

Submission to  
Inquiry into a Sustainability Charter  
by the  
House of Representative Standing Committee on Environment  
& Heritage

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**Population size – a key factor in environmental impact:**

Environmental sustainability is uniquely human related. If there were no humans, an independent observer, say a Martian visitor, would observe the millions of Earth's other species of plants and animals just getting on with the slow and ponderous processes of evolution. The issue of environmental sustainability would not arise. If there were very few humans it would remain true that their environmental impact would not disturb this slow evolutionary progression that has lasted now for perhaps 4,000 million years. Garrett Hardin, the famous American biologist, remarked about his own childhood, "When I was young I could wander for hours through the forest, never see another person, stop by a stream, drink the water and defæcate on the bank and Nature could easily cope with my puny impact."

This happy relationship with Nature has now been grossly disturbed as human numbers have grown to almost six and a half billion. When measured against the slowness of evolutionary change this growth in human numbers has been particularly rapid in the last 180 years. Til about 1820, when the global human population was about one billion, we humans relied almost entirely on physiological energy – our own and that of animals and plants – supplemented by small amounts of wind for grinding grain and water transport. Since then fossil fuels have provided abundant cheap energy, first coal, then petroleum and gas. This source of energy is correctly called fossil for it was laid down over vast eons of geological time. Recently we have been using, on average, each year an amount of these fossil resources which Nature took about a million years to sequester. Not surprisingly, these fossil fuels are running out – just one of the many indications that the present population is not living sustainably.

Suppose for a moment that the population in 1820 had decided to take the benefits of fossil fuel based industrialisation as improvement in the lives of that billion people rather than as an opportunity to increase its numbers – as increased benefit per capita rather than increase in the number of caputs. Clearly, all other things being equal, the human impact on the natural environment would now be less than one sixth of our present unsustainable impact. It is self evident that the impact which a population has on the environment is directly proportional to the size of that population.

It is a glaring omission from the draft document that it contains no mention of population as one of the primary drivers toward unsustainability.

Once it is recognised that the natural environment's ability to sustain a human population into the indefinite future is limited, it becomes clear that within that limit there is a reciprocal relationship between the numbers in the population and the access which each person has to a portion of that limit.

Attempts to deflect, and not engage in discussion of the role of population in environmental impact, have often asserted that because no one can define an optimum or sustainable population for Australia, population should be excluded from consideration. This is disingenuous. It fails to acknowledge the reciprocal relationship between population size and per capita environmental impact within a sustainable limit. If population size is very small then each can have a relatively large impact without doing irreparable damage. If population size is large and growing then the room to move for each individual must become progressively restricted if sustainability limits are not to be exceeded.

Climate change consequent on greenhouse gas (GHG) emissions is just one indication that humans are not living sustainably at present. Australia has one of the highest per capita GHG emissions in the world. The Intergovernmental Panel on Climate Change (IPCC) has repeatedly warned that, as a matter of urgency, these emissions must be reduced by 60% globally by 2050 compared with 1990 emission levels. Since 1990 Australia's GHG emissions have increased by almost 30% which can be divided into roughly 15% increase due to increase in population and 15% due to increase in average per capita emissions.

Australians are not living sustainably and the GHG emission increase indicates that both population increase and increase in per capita demand on the natural environment must be addressed if we are to achieve environmental sustainability. A number of other environmental indicators force one to the same conclusion. Further increases in per capita environmental demand should lead to reductions in population numbers making those demands. And in a reciprocal manner, further increases in population size should result in strong downward pressure on per capita demand. However, government policy at present is to increase both population size and, through pressure for ever more economic growth, to increase the per capita demands of each and every Australian, whether a sixth generation one, an indigenous one or a new arrival.

### **Population Growth and Environmental Sustainability:**

The Committee must recognise that there is no indicator of environmental health which will be improved by further increases in population whether native born or immigrant. Every increase in population will make every environmental problem that much harder to solve

Populations cannot grow forever; sooner or later every population must cease growing and stabilise. The sooner growth is stopped the larger the safety margin between that population and the limits imposed by its supporting environment and the greater freedom enjoyed by those in the population. (As populations grow it becomes necessary to restrict the activities of each citizen, activities and freedoms which were long taken for granted in a smaller population).

Given that Australians are not now living sustainably, either with respect to the Australian environment, or to the global environment, governments should seek to restrict further population growth. The present fertility rate of just less than 1.8 will see the Australian population stabilise around 2040 without immigration. Governments should resist attempts to increase this fertility rate.

Governments should recognise that Australia has a role to play in alleviating the plight of genuine refugees and should conduct a much smaller immigration program whose main target is refugees selected according to their need and without regard to sex, age, colour, ethnic or religious considerations. Governments should recognise that far more human welfare can be bought, dollar for dollar, through increased foreign aid than through bringing more people into Australia and there should be a very substantial increase in Australia's foreign aid up to, at least, the 0.7% of GDP recommended by the UN.

It should cease to select the bulk of immigrants on the basis of skill and *benefit to Australia*. Many of these 'skilled' migrants are lured from countries much poorer than Australia and where their skills are *needed* far more. Acquisition of skills through this route should be regarded as unconscionable.

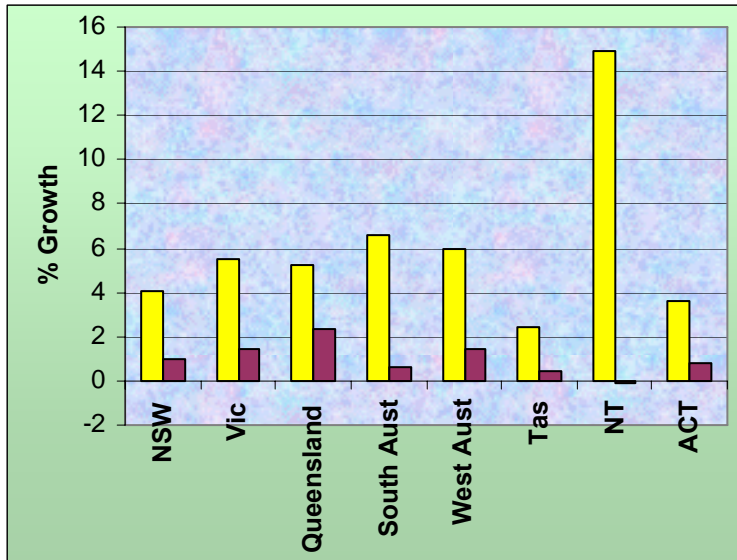
As illustrated above, human impact on the environment is a product of the per capita impact and the number of caputs. Present impact is unsustainable. Therefore, to move toward environmental sustainability the Australian community led by governments needs to seek the reduction of per capita impact, at the same time seeking to limit further growth in the Australian population. A combination of these two objectives must be pursued until environmental sustainability is reached, including if necessary, a longer-term reduction in the size of the Australian population. It is clear that continuing pursuit of growth is incompatible with environmental sustainability.

It is a mathematical truism that two independent variables cannot be maximised simultaneously. Environmental sustainability and growth of human impact through both economic and population growth are such variables. Governments cannot have both, the Australian community cannot have both, and one must take precedence. If continual growth is that choice then sooner or later unsustainability will force growth to stop. But by then the consequences will be dire and the choices much more restricted. Wise governments will choose environmental sustainability now.

### **Population and economic growth are independent variables:**

Most Australian governments have, at one time or another claimed that population growth and economic growth are not independent variables. They have explicitly or implicitly asserted that population growth is positively related to economic growth. If this were so it would be a double whammy for the environment and it would be an even stronger indicator that population growth must be stopped immediately. However, the data do not support a significant link between population growth and per capita growth of GDP.

Thus, even if governments wish to continue the pursuit of economic growth, there is no evidence that this will necessarily be furthered by growing the population. If one



*Growth of per capita Gross State Product – yellow  
Population Growth – black. Year 2002*

compares all OECD countries, ie, advanced industrialised countries, one finds that there is no statistically significant correlation between either population size or population growth rate, on the one hand, and growth of per capita GDP on the other. Moreover, if one compares the Australian States and Territories, using the same statistical methods,

one finds the same lack of correlation. (This relationship is not true for

poor countries where there is a strong negative correlation between growth of population and growth of per capita GDP) Australian governments are misled if they think their citizens will become ‘richer’, ie, have higher per capita GDP, by growing their populations. What will happen however is that as they grow their economy, population growth will multiply the effects of this environmental demand and move them further from environmental sustainability.

It is worth noting that the recently released Productivity Commission draft Report on Population could find no convincing evidence of growth of per capita GDP as a consequence of population growth even though it did not quantify and take into its calculus the negative impacts of population growth.

Climate Change is perhaps the most widely recognised threat indicating that we are not living sustainably. The following is one proposal for restricting greenhouse gas emissions so that they meet the IPCC target of a 60% reduction compared with 1990 emissions, by the year 2050. By being specific one can more readily see the links between environmental capacity and sustainability on the one hand, and population size and per capita environmental demand on the other. This is an essay by the author of this submission in the current issue of Dissent Magazine, Number 20, Autumn/Winter 2006, pp 13-15.

### **A Place for Markets in the Climate Change Challenge**

For more than twenty years increasing reliance on market mechanisms has been a hallmark of successive governments, both Liberal and Labor. For at least as long the need to reduce greenhouse gas emissions has been becoming more widely recognised and more urgent. Even so governments and others have been unwilling or unable to see that an unregulated market is inherently incapable of meeting the greenhouse gas reductions strongly and repeatedly recommended by the Intergovernmental Panel on Climate Change, the IPCC).

Half a century ago Professor Herman Daly, now Professor Emeritus, Economics, at the University of Maryland pointed out that while markets were excellent for doing certain things there were two extremely important things that they could not do from within themselves. Markets cannot themselves address the issues of scale (size) or equity. These factors have to be set from outside the market. Nowhere is this clearer than in the needed attack on greenhouse induced climate change.

Unconstrained markets will continue to grow yet we know that emissions must be kept within an outer limit. The pursuit of better technology by the present Federal Government without adopting a limit will merely lead to savings being squandered on growing even larger markets. But if a limit is set then markets are a suitable mechanism for determining how various technologies compete for a share of this limit. In a similar way relying on 'the market' and pricing to divide up this limit will increase the disadvantage of the poor and ensure the creation of an energy rich and energy poor divide. So the issue of equity must also be set from outside the market but once set the market may provide a mechanism for equitably distributing a fair share of the limit.

These defects in a 'free market' attack on climate change can be seen to be undermining the objective of the attack. Making cars more fuel-efficient or building wind turbines to generate electricity will not reduce emissions as long as the number of cars sold outstrips their efficiency improvement or growth in electricity demand for airconditioners exceeds the rate of turbine construction. Internalising the climate change cost of fossil use will differentially impact the poor, at least until the total goods/services mix has evolved considerably. Moreover, there is nothing inherent in the internalisation of externalities that will guarantee the required emission reductions. It's impossible to specify the dollar value of this externality. Initial estimates will be guesses, will need constant adjustment ensuring that this path to control will have repeated and often-unexpected impacts on economic stability and security of investment in alternative technologies.

A suitable way of reconciling the IPCC recommendations with a market mechanism and doing it equitably has been proposed by the Environmental Change Institute of Oxford University together with the Tyndall Centre for Climate Research in the UK. Their proposal imposes a macrolimit or cap, while ensuring equity and allowing for individual choice within a free market. It involves setting an annual macrolimit and dividing that total of emissions by the size of the population. Everyone gets the same allocation, the sum of all permits equalling the target for total greenhouse gas emission by the nation. Each year this total or cap would be progressively reduced so as to meet some final target such as the IPCC target of 60% reduction below the 1990 level by 2050.

Each allocation would consist of units issued free to every citizen at the start of the year and units would be tradeable in a free market. People would be free to determine how they spent their units and the market mechanism would coerce us toward making the best decisions. It should be a proposal very acceptable to the present Federal government committed, as it is, to freedom of choice? Some may choose to conserve greenhouse emissions from their homes while spending their units on travel. Those who wanted extensive overseas airtravel would have to buy additional units and the market would resolve the price.

The proposal has parallels with wartime rationing but today's technology using prepaid phone card-like systems would make it much easier to organise. Every purchase would involve payment of money and a swipe of the card taking off the greenhouse gas emissions associated with the making of that good or service. The technology to handle such a system already exists. What is missing is the database of emissions associated with each good or service. Constructing this database would be cumulative from the simplest inputs at the base to complex manufactures at the apex: chemicals go into tyres which go on to cars which we purchase. What was achieved in wartime rationing with coupons could far more easily be achieved with today's electronic cards and communications.

Essential services would be reserved a share of the cap before the remainder would be divided equally among the population in a manner similar to wartime petrol rationing. And just as in wartime those with special needs could apply for an additional allowance taken from this central reserve. Although emission units would be distributed annually, units not used in one year could be carried over to the next. Inspection of each country's annual emissions shows a remarkable bumpiness. Carrying units forward would allow large emission purchases with long energy payback times to be made. For example, presently it may take seven years to pay back the fossil inputs to a solar PV installation but eventually this installation may very substantially reduce Greenhouse Gas Emissions (GHGE) over say twenty years.

The IPCC takes 1990 as the reference year. Since 1990 Australia's GHGE have increased by 30%, half from increases in per capita emissions and half from the increase in the number of caputs. If we are to be globally equitable we need to reduce our emissions down to 10% of the 1990 level by 2050. To achieve this, and given that we are starting from a much higher level in 2006, the annual reduction on the cap needs to be 5.7%.

Most talk of reduction sets a target somewhere off in the future but no target for this year. This carries a considerable danger. It generates a sense that we can put off doing anything now. Given that we don't yet know the best strategies to achieve the required reductions any delay in making a start is a double recipe for failure. Consider, for example, Tim Flannery's latest public statement that we must act within the next two decades. Many are interpreting this as meaning we can put off for another two decades making a start. I'm quite sure he did not mean this. It is vital that we start reducing emissions immediately using the market mechanism to hunt toward the best solutions rather than waiting for some technofix that may not eventuate.

Further advantages of this scheme are that it starts with quite modest reductions, it puts immediate pressure on the competing technologies to develop better devices and systems and it removes from the public consciousness the prevailing myth that we live in a cornucopian world without limit to our predation upon Nature. It is more than likely, although I have seen no data on this, that median emissions are well below the average, emissions being skewed toward the wealthy. A majority of voters are therefore less likely to be adversely affected in the early years, indeed may have emission units they can sell thus making the scheme more democratically acceptable.

The proposal has been criticised as being too complicated and being subject to corruption – little old ladies in nursing homes being cheated of their GHGE by the unscrupulous. Mechanisms already exist to deal with the latter and a central computer record of transactions would make the system far more secure than WW2 coupon based rationing. Computer systems, both hardware and software, exist and are in widespread use to easily cope with the proposal. The main criticism over complexity involves the construction of the emission database. Currently, there is as much hype about the benefits of various renewable alternatives and potential future alternatives as there is about geosequestration and continued use of coal. Consider the false claim that nuclear is greenhouse free, false because it ignores many of the inevitable fossil inputs to building and maintaining nuclear stations, mining, processing and transporting the fuel and maintaining nuclear security. The database would provide the independent and 'perfect' information for the market system to work. This database needs to be constructed whatever strategy is adopted.

It has also been objected that increasing the size of one's family would provide an advantage. For example, four people sharing a house or a car would each use less of their allowance than two would. But one family having an additional child reduces the share of everyone else and such a family may well be criticised. In a similar way, bringing in more migrants would reduce the share of those already here and these would likely have a considerable impact on decisions about fertility and immigration.

These responses provide important benefits. For too many decades we have lived with a cornucopian view of the world; anything we can be persuaded to want we can have, there being no limits to the ability of the natural world to supply. My proposal brings home to every single individual that we live in a finite world and that both our individual demands and the number of individuals must fit within the limits of sustainability. Greenhouse emissions are not the only limit. A carefully researched article in a recent Scientific American shows that there is insufficient copper to meet the needs of the present global population at anything near the consumption of the industrialised world. The public educative effects of this proposal are as important as the reduction in greenhouse emissions.

In the UK, backbench Labor member, Colin Challen, who also heads a parliamentary group on climate change, has already introduced the proposal to the parliament. It has gained support from Elliot Morley, a Minister in the Department of Environment that has special responsibility for climate change.

The proposal has considerable merit. It applies the existing free market paradigm to one of the greatest threats facing humanity: accelerating global climate change. By setting a macrolimit, it achieves its objective of reducing emissions to the desired amount yet it avoids the pitfall/failure of voluntary schemes or the necessity of governments to choose between, and impose, either technological or social changes that may prove to be blind alleys. The free market, *operating under the cap and with everyone an equal player*, may well be the best mechanism for hunting toward the best solutions.

## **Recommendations:**

- 1. Governments to realise that continual growth of either the economy or population is inconsistent with the achievement of environmental sustainability. (ES)**
- 2. Accordingly, governments to give first priority to the search for a pattern of ES.**
- 3. Governments to recognise that there is no single pattern of ES, there being a reciprocal relationship between numbers of people and per capita impact and also to recognise that per capita impact depends partly on the type and quality of the technology used to exploit the natural environment.**
- 4. Governments to recognise that Australians are not living sustainably at present and that an appropriate course on which to embark should involve both a limitation on the size of Australia's population and a move toward a dynamic steady state economy rather than the pursuit of further conventional economic growth.**
- 5. Governments to involve the community through education in the need to map a different course from that presently being pursued.**
- 6. In relation to community, governments to acknowledge that limits need to be placed on environmental exploitation and that each citizen's share of this cap or limit must be equitable and fair.**
- 7. Governments to recognise that there being no single of well mapped path from the present unsustainable pattern to a sustainable one, an iterative approach must be adopted, with preparedness to make changes as we explore an inevitably difficult course.**
- 8. The federal Government to take a less competitive and more cooperative attitude toward other nations seeking to assist them to find their unique paths to ES in recognition of the interdependence of all nations and the need for *all* nations to become environmentally sustainable if *any* nation is to become both secure and sustainable.**