

POPULATION

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1. Define new indicators of prosperity to decouple the links between 'population growth' and 'GDP growth' in the national accounts.
2. Tax carbon, water and land disturbance content of personal consumption and allocate those monies specifically for environmental remediation and ecosystem renewal.
3. Articulate a national population policy for a stable population size from 2050 on of 25–27 million people.
4. Equalise the size of age classes via immigration and birthing policies to help balance opportunity for young dependents, younger workers, mature workers and older dependents.
5. Increase the aid budget for countries in Australia's neighbourhood to help create reasonable opportunity and lifestyle for all.
6. Relieve the environmental and housing affordability pressures from capital cities by investing in the (re)creation of viable regional centres.
7. Link regional and capital cities through new investment in high speed and clean forms of transportation and communication technology.
8. Concentrate housing within city and regional centres to create human-scale density with sufficient critical mass to support a range of services and economic diversity.
9. Limit overall settlement growth to maintain internal local and regional capacity to provide high order energy, water and ecosystem services.
10. Insist on the most innovative, climate appropriate and carbon neutral forms of technology in urban and building design via appropriate local planning controls.

Introduction

Ironically, some of the fathers of modern economics were the first to voice their concerns about the resource or environmental dangers inherent in rampant population growth. Scholarly journals now cite Thomas Malthus' *Essay on the Principle of Population* of 1798 as the first in a long line of publications by incompetent economists or ecological pessimists (Malthus, Wallace, Jevons, Caton, Ehrlich, Diamond) who were blind to human innovation and its capacity to support the growing number and affluence of the world's peoples (Tainter 2006). On the pro-population team were Malthus's long-time critic, the Marquis de Condorcet, and in more recent

debates, the economist Julian Simon has been fierce critic of Paul Ehrlich's *Population Bomb*. Simon's own book *The Ultimate Resource*, advocated that increased populations represent the ultimate solution for, rather than the cause of, any environmental problems.

Times move on and the population issue has become more complex. Even as Malthus saw in the New Year of 1800, globalised trade was in full-flight allowing colonisation, warfare and trade in manufactured goods to source food and raw materials when domestic supplies became constrained. Nation states could thus escape the physical limits imposed by their domestic borders. Most advantageous for population growth was the German industrial innovation at the start of the 20th century, which fixed atmospheric nitrogen. This allowed agricultural production systems to escape the natural nitrogen cycle central to dietary protein production. Vaclav Smil's book, *Enriching The Earth* argues that without this industrial process, the global population size would not have expanded beyond 3 billion people, being limited by organic agriculture and natural cycling processes (Smil 2004).

Notwithstanding a national commitment to populate or perish, Australian studies on a numerate underpinning of population size and possible limits were few. Thomas Griffith Taylor, a geographer at Sydney University, proposed in the 1920s that environmental determinism would limit Australia's population to around 20 million by the end of the 20th century. A variable immigration program for most of that century allowed population to grow in advance of natural increase. Only in the 1970s, and in tune with an emerging global environmental movement, did Australian science begin to link population with environment from the perspective of pollution and resource constraints. Reports and conferences multiplied almost as fast as human population itself during the period 1990 to early 2000s as pro- and anti-growth lobbies matched concerns on resource depletion, environmental degradation, economic growth prospects and social cohesion (Jones 1997; Cocks 1996). The *Future Dilemmas* Report, using a long-term scientific perspective, arraigned high, medium and low growth options against future inconsistencies for physical trade, population ageing, GHG emissions, material flows, resource depletion and environmental quality (Foran and Poldy 2002). In the last five years the population debate has been largely dormant in both policy and media.

This debate should only be embraced by consenting adults as it harbours the best and worst of human intentions. The simple 'best intention' arguments have caring humanists and reputable economists pitted against reputable environmentalists. The reputable economist knows that more people drive increased economic activity, creating a bigger cake, and eventually providing more cake for everyone, if the cake is distributed equitably. The reputable environmentalist knows that Australia has poor soils, scant rainfall, opportunistic agriculture, a degrading environment and was peopled for 50 000 years by no more than 1 million Aboriginal people whose permanent settlements were spasmodic, and whose footprints were the lightest imaginable. The caring humanist sees space, potential for widespread affluence, the benefits of multiculturalism, refugees rescued from a tide of human misery, and asserts that Australia can offer safe harbour for more than just the lucky few.

The simple 'worst intention' argument brings together pressured policy makers, property developers, industrialists who rely on per capita churn and closet racists, to infuse their personal requirements within the trappings of many 'best intention' arguments. The rise and crash of politically motivated racism through the One Nation Party years revealed a disquiet about the downside of progress felt most keenly by some regional communities. The same concerns, mostly headlined by immigration policies, are repeated in some European elections where nationalist sentiments embrace racist overtones to win electoral support. The 'bigger is better' position, frequently posing as national leadership, emerges from media owners, project builders and recycling kings who 'make brass from muck' and so are financially advantaged by

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larger populations and per capita consumption. The most recent example was the *30/50 Report* (30 million people by 2050) supported by the Scanlon Foundation whose mission statement is 'to support the creation of a larger cohesive Australian society' (ATSE 2007).

So where did the theory go wrong? Humankind's activities and affluence growth are now consuming the Earth, of this there is no doubt. Having moved beyond local and regional impacts, human activities now threaten global functioning. This is shown by atmosphere and global climate change, biodiversity extinction rates, fresh water quality and quantity. Many global indicators including hunger, poverty, slum dwellers, educational attainment, disease and human misery tell a story of many unhappy endings. Today's affluent Australia presents a mixed picture of this global condition. We sit at the top of environmental rankings for per capita GHG emissions, mammal extinctions and stressed river systems. Human habitats in our urban and regional areas give a mixed picture of some things done to best practice standards, and others done appallingly.

Facing this failure of human ingenuity requires that the human population and its appetite to consume must once again become the concerted focus of national and local policy and action. The national question must be asked: 'what should the population of Australia be, for the good of its citizens, but also for the good of humanity?' At a local level, human settlements must now be designed to minimise global impact and built to sustain their occupant's well being for centuries. The following 10 points detail what Australia should do about human population. The first five are macro-level for consideration and action at a national level. The second five look at how we can manage these populations at regional and local scales.

Key issues

1. Decoupling population growth from economic growth

Driving economic growth through raw population growth is all that remains when developed economies lose intellectual advantage and watch their complex problem-solving skills migrate to smarter and/or low wage countries. This first point advocates a revamping of national accounting standards so that measures such as GDP growth rate are not over-estimated by raw population growth rates and new housing starts.

The international system of national accounts (SNA) retains a convention that overstates or double counts the contribution that domestic housing makes to the measure of gross domestic product (GDP) or its state equivalent (GSP). The accounting convention applies a fair market rental (as a measure of value adding) to fully owned and mortgaged housing, as well as houses that are leased or rented. Realistically, the owned and mortgaged houses make their contribution through the financing, maintenance and home furnishing sectors. The over-counting means that the 'ownership of houses' sector is the largest in the economy, twice the size of its nearest competitors in the value adding stakes, wholesale trade and health services. The National Treasurer or State Premier requiring good growth rates can see them magically unfurl, provided that population grows and requires new houses. This covert multiplier gives a double whammy for GDP figures because new housing (the taps, tubs and tiles economy) has a high multiplier or knock-on effect through production chains and therefore local employment. It is almost the original Magic Pudding.

2. Tax the environmental content of personal consumption

Personal consumption drives economic productivity but we suggest that consumers should now pay an environmental price for their consumption decisions. Until now, from the point of

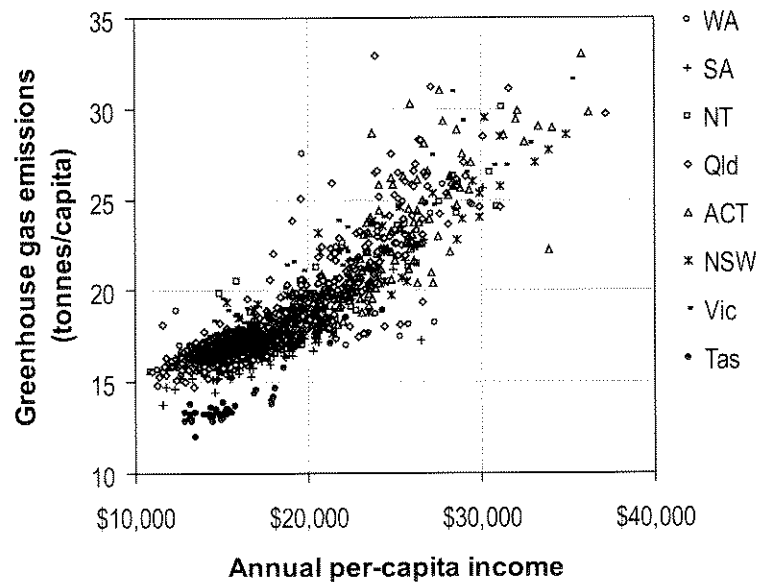


Figure 5: A graph of per capita income versus the per capita GHG emissions embodied in the yearly consumption activities for each suburb and shire in Australia (Dey *et al.* 2007).

view of the consumer, most environmental resources, be they inputs to production or places to void waste, have been perceived as almost free.

The relationship between personal consumption and its full environmental impact has long been clouded by selective data analysis and untested hypotheses such as the environmental Kuznets curve (which suggests that richer people impact less). When the relationship between consumption spending and its full impact through the production chain is fully analysed, it reveals that big spenders create the biggest impacts (Figure 5). Relating GHG emissions embodied in per capita earning and spending reveals two important issues. The first is a linear relationship between earning and impact with the most affluent having twice the impact of the least impact, i.e. 30–34 tonnes of emissions versus 14–15 tonnes. The second is the spread of emissions volume for any one income level, e.g. for an income of \$20 000 greenhouse emissions range from 17–28 tonnes per capita. This describes firstly a difference in consumption choice, and secondly, the production mixes from the different states, e.g. Tasmania is lowest because it is firstly poorest but also uses mostly hydroelectricity. Similar relationships are evident for embodied water use and embodied land disturbance, the latter being a strong proxy for biodiversity loss.

Any nationwide response is further complicated by interactions between population growth and economic growth. A new data set for Figure 5 produced a decade from now will have changed in two ways. First, total population size will have grown by at least 2 million people giving an extra 40 million tonnes of GHG emissions at today's mean per capita value. Secondly, economic growth and increased consumption will see each point in Figure 5 move up by at least three tonnes per capita giving an extra 60 million tonnes. So, in 10 years, the combination of population growth and consumption growth will raise the consumption-based contribution to GHG emissions by 100 million tonnes. Therein lies the environmental risk of combining population growth and consumption growth.

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The solution lies in economic instruments (e.g. an environmentally-weighted GST) that put a price on the content of carbon, water and land disturbance for each consumption good and service. This imposes a market penalty or consumer discomfort for items with a high carbon, water and land content, and accelerates the consumer change necessary for fluent and fair free market function. The environmental taxes raised must be promised or hypothecated to environmental refurbishment (see point 10).

3. Stabilise population number by 2050

Stabilising population size by 2050 will be necessary to cap levels of personal consumption as we change to an economic structure with low GHG emissions, resilient water, land and biodiversity resources while constructing enduring human settlements.

This point acknowledges that the physical dimensions of 'growth forever' are no longer possible globally, even though Australia might endure for another century under the current paradigm. It accepts the need for interim population growth (another 4–6 million people by 2050) for four reasons. The first is to spur the construction and refurbishment of resilient human settlements (see Points 6–10 below). The second is to maintain or increase our international obligations for refugee resettlement. The third is slowly and surely balance the age distribution of demographic groups (see point 4 below). The fourth is to help maintain economic stimulus and social optimism as the economy restructures substantially over two human generations.

Proposing 25–27 million people as a target cannot be proven in a traditional scientific sense. However its feasibility is well documented in many thousands of whole-economy simulations underpinning the *Future Dilemmas* Report (Foran and Poldy 2002). Reaching feasible solutions requires reasonable demographic assumptions to be successfully intertwined with aggressive technological innovation, which is in turn matched with infrastructure turnover rates avoiding wasted assets and not bankrupting the nation, although many of today's industries and activities might reduce in size or disappear.

Articulating a national population policy and establishing pathways for implementation will not be without challenge. At the very least it requires strong leadership and a re-invigoration of Federal Government involvement in urban and regional development (see points 6 and 7).

4. Balance population age classes

This aims to relieve the social and infrastructure tensions driven by lumps and troughs in the structure of national demography. It provides a relatively balanced age structure through a complex mix of immigration and birthing policies. While this is impossible in an exact sense, it seeks reasonably equal numbers of people for each functional group of society to improve intergenerational cohesion and reduce aspirational envy. This balancing nests within the requirement for a stabilised population number by 2050 articulated within the context of a national population policy (see point 3). The societal groups loosely put are: younger dependents, younger workers, mature workers and older dependents. Equity and opportunity within and between all groups should be a measure of a just and civil society

Equalising the structure within a stabilised size brings four advantages. Firstly, equalisation bounds population policies, be they pro-natal or immigration ones, with a long-term strategic role rather than short-term economic pump priming. Secondly, it aims to avoid baby booms which in developing countries such as East Timor and the Solomon Islands result in too many young people with too few opportunities. Conversely, we need to avoid the ageing and declining populations of Japan, Italy and Spain caused by protracted low fertility. Thirdly, some foreknowledge of infrastructure requirements gives the ability to decentralise, link concentrate and limit (see points 6–9 below) to provide the societal structure that will endure for

centuries. Fourthly, it may help reduce the circle of inequity and the envy now emerging between our generations.

5. Develop opportunity in Australia's near neighbours

We should extend our current obligations to our near neighbours while acknowledging that Australia alone cannot reduce global poverty and inequity.

Australia's affluent lifestyle is a beacon to countries that surround us, yet environmental reality asserts that ours cannot be shared by all, particularly in the future. To achieve equitable opportunities and lifestyles across all countries, Australian affluence may have to reduce by up to 80% in greenhouse terms while the opportunity and lifestyle of neighbouring countries may have to double or triple. Good governance is now the focus of much Australian aid and will help ensure that large wealth transfers do not corrupt institutions in the receiving countries.

If left unchecked, the grinding poverty, inequity, high birth rates, limited resource base and rudimentary institutions describing most of our near neighbours will result in failed states. Finding the effort and money to mount more than just a token effort seems difficult today. But by 2050 Australia's GDP will triple its present size and be close to \$3 000 billion. Some climate change strategies require that consumption opportunities be limited by withdrawing \$300 billion per year (10% of GDP in 2050) which must be set aside in a future fund, or used outside the Australian economy to prevent the re-stimulation of personal consumption activities. In 2050, this yearly stipend represents one-third of Indonesia's GDP in today's money, or 15 times today's combined GDP of Papua New Guinea, the Solomon Islands and East Timor. This confirms the financial feasibility of the effort even if our population is uneasy about the size of the transfer.

6. Relieve pressure on environment and housing affordability in capital cities

There are alternatives to the growth machine. Many Australians are at the vanguard of an international turn towards voluntary simplicity, in favour of lighter, greener ways of working, travelling, eating and consuming. Between 1993 and 2003, nearly a quarter of all Australians undertook a long-term change in lifestyle resulting in reduced income but more work-life balance, time with family, fulfilment, or a healthier lifestyle (Hamilton and Mail 2003). These 'downshifters' are part of a social phenomenon that eschews rampant growth and consumerism in favour of altruism, fulfilment and quality of life. Australia's coastal 'sea changers' and their newer cousins, the inland 'tree changers', are expressions of this trend. Other examples are the 'slow food' and its offshoot, 'Citta Slow' ('slow cities') movements, which originated in Italy in the late 1990s and have since spread around the world. 'Slow cities' limit their populations to 50 000 residents, resisting growth for growth's sake. Rather, in conscious reaction to current models of material consumption and environmental exploitation, these cities celebrate and renew local qualities of place, from landscape to culture, tradition, craft, cooking and conviviality (Beatley 2004).

These exciting new movements offer a counterpart to standard models of urban growth. If managed correctly, such spontaneous forms of decentralisation present an opportunity to relieve some of the environmental and housing affordability pressures from the capital cities.

Support for regional decentralisation must come from all levels of government through strong economic development policies prioritising investment in infrastructure for the new economy – universities and research centres, outstanding hospitals, schools and high quality cultural, community, and recreational facilities to reinforce the lifestyle and leisure orientation of the new regional destinations.

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7. Link regional and capital cities

Regional renaissance depends on strong communication and transportation links between regional centres and the major cities. High-speed wireless broadband technology is critical, reducing regional and rural isolation and the need to travel.

If the impetus to reduce GHG emissions is not enough, rising fuel prices and the spectre of 'peak oil' make alternatives to car and air travel imperative (Dodson and Sipe 2005). High-speed rail run on renewable energy supplies are an important solution to the tyranny of distance and are being rolled out across much of Europe, Asia, and parts of the United States. Rail freight infrastructure is also critical, avoiding increased road freight services and providing new economic opportunities for regional communities.

Renewed Federal investment in regional infrastructure and development is imperative to achieve these new urban and regional city networks.

8. Create human-scale settlements and greater interaction

Within settlements themselves, the aim should be to increase connectivity while decreasing the need for motorised travel. If speed is the goal for distance travel, a slower pace is adequate within communities themselves. Infrastructure like cycleways and walking paths within and between regional settlements may attract new residents and visitors alike. Such facilities have contributed to the reinvention of villages like Beechworth in north-eastern Victoria, which has become a key destination along the 'Mountains to Murray' cycle path connecting towns of the Murray Valley with Bright at the foothills of the Victorian Alps.

Walkable, cyclable communities are human-scale places built for human interaction and engagement, where people dominate the streets, not cars. An optimal level of low-rise density (like smaller homes, row houses, villas) allows a critical mass of people to coexist within a series of linked neighbourhoods, supporting the diversity of services, retail outlets, cultural activities and educational opportunities needed to experience rich quality of life beyond the capital cities.

This model means that population growth spreads away from the primary centres, not dispersed along the urban fringe or in isolated new suburbs, but concentrated through regional settlement plans that define constellations of cities, towns and villages. The provision of magnet infrastructure in the form of quality education and research facilities, hospitals, cultural, community, and recreational centers, as well as high technology transport and communications infrastructure (see points six and seven) will not only attract a critical mass of new residents, but also support business and industry growth.

9. Live within the physical capacity

The overriding settlement planning goal for these communities is to maximise self-sufficiency, satisfying as many basic requirements – food, energy, water, waste disposal – within the local or regional area. This means prioritising the use of local food and other produce (so minimising 'food miles'), and meeting energy and water needs within the local and regional catchment. It means articulating waste strategies for reducing, reusing, recycling, and disposing waste onsite or as close as possible to the source of generation. It means preserving and restoring local biodiversity, landforms and waterways through strong and consistently applied local planning requirements.

The same principles can be gradually reapplied to the major population centres, where environmental impacts will inevitably extend far further, but may ultimately reach equilibrium, particularly if productive agricultural hinterlands and the rich natural resources

areas surrounding and protecting urban catchments are preserved. Urban biodiversity and foodlands can be reintroduced to the inner areas too. Think pocket gardens and green patches on forgotten street verges, back lanes, and neglected reserves within many inner city areas, more city farms, food cooperatives, and neighbourhood waste reuse facilities sponsored by progressive urban councils or local firms.

10. Leading edge technology

Niche industries and amenity-based economies are inconsistent with homogenous cookie cutter suburbs, mega shopping malls and highway homeware barns. Our planning laws must emphasise design excellence – promoting a culture of innovation and flexibility, while supporting new eco-technologies and industries and promoting patterns of growth that build local sustainability, climate resilience and sense of place.

Unlike the capital cities, where space for large scale eco-opportunities like wind power, carbon sequestration, or solar energy production, is harder to come by, regional areas have significant opportunities to develop and demonstrate path breaking innovation in environmental technology. Such nascent opportunities are fragile, depending on a supportive policy setting that dismantles barriers to innovative technology and protects access to environmental services – sun, wind, water, vegetation.

At the micro scale, sustainable building design requirements emphasise water retention and conservation, solar orientation and climate comfort, energy efficiency and waste reduction and reuse. Such requirements are increasingly critical to reduce the carbon impacts of new development and to provide a basis for adapting to the impacts of climate change that are unpreventable. An environmental tax (see point 2) would make these requirements more economically viable by creating a dedicated market and sending the right price signals. Revenue from this tax can be dedicated to easing the short-term economic impacts of transition and investing in the development of creative environmental technology.

Conclusion

A decade of good economic times and low rates of unemployment has pushed population policy aside as skill shortages and infrastructure bottlenecks hog the headlines and drive political debate. Inevitably, an economic downturn promises financial hardship and social rancour if regions and suburbs fail to provide tomorrow's skills, relying instead on today's easy bounty of minerals exports and the rolling construction boom.

Any country seeking a resilient economic base should advance its population policy in three main ways. Firstly, that policy must ensure reasonable equity and opportunity for its current population and that of the next two generations. Secondly, that policy must not further expose its citizens to dangers posed by climate change, economic misfortune and possible resource constraints such as oil and water. Thirdly, that policy must use current good fortune to help repair global systems and help support disadvantaged citizens in neighbouring countries.

In 1972, the Club of Rome released *The Limits to Growth*, a prescient study, or an infamous heresy, depending on the disciplinary point of view. Lost in the ensuing turmoil of discussion and misinformation were the three salient points, here much abbreviated from the original text:

- If present growth trends continue, sometime in the next 100 years civilisation will face environmental and industrial chaos, and possibly catastrophic decline.
- It is possible to alter these growth trends and to establish a condition of ecological and economic stability.
- The sooner society begins the change, then the greater the chance of success.

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Given the challenges now facing the atmosphere, water resources and biodiversity loss at global and national scales, The Club of Rome's advice seems almost too cautious. The pressing need today is to reduce harmful patterns of development and consumption that contribute to the enhanced greenhouse effect, while promoting strategies to help vulnerable populations and natural systems adapt to the uncertain impacts of climate volatility that are already underway.

Today we know that population number and each individual's consumption pattern both drive economic growth, and in turn are driven by it. This relationship is complex and it forces an almost insoluble policy tension. In a never-ending race around the policy track, the capacity to cope is always lapped by the need to grow. Therefore population policy at national, state and local government scales needs to be turned on its head. Rapid increases are now required in our capacity to cope, institutionally, socially and environmentally. Moderation is required in both the population size we want and the lifestyle to which each of us aspires.

Reversals are difficult to implement, but not impossible to contemplate. Once the economic mirage of never-ending population growth disappears in its own pollution haze, we have today's citizens to care for, and tomorrow's to plan for. That is enough to maintain a buoyant economy and to keep us all well occupied.

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