

# ecoLonomics

*Paul Mobbs' newsletter of thoughts, ideas and observations on energy, economics and human ecology*

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## ***The “green-Prometheans” – better, but still a futile gesture?***

**We've got problems – and across society people are trying to advance ideas to avoid eco-catastrophe, but what many of these solutions cannot or will not address is the present structure of the human ecosystem that's creating much of the impact.**

*Banbury, Saturday 12<sup>th</sup> September 2009.*

***An intellectual debate where a whole set of questions or positions are excluded from public examination is not a real discourse, it's a distraction to deflect criticism from the ideological viewpoints that constrain society. From the structure of building codes through to global climate negotiations, governments and lobbyists put emphasis on markets, or the marshalling of large resources – both vestiges of early industrialisation – to solve problems; but what if the true solution lay beyond this boundary? What if the structure of globalised markets and the growth paradigm that underpins their operation were to be the problem that we must solve? If the problem is the structure of modern society, and especially the global economy, how can “mainstream ideas” possibly solve the underlying trends driving the destruction of the Earth's ecosystem; more to the point, if these ideas originate from within this system, to what extent will they perpetuate it?***

***In Greek mythology, [Prometheus](#)<sup>[1]</sup> stole fire from the Gods and gave it to man – and for this benevolent act Zeus had him tied to a rock where every day an eagle would peck out his liver. From the stories of Hesiod in the 8<sup>th</sup> Century BCE, Zeus' view was that man was not fit to have fire, but more importantly,***

*“with fire you would easily do work enough in a day to supply you for a full year even without working; soon would you put away your rudder over the smoke, and the fields worked by ox and sturdy mule would run to waste”*

*In other words, if we had fire we'd just be lazy,*

make a mess of the natural environment, and that would ultimately be our downfall. In retaliation Zeus sends a gift, [Pandora's Box](#)<sup>[2]</sup>, that is opened and unleashes “evils, harsh pain and troublesome diseases which give men death” – presumably to restore balance to the world of men now that they had fire.

There are many examples of fire being stolen in mythology – fire is seen as a consuming force separate from man, as shown by the conception of fire as one of the classical “four elements”, along with earth, air and water. Humans have been using fire as a tool for [tens of thousands of years](#)<sup>[3]</sup>, and without its use we would not have developed to the point we are today: It has extended the range of foods that we could consume; allowed us to clear land to encourage certain habitats (most recently, human agriculture); and most importantly it permitted humans to have a much larger geographical range by providing heat during the temperate zone Winter. We are then as much a product of our relationship with the energy of fire as we are to our own genetic evolution.

Jump from Ancient Greece to the modern day; fire is as important, but its uses have become more nuanced within the science of [“combustion”](#)<sup>[4]</sup>; from car engines, to power stations, to the rockets of space probes. And the principle source of fire today is no longer firewood, it's oil, natural gas and coal; and, just as Zeus' concern that “with fire you would easily do work enough in a day to supply you for a full year”, so with oil – and the other fossil fuels – around the world our daily human needs are waited upon by thousands of [“energy slaves”](#)<sup>[5]</sup>.

One of the most important trends of the Industrial and Technological Revolution has been the replacement of human labour with machines, and in equiva-

lent terms the energy contained in one barrel of oil represents 25,000 hours of human labour – or 12 people working 40 hours a week for an entire year. Increasing the level of energy in the economy represents the equivalent of adding more labour to the economy, but at a vastly cheaper rate than real human labour, and so the economy becomes more productive as a result. At the time of writing a barrel of oil cost roughly \$69 (which at an exchange rate of about £1:\$1.67 is £41.32). The 25,000 hours of human labour equivalent to a barrel of oil, even assuming a low rate of pay such as £5.73/hour (minimum wage), would cost about £143,000 – or re-valuing that barrel of oil in its usual terms, about \$239,000/barrel. In other words, 99.97% of the equivalent labour value of oil is free labour!

Of course, “slavery” is nothing new in human society – we’ve just refined it a little over time. Human slaves were owned and exploited by the early “democracies” of Ancient Greece and Rome, and by some of the [founding fathers of American democracy](#)<sup>[6]</sup>. The seeming inconsistency between “democracy” and, given the second paragraph of the American [Declaration of Independence](#)<sup>[7]</sup> in 1776, slave ownership is something that we should ponder with concern. There seems to be a deep inconsistency between advocating the free representation of certain people’s unalienable rights on the one hand whilst holding another group of people in bondage on the other. And, just like the founders of “democracy”, many of those who advocate “green” solutions to the present ecological crisis hold these same contradictions within their arguments; they seek to hold an “ecological” viewpoint on one side whilst trying to reconcile those principles within a “mainstream” view of how we engage with the modern economic and political systems.

For me this contradiction was highlighted on *Newsnight* this week<sup>[8]</sup> by Franny Armstrong who, in New York for the global première of her film [The Age of Stupid](#)<sup>[9]</sup>, lambasted the growth in air travel and its impact on the climate. When the interviewer, Jeremy Paxman, put it to her that her position was inconsistent as she was speaking from New York, she exempted herself from the argument by saying that what she was doing was for the benefit of the campaign to solve climate change – *which of course is precisely what both Ed Miliband* (who was also being interviewed on the programme on the issue of air travel), *and the founding fathers of American democracy on the issue of slavery, did to exempt their extant position from their stated position... these actions were “in the interest of society!”*

Generally all such arguments on the “benefits” of action are subjective since there are always debatable valuations, and by their nature such justification leads to inconsistencies and double standards. If we look objectively at the issues concerned,

often such justifications just don’t exist; they are pleaded in order to allow the continuation of existing patterns of activity – which are no longer acceptable given the principles or facts that have just been stated as “self evident” – that would require painful change on the part of the plaintiff if they had to adhere to their own rules. As a result those hearing such arguments will not only fail to understand the importance of the principles that have been stated as fact (for if they were so important, why the exemption?), but the [cognitive dissonance](#)<sup>[10]</sup> that results from trying to reconcile the objective facts presented against the subjective justification means that people see no justification to act; *within the inconsistent presentation the public find justifications to exempt themselves too* (and why shouldn’t they if their “leaders and betters” will not act first?)

***Now enter, stage right, the individuals and groups advocating green solutions to society’s problems; these groups and individuals, like new green-Prometheans, offer humanity technologies that will set society free from carbon emissions*** – or to put it in a more simplistic sense, *energy without the combustion.*

In most cases their analysis of both the problems and the solutions are simplistic, and are linked primarily to the technological ability to undertake certain actions to reduce the direct impact of carbon emissions. Such schemes are often made in ways that ignore or play down the indirect effects of these actions on other aspects of the environment, and without regard to the dynamic response of society, and especially the economy, to the implementation of the scheme. Again, I perceive that this is to avoid any discussion about the problems inherent in the mainstream view of how society and the economy should operate, and most importantly the role of economic growth on the environment. As a result of this tendency to narrow the boundary of analysis, or ignore problematic considerations when scaling-up, often these “solutions” contain significant flaws; they hold within themselves the potential for their own failure and external criticism – and by implication, a failure to achieve the objective of mitigating carbon emissions.

It’s in part due to the filtering of the media, and of funding mechanisms, but often because of the self-censorship of ideas by those representing such solutions to society, that many of the efforts we see today to “Save the Planet” are not based upon changing “the system”, or the ideology that governs it, but rather the technologies that passively make society function. Even that phrase “Saving the Planet” externalises the issue from the maintenance of human society, which would naturally involve questions of governance or competence, to make it a problem outside of our collective values or organisational ideology. *In reality the planet can damn well*

look after itself, and it is to human society that we should address our metaphors rather than some anthropomorphised hunk of rock. If we look at this in terms of the [lifetime of our planet](#)<sup>[11]</sup> then it is “we”, not the biosphere, that is endangered by our present actions. In fact, if you want a diverse, species-rich environment then just burn all the carbon-based fuels; in fifty million years, just as the geological record shows in relation to the previous five major extinction events, when the biosphere has recovered from the human induced “[Sixth extinction](#)”<sup>[12]</sup> it will once again return to a lush and verdant environment free from excess carbon (it will have been reabsorbed), toxic waste (it will have broken down), radioactive waste (by then it will have decayed) and much of the evidence of human settlement (even our mega-structures, once unmaintained, will quickly crumble and return to nature). But of course “we” (as the species we regard ourselves as today, *homo sapiens*) won't be there to enjoy it.

Thus far the best example I have of someone who promotes a seemingly coherent but partial view of the problem, perhaps in order to avoid any unwelcome questions about the implications for economic growth, is [Al Gore](#)<sup>[13]</sup>. His award-winning documentary, *An Inconvenient Truth*<sup>[14]</sup>, does an excellent job at relating the complexity of climate science but when it comes to [ecological economics](#)<sup>[15]</sup> it falls flat on its face. About 1 hour and 14 minutes into the documentary Gore presents the problem thus –

Do we have to choose between the environment and the economy? This is a big one, a lot of people say we do.

– but he then neatly avoids addressing that issue head on, and instead goes out on the more tenuous tangent of –

If we do the right thing we're going to create a lot of wealth and a lot of jobs.

*Wealth* requires the consumption of resources to produce it; in the modern economic conception of the term, *jobs* require the consumption of resources to create and sustain both the direct activity, and the indirect lifestyle that flows from them; it doesn't need a public inquiry to realise that a problem of consumption cannot be solved in a way that creates more consumption – *that's the static logic of substance addition, not progress.*

In fact the choice we must make is *between* the environment and the economy; the modern economy requires growth as a pre-requisite of its operation, and continued growth within a finite ecological space is not possible. The only way Gore's analysis would be correct would be if “the economy” he was talking about were a wholly different and reformed system rather than the economy as it is at present; but at no point is that stated, and so this leaves open the issue as to precisely how we will reform the economy to make it ecologically benign.

Please don't misunderstand what I'm saying here; *An Inconvenient Truth* is a generally good documentary, and I have shown it to groups on a number of occasions; the problem is the last fifteen minutes where Gore's presentation doesn't contain the same factual rigour that the rest of his presentation demonstrates. Gore's principal solution is the “stabilisation wedge”<sup>[16]</sup> argument made by Stephen Pacala and Robert Socolow; the idea that by undertaking a number of technological measures and changes to consumption systems, each of which removes a “wedge” of emissions, we can reduce carbon emissions by the required amount. This argument contains a number of flaws: Such as the issue of the “[rebound effect](#)”<sup>[17]</sup> when such eco-efficiency measures are adopted; or the fact that this solution was devised when it appeared that only moderate cuts in emissions were required, that [recent research demonstrates](#)<sup>[18]</sup> is just not the case; but most importantly it is the complete disregard of the resource depletion issue as part of this process, and how the unravelling of the human industrial system as a result of energy depletion in particular – in effect, the loss of all those energy slaves – will render the “business as usual” conception of managing climate change invalid<sup>[19]</sup>.

For me the misconceptions in his presentation reach their most extreme when Gore uses the example of balancing “gold bars against the entire planet” – this is the divisive argument, used by the business lobby to oppose change, that we must choose between saving the environment or abandoning modern society. The argument itself is fallacious, as it presumes that these are the only two options available, and Gore uses it in an effort to ridicule the opponents of ecological change who'd made the 'gold bars' argument originally. But in using the argument of self-interest he also applies the same fallacious logic; for example, such a balance presumes that you're one of the few on the planet who are in a position to own a bar of gold. By making this argument he detracts from the deeper issue of ecological equity and the production of wealth for the enjoyment of the few, fuelled by economic growth, that's compromising the environment that the whole of humanity relies upon. Again it's the cognitive dissonance issue – the form of the argument and its solutions do not reconcile themselves to the nature of the problem.

I'm sorry if these conclusions are, in relation to such a totemic eco-treatise as *An Inconvenient Truth*, unwelcome to the “eco-optimistic” premise of many within the green movement. But however you try and rationalise the operation of the present economic system, and some of its most important aspects of it such as debt<sup>[20]</sup>, we cannot continue to operate the economy as we do today within an isolated ecological unit – *the biosphere.*

The failure to consider the basic issues of ecological economics were raised again this week when I heard [David MacKay](#)<sup>[21]</sup>, the Government's new advisor on developing low carbon energy sources, talking about how we manage our future energy problems on *The Today Programme*<sup>[22]</sup>. If you read MacKay's book, *Sustainable Energy Without the Hot Air*<sup>[23]</sup>, you'll see that he falls into precisely the same ontological hole as Al Gore. Again, like Gore's documentary, MacKay's book is a fairly good representation of the main issues, but once again he fails to place his ideas for technological change within the context of a human ecological system operating within a finite environment. This is most starkly outlined in Chapter 27 of his book –

In these plans, I assume that the current demand for electricity for gadgets, light and so forth is maintained... Yes, lighting efficiency is improved by a switch to light-emitting-diodes for most lighting, and many other gadgets will get more efficient; but thanks to the blessings of economic growth, we'll have increased the number of gadgets in our lives.

The problem is that this message, whilst within its own terms correct, is rendered wholly invalid due to other factors: Most directly in relation to his argument, the depletion of raw materials, oil and natural gas that form the basis of the specialised chemicals from which the “gadgets” are made (yes, there are alternatives, but these would significantly increase consumption as they are not as energy/materially efficient to produce); but more generally, the way his energy scenarios are constructed in isolation from the issue of consumption and ecological capacity mean that many of his specific proposals fall foul of the real-world restrictions involved – especially his advocacy of mega-solutions such as concentrating solar power in deserts and the importation of energy from countries “[with lots of sunshine](#)”<sup>[24]</sup>.

Such errors of fact and inconsistencies in the boundaries of analysis are inherent in the presentation of arguments in ways that exclude the “sacred cows” of the political establishment, *wealth* and *growth*. But unless we can present these problems as a coherent analysis that runs across the spectrum of human ecology then we will always leave open areas where poor or inadequate presentation creates disagreement, dissent, and as a result inactivity because most people will not know whom to believe (after all, this is not a one-sided phenomenon – anti-environmental groups and the business lobby are more prone to omission and narrow interpretation in order to make their own case as it is often so contradictory to statistical and experiential reality).

Curiously, that mouthpiece of the British technological establishment, *New Scientist*, seems to have a slightly better grasp of the problem than Professor MacKay. This week they started a new four-part

series, *Blueprint for a Better World*<sup>[25]</sup>, looking at some of the pressing issues facing society in the future. The first instalment wasn't too bad, but it did contain a few points that were inconsistent with other special reports produced by the magazine previously. For example, on the spread of graphs showing the performance of the world, “GDP” gets a thumbs up sign as it's rising, even though previous articles have identified the focus on GDP as one of the [principal drivers for ecological destruction](#)<sup>[26]</sup> and [resource depletion](#)<sup>[27]</sup> (perhaps these inconsistencies will be qualified over the next three instalments).

***A few weeks ago I went to the [Eden Project](#)<sup>[28]</sup>; it was a curious day, marked by both admiration for the work being undertaken and exasperation over some aspects of the activities on the site – mostly because of narrow analysis and the myopic presentation, as outlined above.*** In

reflecting on that day, and what the words of Franny Armstrong allowed me to resolve this week, is that I find the contradictions, the misrepresentations, the narrow justifications, and the wholesale ignorance within certain elements of the “green” argument so tediously vexatious; I think the root cause of this is that it's misleading to those without the ability to see past the simplistic viewpoint that it proposes, and so it asks for public support without clearly stating the implications of what people are signing up for. And at the Eden Project these contradictions, to those who take a more holistic view, are painfully clear.

After arriving we stood on the balcony overlooking the biomes in the valley below; my son said what was in my mind before I did – “It looks like the spaceship in *Silent Running*”<sup>[29]</sup>. It's a rather apt but depressing simile: In the film *Silent Running* the Earth's biosphere is dying and to try and save what biodiversity remains a number of ships are put into orbit around Saturn carrying large “biomes” to preserve specific environments – but, in what is the main plot device of the film, the corporations decide that the expense isn't worth it and order that the biomes are jettisoned and vaporised in a nuclear explosion; at the Eden Project each of the habitat specific biomes, placed in a former clay working, undertake conservation work to try and save the Earth's threatened biodiversity – but my impression as I left was that much of the excellent work that takes place here is drowned out by the cacophony of bleeps from the tills in the shop at the exit.

The Eden Project provides yet another painful example of how the “green” argument implodes because of the internal contradictions created by taking an ecological issue and reifying its meanings to meet the objectives of mainstream politics and economics. In the rainforest biome there was a small presentation on a plant called [Jatropha](#)<sup>[30]</sup>, and how this innocuous plant might be able to kick-start a bio-fuels revolution to address climate change. For the

majority of the public they may have taken this as just another part of the Eden Project's educational work, but in fact it is likely to have been sponsored; next to the display were some artfully aged steel cans bearing the logo "D1 Oils". For those who are unaware, [D1 Oils](#)<sup>[31]</sup> is a biofuel company, co-financed by British Petroleum, and which has a special interest in developing *Jatropha* crops as a source of fuel. However, recent reviews of this idea would indicate that the facts of biofuel production from [Jatropha does not meet the hype](#)<sup>[32]</sup> that D1 Oils and others attach to it; and in any case most analyses of how biofuel would integrate into the global agricultural system and then scale-up to replace conventional petroleum fuels [do not produce a viable scenario](#)<sup>[33]</sup> to maintain our present transport system. I looked around for something that would say, "this is an advertisement – this is not objective fact", but I couldn't see it.

It's not really the fault of the Eden Project. In both accepting sponsorship and running the infernal shop at the exit they have to try and balance the positive work they do with the hard economics of running a tourist attraction in a way that financially supports itself; but in passively accepting that system, without comment, then perhaps they do have some liability. In performing this Herculean feat (and of course, one of the labours of Hercules was to free Prometheus from his chains) do they have to present erroneous information that could have damaging repercussions for precisely the same biodiversity that they are trying to preserve; and do the messages that they convey have to compromise the basic truths about our ecological predicament, to the extent that the facts of our present situation are invalidated? These were the ideas that I took away when I left their main exhibition space, "The Core". There was a message on one exhibit that said something about "man being a part of the environment in which he lives", but that truth wasn't reflected in the running of the site as a whole. However I did enjoy leaving some perplexing messages on their wall of magnetic letters to try and rectify the problem of information imbalance.

Earlier I said that "we", *homo sapiens*, wouldn't be here to "enjoy" the environment when it reverts to a sustainable ecological equilibrium following an human ecological catastrophe. Of course the very use of the term "*homo sapiens*" is itself problematic since objectively we don't in any way have the perspicacious talents that the name implies; as [de Gourmont's observation](#)<sup>[34]</sup> on modern society notes,

We live less and less, and we learn more and more. Sensibility is surrendering to intelligence.

For example, earlier this week, for a little "rest and recreation", I watched an old video of [Quatermass and the Pit](#)<sup>[35]</sup>. Made in 1967, 10 years after [Roger Revelle](#)<sup>[36]</sup> started the research project that would identify the growing concentrations of carbon in the

atmosphere, the following exchange takes place (about 45 minutes in) that perhaps defines a great truism of the human condition:

*Quatermass*: Roney, if we found that our Earth was doomed, say by climatic changes, what would we do about it?

*Roney*: Nothing, just go on squabbling as usual.

What is the purpose of "Saving the Planet"? Is it so that we may individually possess enjoyment of it – which of course will always lead us into conflict with others' enjoyment of it; is it to ensure the continuation of our lives – which of course would beg the age-old question, oft quoted from Shakespeare, as to who is "worthy" of life<sup>[37]</sup>; or is it that we wish the world would be as we want it but we cannot reconcile ourselves to how it is – and that's a problem that's been philosophised since the Ancient Greeks.

The difficulty in "Saving the Planet" is that those who compromise over the evidence that lies readily before us, or who represent a poor abstraction of the holistic body of knowledge because it does not fit into the strict confines of discourse that is expected by society, are by their complicity involved in a propaganda-like process that "[insulates us from the realities of the world in which we live](#)"<sup>[38]</sup>; as such, are they not part of the problem? If there is one thing that we should be able to rely upon then surely it is "a conviction to the truth" – *and should we not always state what we know to be the case rather than denying elements of that truth in order to make it acceptable to present-day sensibilities?*

Be it Al Gore, or the Eden Project, such compromise creates a mire of inconsistency in the way arguments are put, and what they do or do not say; we do not debate the objective facts, but rather our skewed interpretation of them; as a result this allows those opposed to change to state their own policy arguments without having to debate the full weight of evidence; and in turn this makes it possible for the opponents of change to attack the compromised position of environmentalists, and as a result doubt is created in the public's mind as to whether urgent action is required at all. It's one thing to relate a positive message to the public, but it's a wholly different act to selectively and narrowly quote that message, to conform to an expected political or economic agenda, in order to curry favour.

To clarify that last paragraph let's consider two of the greatest taboos in environmentalism, *growth* and *resource consumption*:

***Perhaps the most important issue that many of the schemes for "greening" society and addressing climate change ignore is that it doesn't matter how much carbon-free energy we create because carbon is only one of the problems that is inherent within the current structure of human ecology; arguably it's not even the single most important.***

The most important problem we face as a species over the next fifty to eighty years will be the increasing scarcity of food and water; yes, these problems are exacerbated by climate change, but arguably the relationship between food production, water consumption and fossil fuel energy consumption is more important. After food, population is the most pressing problem, not due to energy or resource consumption but simply that at present the rise in human population is outpacing our ability to produce more food, and in turn we are taking over a greater proportion of the Earth's biomass resources in order to try and produce food – with inevitable consequences for biodiversity (agriculture is primarily monoculture, not an integrated polyculture as in nature) and climate ([conversion to agriculture](#)<sup>[39]</sup> inevitably releases carbon and reduces the capacity of the environment to absorb carbon in the future). After that it's consumption, especially of the mineral resources that underpin the operation of our technological society; a number of important metal resources only have a few decades of viable use left. *Note also that this is not an issue of ranking; no one issue can have higher priority than another because only one of these systems needs to fail to compromise the human ecological system in general.*

Perhaps I can best illustrate this point if I review some of the recent research on this subject.

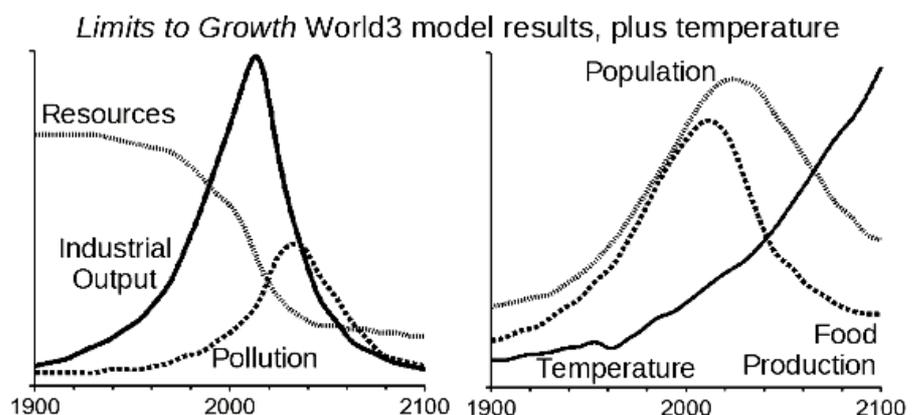
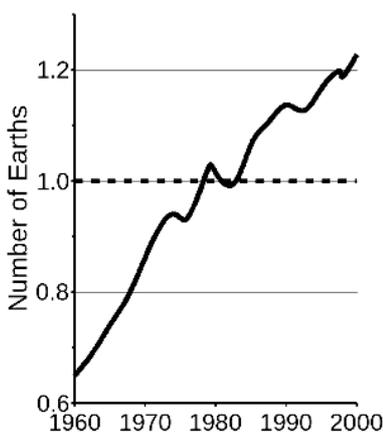
We can most simply illustrate ecological limits by projecting future demand against the known finite capacity of the planet – a process refined by Professor William Rees and Mathis Wackernagel in the 1990s to produce the concept of the [ecological footprint](#)<sup>[40]</sup>. By combining various impacts and the capacity of the environment to sustain them we can gauge the impact of the human ecosystem on the environment. For example, the graph below shows the “number of Earths” required to support the [demands of the human species](#)<sup>[41]</sup> – the fact that we are already in deficit is the reason that we have problems with climate change, species loss and pollution. *Note also how things improve (the line on the graph falls) with each global economic recession!* Again, it's something that environmentalists don't like

to discuss widely in the media, but economic recession is good for the global environment; OK, it's pretty depressing for humans, but, executed quickly enough, if we could engineer a planned recession to contract consumption whilst trying to manage the negative impacts on society it would solve many of the problems that threaten the future of our species.

Using a similar process, the [Limits to Growth](#)<sup>[42]</sup> reports used a more complex computer model to project, using different scenarios, the likely change in trends as a result of the excess demand of the human species on the environment. This is not as simple as it sounds because certain effects (such as the impact of pollution or falling food supplies on health and mortality) take time to have an effect on the global environment, which in turn creates a time lag in the feedback cycles within the system. By combining different impacts, and the ability of the environment to sustain them, the *Limits to Growth* reports project the change in human population, industrial output, food production, non-renewable resources and pollution over a 200 year period. An illustration of these results is shown below.

At the present time *Limits to Growth* does not directly express the impact of climate change as part of its results – which is why I've added the *Temperature* line to the illustration, based on the rise in global temperature predicted by the IPCC's *Fourth Assessment Report*. By adding temperature to the impacts we can understand something very important about the impacts of population and resource depletion – *before climate change becomes seriously problematic to the human species, the impacts of population and resource depletion are already likely to have precipitated an equally serious global crisis.*

There are various criticisms of the approach taken in producing the *Limits to Growth* projections. Mostly these relate to the “certainty” of the results and whether they adequately represent the various ways in which human society could adapt to the changes that are the result of energy and resource depletion, as well as increasing population. Despite the criticisms, in 2008 the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO)



published a [critical evaluation of the Limits to Growth](#)<sup>[43]</sup> (“LtG”) hypothesis that concluded –

As shown, the observed historical data for 1970-2000 most closely matches the simulated results of the LtG 'standard run' for almost all outputs reported; this scenario results in a global collapse before the middle of this century”... contemporary issues such as peak oil, climate change and food and water security resonate strongly with the feedback dynamics of 'overshoot and collapse' displayed in the LtG standard scenario.

As is often seen in nature, rather than a gradual change, the results of ecological collapse are often sudden, and a human collapse is likely to mirror this natural process. Many groups looking at the issue of energy depletion see the middle of this century as a critical period because, following the peak of oil and gas production, human society will have physically less energy to operate with each year. In turn this will limit both the production of highly specialised and energy intensive systems, such as computers, but more generally society will have to reduce consumption generally as prices rise. Arguably, the prolonged economic contraction that this would cause would be more effective at cutting emissions than the promises made under the Kyoto Protocol; that's not to say we should leave solving the climate issue “to chance” through economic collapse, but rather that any agreements must manage energy and resource consumption *in addition to* carbon emissions.

The original *Limits to Growth* report was updated and republished in 2004<sup>[44]</sup> – it's well worth a read... *but perhaps not before bedtime!*

***Of course many within mainstream environmentalism might retort that this is my personal opinion; these views are just a critical attack from an unfriendly outsider. Well actually, no.***

The last batch of evidence I will educe has been produced over the last few years precisely as the result of a growing debate about whether environmentalism makes any worthwhile difference to human ecological impacts. As I noted in my first posting on [ecolonomics](#)<sup>[45]</sup>, *my medium is the word, the argument and the reference*; if you're going to investigate any of the many references I cite in writing this post, those that follow have the greatest relevance.

In 2004 Michael Shellenberger and Ted Nordhaus published a book, [The Death of Environmentalism](#)<sup>[46]</sup> (which contained arguments that they have recently refined and updated in their book, *Break Through*<sup>[47]</sup>). Whilst written from a US-centric perspective (and the political problems that entails), and whilst it's a mainstream view of the largest mainstream campaigning groups, the book develops the argument that environmental campaigning has lost its focus on projecting an alternative vision of society; and that environmentalists have instead taken a narrower focus on technology and consumerism,

that fails to espouse a deeper world view that can challenge the power of special interest lobby groups. This idea is best summed up in their statement that –

Environmentalism is today more about protecting a supposed “thing” – “the environment” – than advancing the world view articulated by Sierra Club founder John Muir, who nearly a century ago observed, “When we try to pick out anything by itself, we find it hitched to everything else in the Universe.”

or, more damningly,

...in their public campaigns, not one of America's environmental leaders is articulating a vision of the future commensurate with the magnitude of the crisis.

There has been a lot of academic research work over the past decade or so that has tried to understand the deeper motivations of consumers. Much of this work is funded and related to the work of the marketing and advertising industry, and is designed to encourage greater consumption and brand identity (such as the work of [Robert Cialdini](#)<sup>[48]</sup> or [Richard Thaler](#)<sup>[49]</sup>). Some political parties are also advocating the use of these tactics to change public behaviour in order to achieve other environmental or social goals (as explored recently in the Radio 4 special, [Persuading Us to Be Good](#)<sup>[50]</sup>). At the same time there has been similar research work looking at how people can better identify with environmental issues, some carried out as part of [ecopsychological studies](#)<sup>[51]</sup>, whilst others that have been funded by campaign groups primarily to study the impact of sustainable consumption/green consumerism policy.

WWF, as part of its [Strategies for Change](#)<sup>[52]</sup> research project, published a report in 2008 entitled [Weathercocks and Signposts](#)<sup>[53]</sup>. The report outlines a number of concerns with the consumer-friendly approach of many campaign groups, and noted that even within the marketing industry itself such approaches are now considered to be flawed. Like Shellenberger and Nordhaus, they state that this approach cannot convey the deeper values that underpin our reasons to live and consume, and so it can only ever produce minor changes in behaviour –

The marketing approach to promulgating behavioural change, characterised in this report, is doubtless effective at generating piecemeal change where this is at its most painless – particularly where such change is embodied in the purchase of a new product. But in the course of embracing the more systemic and structural changes that are needed they may be at best a distraction, and at worst a procrastination.

In February 2009 WWF issued a follow-up report, [Simple and Painless?](#)<sup>[54]</sup>, that examined the approach of campaign groups to changing public behaviour – and found little evidence to support the

suppositions used in developing environmental campaigns. The major problems they identified related to the concept of “spill-over” – the idea that small changes in consuming behaviour can naturally lead on to bigger changes being adopted in a person's general lifestyle choices. In some ways their findings could be interpreted as being diplomatically critical of many mainstream campaigns on climate change, or the message contained in documentaries such as *An Inconvenient Truth* or *Age of Stupid* –

Our concern is that, at best, many campaigns for small and environmentally insignificant behavioural changes are tacitly justified through an unexamined assumption that these will contribute to delivery on more ambitious and environmentally relevant changes. At worst, we suspect that in many cases such campaigns are embarked upon without any reflection on the contribution that they may, or may not, make to achieving the ambitious changes that are needed....

But we also have an additional concern... We worry that campaigns for simple and painless pro-environmental behaviour changes may also serve to promote the perception that today's environmental challenges can be – and should therefore be – collectively addressed through marginal changes that leave current lifestyles essentially unchanged. It is possible that campaigns which emphasise the value of small and objectively insignificant private-sphere behavioural changes will serve to harden the perception that the proper response to environmental challenges is to rely entirely upon the choices that individuals make, working with their self-interest (their financial interest or their freedom of choice as consumers, for example). Individuals who are encouraged to believe that the proper response to climate change is to choose a different (and more efficient) model of car, or to seek financial savings from energy-efficiency measures, may be more resistant to urgently needed government interventions that will serve to reinforce positive consumer choice, or shift taxation to help incentivise more sustainable behaviour.

I remember taking part in a prolonged debate within Friends of the Earth during the early/mid-90s on the issue of “lifestyle campaigning” – should FoE be advocating the modification of consumption, in the mould of the then media-popular concept of “going green”, or should they focus more on changing our entire lifestyle to something more ecologically sustainable. At the time the wishes (and to some extent, machinations) of the staff won out and Friends of the Earth has since not only gone toward the consumer mainstream, but it has also become more centralised and has as a result downgraded its

local activist networks. As recent evidence suggests, this is completely the opposite direction that we should be going. Values-based lifestyle campaigning, providing an all-encompassing [self-image](#)<sup>[55]</sup> that people can develop to guide their future, is probably the [best means we have to change behaviour](#)<sup>[56]</sup>; and within that process, the local and personal approach to disseminating this message is essential.

Whilst claiming to represent public opinion, the mainstream campaign groups are themselves relatively elitist and do not readily engage with the general public; where they do it is often a small and demographically restricted section of the population. As such, they do not readily succumb to external pressure. If December's Copenhagen Conference fails, what will they do?; will they change their approach, or will this failed strategy be perpetuated in the vain hope of some form of break-through?

***The most important idea that I hope you take from all the issues I've raised in this post is, above all, the importance of perspective; as environmentalists narrow their conceptual aims to try and fit their arguments within the norms of a mainstream society that is in many ways anti-theoretical to them, their ideas lose their most important values – especially the approach of looking at the world holistically, both today and between generations.***

That's not to say that we should sit on the sidelines and howl; instead we should challenge the failure of politics and economics to properly and equitably review the evidence as to why their own world view cannot continue – certainly not beyond the global peak of oil and gas production. We must challenge them to corroborate their view of the world against the available evidence, and hold them to their own rules in advocating “reason” to the creation of policy. In that way perhaps we'll act on the advice of Santayana's *Law of Repetitive Consequences*; a passage from his book *The Life of Reason*<sup>[57]</sup> that encompasses the definition of life processes, thermodynamics, evolution and entropy, and which captures the problems of the human world as being based within organisational rather than technological restrictions –

That nature cannot intend or previously esteem those formations which are the condition of value or intention existing at all, is a truth too obvious to demand repetition; but when those formations arise they determine estimation, and fix the direction of preference, so that the evolution which produced them, when looked back upon from the vantage-ground thus gained, cannot help seeming to have been directed toward the good now distinguished and partly attained. For this reason creation is regarded as a work of love, and the power that brought order out of chaos is called intelligence.

These natural formations, tending to generate and realise each its ideal, are, as it were, eddies in the universal flux, produced no less mechanically, doubtless, than the onward current, yet seeming to arrest or to reverse it. Inheritance arrests the flux by repeating a series of phases with a recognisable rhythm; memory reverses it by modifying this rhythm itself by the integration of earlier phases into those that supervene. Inheritance and memory make human stability. This stability is relative, being still a mode of flux, and consists fundamentally in repetition. Repetition marks some progress on mere continuity, since it preserves form and disregards time and matter. Inheritance is repetition on a larger scale, not excluding spontaneous

variations; while habit and memory are a sort of heredity within the individual, since here an old perception reappears, by way of atavism, in the midst of a forward march. Life is thus enriched and re-action adapted to a wider field; much as a note is enriched by its overtones, and by the tensions, inherited from the preceding notes, which give it a new setting.

Progress, far from consisting in change, depends on retentiveness. When change is absolute there remains no being to improve and no direction is set for possible improvement; and when experience is not retained, as among savages, infancy is perpetual. *Those who cannot remember the past are condemned to repeat it.*

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