmental literature, readers are assured over and over that they can continue to live in their own private homes, drive private cars, and eat as they choose, as long as they make small adjustments over time toward conservation. In his latest book Bill McKibben even goes so far as to tell his readers that they "don't have to join a commune," without defining what terrible fate must await those who do cooperate, or why that fate is more terrible than global ecological collapse.¹⁸ Over and over again, Americans are assured that token conservation measures will suffice. The bottom line is the consumption is power, and those who have the power to consume will hold on to that power tenaciously.

Some people within the U.S. and other industrial states are truly committed to a sustainable transition, but they are not numerous enough to constitute a real movement. One has to assume that token gestures that leave current power structures completely unchanged will remain the norm for the near future in industrialized states.

Globally, the situation is much more complex. There is growing resistance to the neoliberal agenda that seeks to further concentrate wealth and power. There are many movements and projects that are working toward real sustainability among people who are willing to live more simply, or heaven forbid, cooperatively, because they always have. Can those movements coalesce into a global movement toward real sustainability? Perhaps. Can that be achieved without severe class conflict? Probably not.

Our future is messy and uncertain. The collapse of industrial civilization, if it manifests as a disorderly disintegration, will cause great destruction of people and the natural world, and it will not resolve the fundamental cause of the problem -- the polarization of power and the blinding of cultural evolution. It's up to us to do that.

Notes

1. Zeigler, Alexis, *Culture Change: Civil Liberty, Peak Oil, and the End of Empire*, Ecodem Press, Charlottesville, 2007, p.15, 41.

2. Oil production numbers from <http://www.postcarbon.org/peak-oil-day>

3. Heinberg, Richard, <http://www.postcarbon.org/peak-oil-day>

"On July 11, 2008, the price of a barrel of oil hit a record \$147.27 in daily trading. That same month, world crude oil production achieved a record 74.8 million barrels per day." "Maybe it's a stretch to say that the production peak occurred at one identifiable moment, but attributing it to the day oil prices reached their high-water mark may be a useful way of fixing the event in our minds. So I suggest that we remember July 11, 2008 as Peak Oil Day."

4. <http://www.theoil Drum.com/node/5576>

5. Homeless Numbers Include More Families, KEVIN FREKING, Associated Press Writer Kevin Freking, Associated Press Writer, http://news.yahoo.com/s/ap/20090709/ap_on_go_ca_st_pe/us_homeless_americans

6. Associated Press, Thurs., Sept . 18, 2008

7. Jesse McKinley, March 25, 2009, <http://www.nytimes.com/2009/03/26/us/26tents.html>

8 .A Tent City Near You? Tell Us About It, March 13, 2009 10:10 AM http://www.huffingtonpost.com/2009/03/13/a-tent-city-near-you-tell_n_174...

9. <http://www.theoil Drum.com/node/2431>, Brown, Lester, Plan B 2.0; Rescuing a Planet Under Stress and a Civilization in Trouble, Norton, NY NY, 2006, p.176

10. World Bank: *Global Food and Fuel Crisis Will Increase Malnourished by 44 Million*, Press Release No:2008/107/EXC

UN FAO: Briefing paper: Hunger on the rise, Soaring prices add 75 million people to global hunger rolls <http://www.fao.org/newsroom/common/ecg/1000923/en/hungerfigs.pdf>
<http://www.fao.org/news/story/en/item/20568/icode/>

11 . <http://www.salon.com/opinion/greenwald/radio/2009/07/02/savage/index.html>, Glenn Greenwald Thursday July 2, 2009

12. <http://www.tnr.com/politics/story.html?id=1e733cac-c273-48e5-9140-80443e...>
Jack Goldsmith, May 18, 2009

13. <http://www.salon.com/opinion/greenwald/radio/2009/07/02/savage/index1.html>
Thursday July 2, 2009

14. We face innumerable limits to continued industrial growth on the Earth, and each of these limits it made more difficult by decreasing energy supply. Resource substitutions, such as using steel instead of wood as a building material, requires more energy. Limits such as soil erosion, water supply, declining mineral ore density are each made more difficult by declining energy supply. See Meadows, Donella, Jorgen Rogers, Dennis Meadows, *The Limits to Growth, The 30 Year Update*, Chelsea Green, White River Junction, VT, 2004 or Heinberg, Richard, *Peak Everything, Waking up to a Century of Declines*, New Society Publishers, Gabriola Island BC, 2007

15. "Throughput is the volume of resources that must be passed through (extracted, processed, and sold) in the industrial economy to maintain employment, profit, and growth. Throughput results in; 1) economic stimulus, 2) political power, and 3) military dominion." See *Culture Change*, p.62.

16. <http://www.ic.org/>

17. Alexis Zeigler, *Beyond Greenhype, Real Solutions for Climate Change*, Ecodem Press, Charlottesville Virginia, 2009, ISBN 0-9665048-3-6, <http://conev.org/greenhype15.pdf>

18. McKibben, Bill, *Deep Economy: The Wealth of Communities and the Durable Future*, Times Books, Henry Holt and Co., NY 2007, p.105



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