

OVERPOPULATION — THE STONE GUEST AT THE TABLE¹

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INTRODUCTION

The topic discussed in this paper is the most important issue to be discussed anywhere, by anyone on the Planet. Surprisingly, very few people are even mentioning the topic — let alone discussing it, so my purpose in this presentation is to provoke discussion.

The data on which this paper is based are taken from a number of sources, but particularly from the Living Planet Report, 2006 (LPR 2006) (1). Living Planet Reports have been published biennially since 1998 by WWF, the Zoological Society of London, and the Global Footprint Network. The reports assess the extent to which human beings draw on the resources, the 'biocapacity' of the Planet.

"The Earth's biocapacity is the amount of biologically productive area — cropland, pasture, forest, and fisheries — that is available to meet humanity's needs... (and) to absorb the wastes emitted in generating... energy" (LPR 2006, p.2).

Water use is accounted separately. The total biocapacity is expressed as billions of 'global hectares' (Ggha).

The methodology used to compile the LPR 2006 is described in the report which is available, and can be downloaded at www.panda.org. The reports are generally considered to be well-researched and soundly-based on the best available data. As far as I am aware, the conclusions presented in the reports are not disputed by any scientific organization.

Up-to-date world population data are taken from the United Nations (2), Central Intelligence Agency (3) and US Census Bureau (4), and climate change data are from the Summary for Policymakers from the Intergovernmental Panel on Climate Change (5).

THE PROBLEM

In the discussion about human impact on the biosphere, two separate, but interactive issues are being conflated. These two issues are climate change, due to the emission of greenhouse gases, whether from natural or human sources, and the excessive demand for resources, due to overpopulation. Unchecked, both climate change and the overuse of resources are at the level of 'catastrophic' on the scale of their impact on the biosphere. But the

¹ This paper is an expanded version of a presentation to Rotary District 9520 District Conference, South Australia, on 13 October 2007.

problem of climate change may be soluble by means we can discuss. We can talk about alternative sources of energy, carbon trading, energy-efficient buildings and a host of other technological fixes, including esoteric notions such as a sunshade-in-the-sky, or a dust cloud between us and the Sun.

By engaging in this discussion, we can feel at least we are addressing the problem. And as long as we feel we are doing something about climate change, we can relegate to the back burner confronting the unmentionable problem of how to reduce the human population. But the problem will not disappear simply because we refuse to address it: It exists, so we had better begin trying to find ways to solve it.

In 2003, the data-year on which LPR 2006 is based, the biocapacity of the Earth was calculated to be 11.2 Ggha; and the world population was 6.3 billions. Therefore, the biocapacity of the Planet was 1.8 gha per person.

However, total demand by the world population in 2003 was 14.1 Ggha. In other words, demand exceeded supply by 2.9 Ggha, or approximately 26%.

Old Chinese Proverb:
Income \$100, expenditure \$99.95 ... Result happiness.
Income \$100, expenditure \$126...
Result Holocene Mass Extinction.

That is a snapshot of the situation at a point in time: But we are dealing with a dynamic, not a static situation. There are three variables;

- the size of the human population, which is increasing,
- 'standard of living' (for which the number of gha needed to satisfy demand is surrogate); this is also increasing, and
- the biocapacity of Planet Earth, which is shrinking.

Population

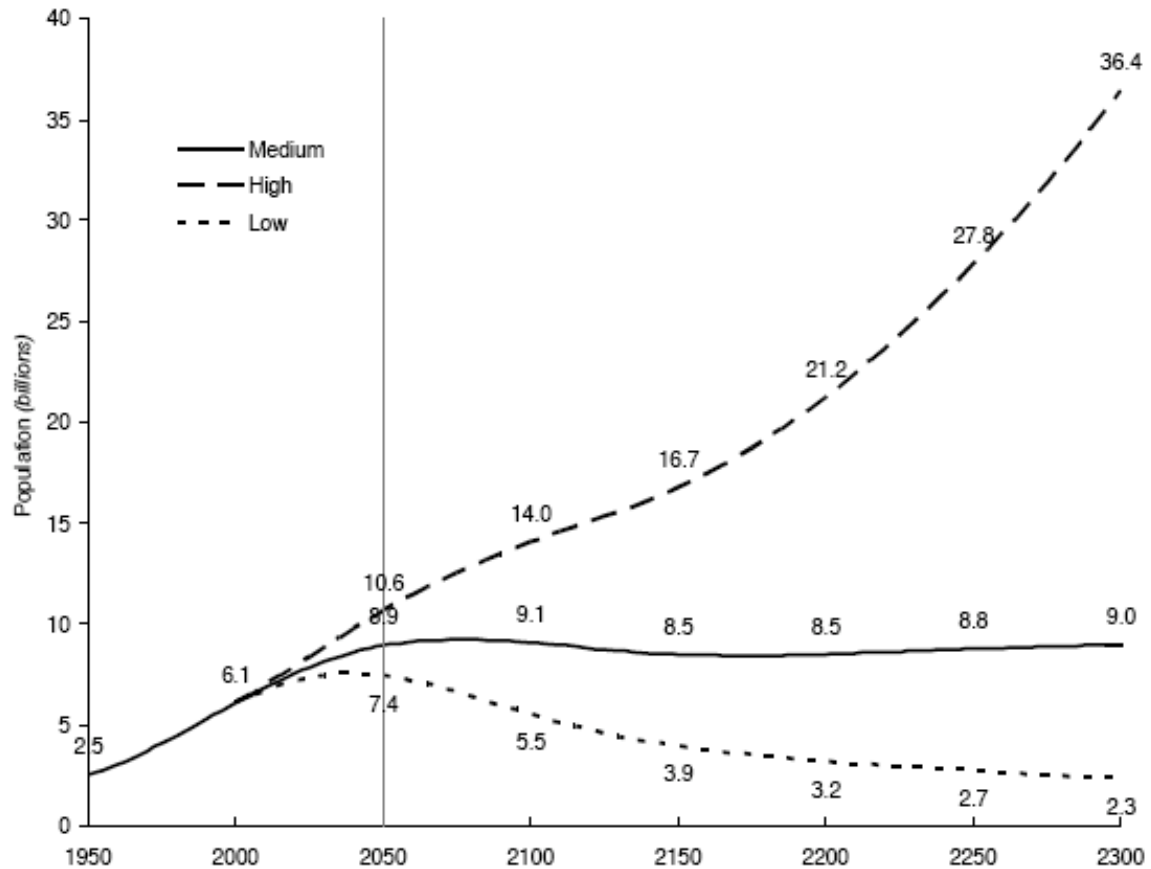
The 2003 world population was 6.3 billions, comprising about:

- 956 millions in high-income countries, including North America, most of Western Europe, Japan and Korea, and of course, Australia and New Zealand;
- 3,012 million live in middle-income countries, such as Brazil, Indonesia, China, South Africa; and
- 2,303 million in low-income countries — e.g., most of Africa, and the Indian sub-continent.

The world population [now more than 6.6 billions according to the US government 'Population Clock' (4)] is currently growing at a annual rate of 1.167% (4); however, it is expected this rate will diminish to about 0.49% by 2049 (3), and eventually, fall to zero, and then become negative.

The United Nations long-range projections for the growth in the world's population to the year 2300 compare the outcomes of three scenarios that are based on assumptions about fertility rates. The high growth rate (2.35 children per woman) scenario, medium growth rate scenario (replacement level fertility — this is the most likely model), and low growth rate scenario in which fertility is 1.85 children per woman (see below). The medium growth rate scenario forecasts a long-term stable population of around 9 billions. Even the low growth scenario shows the population increasing to 7.4 billions by 2050, and only reaching 3.2 billions after about 290 years.

Figure 1 World population projections to 2300, high, medium and low growth scenarios.



United Nations *World Population to 2300*

Demand

Demand is increasing at an alarmingly high rate.

- China, with a population of about 1.3 billions which is increasing at an annual rate of about 0.6% (2), has an economy that is growing at 11.1 % per annum (3).
- India has a population of 1.1 billions, increasing at 1.6% per annum, and their economy is growing at about 9.4% per annum (3).
- In high-income countries like Australia, we expect to grow our economies at a real rate of, at least, 3–4% per annum.

If we assume that by 2050 everyone on earth will aspire to live to the present average standard of living of the middle-income countries (e.g., Azerbaijan, Brazil, Cuba, Indonesia, Russian Federation, South Africa)², namely, 1.9 gha per person, 9.5 billion people would demand 18.5 Ggha — which exceeds the present biocapacity of the Planet by 65%.

If the 2050 world population of 9.5 billions aspired to live to the present Australian standard (6.6 gha per person) they would demand nearly 63 Ggha, which is the biocapacity of 5.6 Planet Earths.

Of course, the assumption, that everyone's standard of living should be equivalent to that of the middle-income countries, entails a very substantial *reduction* in the standard of living in the rich countries — from the 2003 average of 6.4 gha per person, to 1.9 gha per person.

If the biocapacity of the Planet remained constant at the 2003 level, the level of sustainable demand by 9.5 billion people would be reduced from the present level (1.8 gha) to 1.18 gha per person, which is the present standard of living of the people of Senegal.

Biocapacity

But the biocapacity of the Planet is not a constant — it is decreasing. It appears no one has, as yet, produced an estimate of by how much global warming and the continuing abuse of the land, and continuing logging is reducing cropland, grazing land and forests, but the downward trend is certain, and the process is accelerating.

In Australia, salination is continuing to reduce the area of arable land. Drought ('exceptional circumstance'), or climate change (a 'structural' factor), or a combination of both has reduced this year's Victorian wheat crop to one of the smallest on recent record.

² Bear in mind the enormous disparities in wealth and income within these countries.

It is known that some fish stocks are falling rapidly due to over-fishing, the destruction of breeding habitat (e.g., mangroves), and the runoff of effluent from agriculture and industry. The acidification of the oceans will accelerate this process.

Politicians, economists and the like express pious 'aspirational' targets to reduce the emission of greenhouse gases by the end of this century, but even if, magically, we could reduce emissions to sustainable levels overnight, the processes leading to a reduction in biocapacity would continue for the next hundred years, at least.

In different eras, the temperature of the Planet has been either several degrees warmer, or several degrees cooler than it is at present. At different times, areas of tropical forest have become deserts, and deserts have become wet tropics — in recent times, very large areas, such as virtually the whole of Europe, have been covered in ice sheets, kilometers thick.

Whether the heating of the Planet is due mainly to natural processes, or is mainly anthropogenic is a separate issue, but the net effect of global warming is *extremely likely*³ to reduce the biocapacity of the Planet.

A more scary outcome of global warming — indeed, the doomsday scenario — is the *extremely unlikely* probability of a runaway heating effect that would turn Planet Earth into a Venusian, sulphurous fireball. Extremely unlikely, but not impossible.

SUMMARY

To summarize:

- Population is increasing towards a (hoped for) plateau of 9.5 billions in 2050.
- Consumption is increasing as middle- and low-income countries seek to raise their standard of living to the level of high-income countries.
- The biocapacity of the Planet, which is already 26% overdrawn, is diminishing.

RESPONSE BY POLITICIANS

The Australian Prime Minister, John Howard, echoes his friend President Bush when he vows he will never do anything that would "harm" the Australian economy and result in reduced growth — let alone in negative

³ The term used in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report meaning > 95% probability. *Extremely unlikely* < 5% probability.

growth. And his co-pilot, Mr Costello, is urging Australians to produce more children — to have “One for Mum, one for Dad, and one for the Country”.

Anyone who claims it is possible to achieve economic growth at the same time as the world’s population is increasing is deluding themselves. If such self-deluders are powerful politicians who have the means to implement policies that are designed to accelerate economic growth without a commensurate reduction in population, I suggest they are committing a “crime against humanity” — and all the other creatures on earth.

It is argued by some that the problem is principally one of maldistribution of resources, rather than of absolute capacity. It is also argued that efficiencies can increase the life-support capacity of the Planet to accommodate the demand from a growing human population. I suggest both these arguments are no more sustainable than is our present over-consumption of resources.

Consider the first argument: If maldistribution is the main problem, then affluent societies, such as the United States of America and Australia must be prepared to accept a much lower standard of living so that less affluent societies may prosper. No political leader is suggesting this. The Australian Prime Minister, Mr John Howard, proclaims loudly and often that his government will never allow any environmentally beneficial policies to harm the Australian economy (for which read, the coal industry). The other potential party-of-government in Australia, the Australian Labor Party, is equally adamant in rejecting any reduction in economic growth as a tradeoff for improving our environmental behaviour (for which read, acting against the interests of the Construction, Forestry, Mining, and Energy Union [CFMEU]).

Similarly, in the USA, neither the Bush administration, nor the Democratic alternative would be prepared to sacrifice growth, let alone see the USA’s present standard of living greatly reduced, to benefit a couple of billion undernourished, under-watered, under-energied, and over-fecund people in poor countries.

The second argument, that we can have it all, just so long as we do it smarter, can be dismissed on the grounds even if it were possible to increase biocapacity sixfold (which it is not), we do not have time to develop the energy and food production technologies, and potable water supply systems that would be needed to provide for a world population of about 9.5 billions, particularly when climate change is reducing the Planet’s biocapacity.

Of course, politicians are politicians: They will say anything they think will help to get them elected. On the other hand, people like Sir Nicholas Stern, former World Bank economist, advisor to the British government, and head of the committee that produced The Stern Review; Professor Holdren, President of the American Association for the Advancement of Science (AAAS), the world's premier association of scientists⁴; and our own Wentworth Group of Concerned Scientists are all spruiking the message,

We can continue to enjoy growth in our standard of living, provided we are a bit cleverer in how we manage our greenhouse gas emissions.

Even LPR 2006 does not directly confront the issue that economic growth and population growth are incompatible. Of course, Sir Nicholas Stern is an economist, and economists are a large part of the problem, but one would have expected a more rational, tell-it-as-it-really-is approach from the AAAS and the Wentworth Group.

Many people would say the character that most distinguishes human beings from all other animals is language. I suggest the attribute that really distinguishes our species from all others is our ability to delude ourselves. Human beings are uniquely self-deluders. We can convince ourselves, in the face of irrefutable evidence to the contrary, that black is white, and heat can flow from a cooler to a hotter body. It is this power of self-delusion that leads us to believe that somehow science will find a way to fix the problem of our present unsustainable consumption of the Earth's resources.

THE SOLUTIONS

That, briefly, is the problem; what are the solutions? It is axiomatic we cannot continue to consume more resources than the Earth can produce. By stealing their habitats and life-support systems, and slaughtering them (usually because we claim they are causing us economic loss) already we have driven a shameful number of other species to extinction ("populations of vertebrate species have declined by about one third since 1970." LPR 2006, p. 1), but even by a process of 'species-cleansing' we cannot sequester enough resources to support our extravagant life-style.

The solution, whatever it is, must bring about a balance between biocapacity and consumption. Like mass and energy, consumption and population are interchangeable qualia. Either we must hugely reduce consumption — not just by the paltry measures people often talk about... like only using the air-conditioner when the temperature gets above 35°C,

⁴ In his Presidential Address at the AAAS Annual Meeting, 16 February 2007, Professor Holdren said, "Reliable and affordable energy is essential for meeting basic human needs and fueling economic growth..."

fitting low-energy-consumption light bulbs, changing the 4WD (SUV) for what an American lady once contemptuously described as an “itty-bitty Japanese shift-car”, installing a solar hot-water system, and so on — but we must reduce consumption virtually to subsistence level. Either that, or the World’s population must be reduced to a level where we can all live at a modest standard. The sort of standard that I, as a boy growing up in a middle-class family in Australia in the 1950s, thrived on. But, of course, the world population was then 2.5 billions.

We do not need to waste time speculating on whether the 1 billion-odd people in high-income countries would be prepared willingly to go back to the stone age. By the time they were forced to accept this reality (under a continuing population-growth scenario), it would be far, far too late. Like the Easter Islander who cut down the last palm tree, we will drive our SUV over the cliff edge to the Holocene Mass Extinction — while still proclaiming our absolute right to maintain our present standard of living! In the words of Elliot Morley, Britain’s Special Representative on climate change, we will “sleepwalk to oblivion”.

That being so, the only other option is to reduce the population, and the question is then resolved as, ‘How?’ Leaving aside uncontrollable natural events, such as a collision with a large asteroid or comet, or the eruption of a super-volcano, like Yellowstone or Toba⁵, there is only a limited number of ways a substantial decrease in the population could be achieved. In their effect, these ways are all painful... and most are brutally painful. Let us canvass them.

First, there are three of the horsemen of the apocalypse, War, Famine, and Pestilence. But these kill on a scale of tens of millions, and that is not enough. The population must be reduced to about 2 billions (Professor James Lovelock, of the Gaia Hypothesis, says about 500 millions). That is about 4,500 million fewer than the present population! What is more, War, Famine and Pestilence are extremely inhumane in the ways they kill.

The alternative to killing people is to stop having children. The most humane way to reduce the population would be for people everywhere immediately, voluntarily to stop breeding. Now, in a few societies, some people are deciding not to have children, but it is extremely unlikely this behaviour would become a worldwide, mass movement even within, say, forty years.

⁵ Toba is a chamber containing an estimated 2,800 km³ of magma under a caldera lake in Sumatra. It last exploded about 75,000 years ago and is believed to have resulted in a drop in global surface temperature of 3–4°C... and to have reduced the human population from > 100,000 to about 2,000.

Of course, at the same time, our standard of living must be severely reduced, to about one-fifth of our present standard.

If the world population is not prepared immediately to stop breeding, what is the alternative? I am not going to suggest specific interventions that could bring about a cessation in procreation. That is part of the discussion we must have. Of course, one measure that should be implemented immediately is the banning of all forms of assisted reproduction. In a world where the problem is over-population, it is obscene that people can resort to expensive, heroic medical procedures to gratify their psychological need to reproduce. If Nature has decreed that a man or woman is unable to conceive a child, they have no inalienable right to circumvent Nature's edict.

Humanity must undergo a mind-shift. My plea is that we should face reality and begin to discuss the unspeakable — and we might look to organizations like Rotary to play a leading role in the discussion.

However, when we consider that about 45% of US citizens⁶ reject evolution, and believe the Earth, and all that therein is, was created by God about 10,000 years ago, I recognize the magnitude of the task.

To creationists, I can only say, if you must have a God, at least recognize he/she/it did not give humanity licence to trash the planet, whatever the Bible may tell you. (Humanity has been all too compliant with the Biblical injunction, to be fruitful and multiply, and fill the earth.)

In my opinion, the precepts of the Abrahamic religions, Judaism, Christianity, and Islam represent the quintessential perversion of the human mind. They have inculcated the mind-set that sees the natural world as a chattel, a 'consumable' for humankind's convenience, existing only to gratify our greedy wants. Their common doctrine that human beings are qualitatively different, soul-possessed creatures who have a God-given right to use all other animals and plants as we see fit, excuses the way we have devastated the natural environment. Their proscription of artificial means of contraception, indeed encouraging couples to have as many children as possible, and proclaiming the sanctity of every human life has led to unbridled population growth, and the belief that other forms of life are less valuable than human life. We must subjugate the sanctity of individual human life to the greater sanctity of all life, human and non-human, on Earth.

⁶ Recent surveys variously put the percentage of Creationist in USA at 42% and 47%.

This, coupled with the fact that for two centuries, at least, it is economists who have been the pilots steering the luxury liner, named GITSOL (“Growth In The Standard Of Living”), accounts for about 99% of the variance in the Distressed State of Planet Earth.

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