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## THE BUSINESS COUNCIL OF AUSTRALIA'S CASE FOR POPULATION GROWTH: AN ECOLOGICAL CRITIQUE.

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*The Australian Academy of Technological Sciences and Engineering, with the assistance of consultants Spiller Gibbins Swan Pty. Ltd, has produced a report on the relationship between population growth and environmental stress. The report, Population Futures, was prepared for the Business Council of Australia and has been used by the Council's Executive Director, David Buckingham, to underpin the Council's case for population growth. However, the report understates the environmental consequences of population growth and does not provide a firm foundation for the Business Council's case.*

### INTRODUCTION

Interest in Australia's population size and carrying capacity goes back to the early 20th century and Griffith Taylor. Since then there have been numerous estimates of carrying capacity, various government inquiries and scientific symposia, and the formation of concerned community groups. Despite all this, no consensus about our carrying capacity or our optimum population size has been reached, nor has the Federal Government produced a population policy as it has been widely recommended to do. Consequently the playing field is wide open for lobby groups to promote their interests.

One such group is the business community represented by the Business Council of Australia (BCA) which desires a much larger population. But the growth that it desires is threatened by both a falling birthrate and public opinion strongly opposed to increased immigration. As well, opposition to population growth on environmental sustainability grounds has arisen from natural scientists and community groups. They point out that Australia has not achieved ecologically sustainable development (ESD), that the environment is being degraded, and that population growth is one of the underlying pressures

causing degradation.

Business has responded by sponsoring substantial debates in the *Australian* newspaper, by forming the Australian Population Institute (APop) to espouse a greater Australia with more people, and by commissioning research on the population-environment nexus. A recent example is *Population Futures*,<sup>1</sup> a report prepared in 2000 for the BCA by the Australian Academy of Technological Sciences and Engineering (ATSE). The present article critically reviews the BCA's position (as represented by *Population Futures*) from an ecological point of view. Related BCA-sponsored papers such as Chisolm<sup>2</sup> are not directly addressed.

### CRITIQUE OF THE ATSE REPORT, *POPULATION FUTURES*

The study framework for *Population Futures* was developed by ATSE who engaged the consultants Spiller Gibbins Swan Pty. Ltd. to retrieve and assess existing information 'on the likely environmental impacts of population growth in Australia and the technological, behavioural, pricing and settlement planning interventions that might be used to manage population-related issues'.<sup>3</sup>

*Population Futures* does not attempt to estimate the carrying capacity or opti-

mum population for Australia. Rather, it addresses the consequences of three population scenarios for 2050: 25 million (official estimate), 32 million (one per cent per annum additional growth) and 38 million (accelerated growth). The report comprises an introduction and three sections: environmental constraints on population growth, environmental management strategies, and conclusions/recommendations. Of the 61 pages, fully 20 (Appendix four) are devoted to case studies of existing management interventions.

The first section lists 21 major environmental issues, assesses the strength of the connection between each issue and population growth and, using existing models, postulates some likely environmental outcomes under different population scenarios. The 21 issues include various aspects of pollution, resource depletion and habitat degradation. The assessment of each is made in terms of 'whether an enlarged population would, all things being equal, deliver a significantly worse outcome for that issue'.<sup>4</sup> The relationship of each issue to population growth is then deemed to be either a strong connection (a clear and significant worsening), a tenuous connection (a degree of worsening) or no direct connection.

Four environmental issues are considered to have a strong connection to population growth: the pollution of land and groundwater basins, the pollution of coastal waters and waterways near major urban areas, the depletion of freshwater stocks near major urban areas, and the pollution of urban air sheds. In the judgement of the authors, these issues are clearly worsened by population growth because more people would increase both consumption and waste production.

The connections between population

growth and nine other issues are deemed to be tenuous.<sup>5</sup> These include the depletion of arable land, natural habitats, the ozone layer, amenity and various resources, an increase in the greenhouse effect, and the alteration/ pollution of waterways near urban centres. The connection with population growth is acknowledged to be present but the effect is considered small relative to other factors that affect these particular environmental issues. For example, the authors argue that most habitat degradation is caused by land clearing and poor management practices rather than population growth. Similarly, because by Australia's contribution to the greenhouse effect and ozone hole is small, any additional population-driven contribution can be ignored.

Eight issues were deemed to have no direct connection to population growth.<sup>6</sup> These include the depletion of rural freshwater, of marine habitats, of biodiversity and of cultural sites, and the pollution/degradation of soils and coastal waters. The rationale used here is that, for the freshwater example, depletion has no direct connection to population growth because such depletion is caused primarily by irrigation for agricultural purposes rather than by direct human use.

This approach to assessing the environmental effects of population growth suffers from at least three serious problems. First, the degree of subjectivity concerning the adjectives 'strong' and 'tenuous' means that judgements made by others could be very different. Why, for example, was the connection between population growth and the depletion of urban freshwater considered 'strong' but the connection between growth and the alteration of urban waterways 'tenuous' when the reasons given for each judgement<sup>7</sup> are very similar?

Second, even if one agrees that the effect of population growth in each case labelled 'tenuous' is not significant in isolation, the cumulative effect on all nine tenuous issues is likely to be substantial. Yet this probability is ignored in the conclusions and recommendations.

Third, where it is claimed that there is no direct connection between an issue and population (eight issues),<sup>8</sup> the direct cause (irrigation in the case of fresh water depletion) is itself driven by population and/or consumption growth that increases the demand for commodities. The links to population growth may be indirect but should be acknowledged. This was, for example done by the CSIRO Environmental Futures Workshop held in 1997 which, said 'Indirect linkages (between population growth and biodiversity) include the need for food, water, forest products and room for recreation'.<sup>9</sup> But the ATSE report discounts these indirect effects by claiming, for example, that 'more people does not equal non-urban water use which primarily relates to irrigation'.<sup>10</sup>

In addition, once this indirect link is acknowledged, some 'tenuous connection' issues, such as the depletion of arable land stock, natural habitats and biodiversity could be considered 'strong'. Certainly land clearing is the direct cause as the report claims,<sup>11</sup> but this clearing is driven by growing human demands. Indeed, the State of the Environment Report Australia (SoEAC 1996) considered that the key threat to biodiversity is the combination of 'human population, their lifestyles, technologies and demands' and that 'the situation continues to deteriorate as population and demands on natural resources increase'.<sup>12</sup>

It is true of course that there is an inherent confounding of population size

and growth with other causes of degradation and that there is great potential for changed technology, pricing and behaviour to ameliorate environmental stress. But the assessments of population effects in *Population Futures* were to be made 'all things being equal'.<sup>13</sup> Under this constraint, the assessments should ignore the potential of improved technology and so on and address the effects of population growth alone. After all, it is important for scientific understanding, policy and management purposes to isolate causal factors. This approach would show that population growth in Australia will necessarily place additional pressures on all the environmental issues even though these pressures may be ameliorated by improved technology and so on. This is true because each additional Australian will impose an ecological footprint (the area of land needed to support a person indefinitely) of about six hectares according to Simpson *et al.*<sup>14</sup> Unfortunately, neither the footprint concept nor the costs of remedial mechanisms were discussed in the ATSE report. How, for example, will the huge costs of repairing land degradation be paid for? Indeed, it is now clear that there will be no technological fix for the worst salinised areas; these face long-term ruin.<sup>15</sup>

It is also true that many primary commodities are exported and thus their production may appear divorced from population growth. But this exemplifies another aspect of the population question — spatial scale. Just as economies are now truly global, population-environment links have global components via imports and exports. Our primary exports allow us to import numerous goods, mostly for urban consumption. Thus the growing ecological footprint of our cities extends to our rural areas indirectly via exports as well as directly.

As well, with regard to the pre-eminent ecological issues of land clearing and habitat loss, the report repeats the well-worn half-truth that 'much of the damage was done when the population was much smaller'.<sup>16</sup>

The implication is that these issues are a product of ignorance and poor technology, not excessive population. No doubt ignorance and poor technology were factors, but the premise contradicts the fact that land clearing in the last 50 years exceeded that of the previous 150 years.<sup>17</sup>

Following the assessment of issues, the ATSE report reviewed nine existing models that 'postulate what the outcomes of population-related environmental issues might be in Australia under current and enlarged population scenarios'.<sup>18</sup> Unfortunately, this was an unrewarding exercise because three of the four issues deemed to have strong connections to population growth were not addressed by any model. The fourth issue, urban air pollution, is predicted to worsen with growth but the authors argue that urban consolidation and other strategies can theoretically solve the problem.

Interestingly, the available modelling of general environment/ecology issues discussed in the report<sup>19</sup> suggests that 'an enlarged population will increase pressure on our ecosystems' and that our high per capita consumption 'leads to environmental degradation'. Why then are these issues rated as having a tenuous connection to population growth or no direct connection? Perhaps because the degree of degradation was considered insignificant or, alternatively, because the modelling of Simpson *et al.*<sup>20</sup> stated that Australia can accommodate more people and that lifestyle and technology changes can reduce our ecological footprint.<sup>21</sup> If the former reason was used, no rationale was offered and the exercise becomes

highly subjective; how much degradation is needed for significance? Moreover, such an assessment partially contradicts the modelling conclusions of West<sup>22</sup> namely

'a growing population is likely to result in increased domestic resource demands which require a greater intensity of land use and therefore increased pressure on Australia's ecological systems. When this growing domestic demand is coupled with the need to increase exports in order to maintain a balance of trade there is likely to be significant degradation of Australia's environment'.<sup>23</sup>

But these findings were not given prominence in the ATSE report.

Alternatively, the 'general environment/ecology issues' (pressure on ecosystems and environmental degradation)<sup>24</sup> may have been assessed to have a tenuous link to population growth because changed lifestyle and technology can reduce our ecological footprint. In other words, the environmental effects of increased numbers *per se* can be compensated for. But such an approach to assessment would contravene the report's term of reference which requires assessment of the effect of population growth on environmental issues 'all things being equal'.<sup>25</sup>

The environmental management strategies addressed in section two comprise technological innovations, behavioural shifts, pricing policies, and planning and settlement pattern policies. These strategies are applied to the four issues deemed strongly connected to population growth with three conclusions. The first is that a range of strategies 'could deliver superior environmental outcomes, even in the context of a higher population scenario in 2050'.<sup>26</sup> But this conclusion is meaningless because the scenario is unspecified here. As well, the word

'could' is crucial because we simply don't know how effective these environmental management strategies will be, as indicated by the second conclusion. This asserts that modelling is required to 'determine precisely the extent to which strategies can off-set, or even reverse, stresses placed on the four environmental issues based on a range of population scenarios to 2050'.<sup>27</sup>

The final conclusion concerning strategies is that 'it is not appropriate (and indeed simplistic) to say that the only policy option for government in addressing environmental concerns is to cap or lower population whilst maintaining environmentally damaging technological, lifestyle and economic arrangements into the future'.<sup>28</sup> But this supposed 'policy option' is a straw man. Few would claim that population control is the only approach to achieving acceptable environmental outcomes or would deny a substantial role for other strategies. Most likely, a mix of all approaches, including population stabilisation, is the most effective path to ESD. After all, population growth must cease sometime, preferably before the ecological carrying capacity is exceeded, a situation that may have already occurred since we are currently depleting ecological capital.<sup>29</sup>

In contrast, the BCA espouses population growth (via much higher immigration) coupled with better environmental strategies. However, this is problematical and risky because it assumes the efficacy, affordability and sociopolitical acceptability of technological and other strategies. The efficacy of such strategies can be doubtful because ecosystems are complex, interactive and poorly understood and, consequently, unintended outcomes of human intervention often occur. This is called

'Hardin's first law of human ecology'<sup>30</sup> or 'nature's boomerang'.<sup>31</sup> Good examples are the mixed blessings of dams, irrigation and DDT.

The affordability of some strategies is also in question. For example, while everyone agrees with the late CSIRO chief Malcolm McIntosh that 'we have to stop knacker the country', the repair bill has been estimated by the Australian Conservation Federation and National Farmers Federation at \$65 billion over 10 years.<sup>32</sup> And problems are worsening.<sup>33</sup> For example, concerning agricultural sustainability, 'there is significant cause for concern about the present condition and future prospects of Australia's agricultural resource base'<sup>34</sup> and 'there is potential for (dryland salinity) to increase to 15 million hectares'.<sup>35</sup> But appreciation of these catastrophes is only just dawning and effective remediation far off; 'it may take decades or even centuries before the (causative) processes can be reversed'.<sup>36</sup> As Rick Farley and Phillip Toyne said in July, 2000, 'We, like just about every other Australian, greatly underestimated the scale of the problems and the effort and resources needed to come to grips with them'.<sup>37</sup>

Further, there is the question of social acceptability of some strategies. Who wants to pay the full environmental costs of bread and petrol or reduce their personal consumption of materials and energy, a reversal of the current trend?<sup>38</sup> As well, that TSE report qualifies many of the settlement strategies as 'difficult to implement on cultural/political grounds'.<sup>39</sup>

The report contains two messages that will, no doubt, be used differently by different people. First, although population growth will increase environmental pressures, these can be managed and even reversed via numerous technological, behavioural and pricing strategies. But this message is really an act of faith rather than a scientific statement because of the second message: there is no modelling that might predict the magnitude of environmental effects of various population scenarios by 2050. Moreover, there is an implicit assumption that the management strategies will be efficacious despite the obvious difficulties discussed above.

Nevertheless, this report has been used by the Executive Director of the BCA to underpin the BCA's case for population growth and to dismiss fears of related environmental degradation.<sup>40</sup> But in reality, the ATSE report is very inconclusive about the environmental effects of population growth. The recommendations<sup>41</sup> address the need to 'undertake more scientifically focussed research/modelling' on population-environment relationships and to include various management strategies in this work. One wonders therefore why this report was commissioned at a time when the CSIRO Resource Futures Program (Ecumene) was nearing completion. This large project is developing and testing future options for the use and management of Australia's environmental sectors at regional and continental scales, and for medium and long term time frames. In doing so, several key policy issues are being explored including those related to population size. In fact, an Ecumene futures workshop considered that, concerning the decline of biodiversity, 'population growth, personal

consumption patterns and real estate development are moving to become primary drivers. Management and technology can help, but our belief in the ability of institutions (governments, departments) to take timely action is very much in question'.<sup>42</sup> Such expert opinion stands in strong opposition to the main planks of the ATSE report.

Apart from the shortage of modelling studies, the ATSE report's assessment of the environmental effects of population growth appears understated and seriously flawed in its approach of discounting so-called tenuous connections and indirect effects (as argued above). Further, there is little discussion of, or even reference to, much relevant literature. For example, there is no discussion of carrying capacity scenarios as in Meadows *et al.*,<sup>43</sup> or of the role of population size as a multiplier of per capita impact.<sup>44</sup> Further, there is no rebuttal of the claims of the Australian Academy of Sciences Working Group (1995)<sup>45</sup> or the CSIRO (1994).<sup>46</sup> The former said 'the quality of all aspects of our children's lives will be maximised if the population of Australia by the mid-21st Century is kept to the low stable end of the achievable range, that is, approximately 23 million'.<sup>47</sup> The CSIRO said, 'Australia lacks the necessary knowledge and understanding to manage effectively its current population at current living standards'.<sup>48</sup>

Even more direct was Ian Lowe, Chair of the SoEAC Committee, who said in 1997, 'There is no prospect — even in principle — of a sustainable pattern of development unless we devise a socially acceptable way of stabilising the human population'.<sup>49</sup> And sustainability is surely the key issue as discussed by Cocks (1996) whose core message is that 'a much better case can be made out for Australia to adopt an explicit population

policy centred on “stabilisation within a generation or so” than can be made for the present tacit policy of doubling population every few generations’.<sup>50</sup> Cocks has very serious doubts about the availability of sufficient soil and water after mid-century if Australia’s population grows to 36 million. As well, he discusses various costs associated with growth, including the degradation of amenity resources. For example, ‘If Australians do not want to pay increasing real prices for basic services nor to be increasingly rationed in their access to unique natural resources, the target will be much nearer 18 million than 36 million’.<sup>51</sup>

Yet none of these environmental issues is discussed in the ATSE report despite the fact that it is specifically aimed at assessing environmental effects of population growth. Nor is there any acknowledgment of the dependence of economic and social systems on ecosystems in terms of life support and free services worth perhaps four times our GNP.<sup>52</sup> Given this dependence and our ignorance concerning the stability and resilience of our life-supporting ecosystems,<sup>53</sup> one would expect some discussion of the precautionary principle. This principle was implicitly invoked in 1995 by the Australian Academy of Science working group as follows: ‘Given the major unresolved ecological problems already created by the human population of Australia, it is essential that, while such (population) debates run their course, Australia follow a cautious

policy on population, and adopt policies which minimise population growth’.<sup>54</sup> Instead, the ATSE report appears to have cast caution aside by understating the ecological effects of population growth and uncritically accepting various management strategies as a panacea to heal all environmental ills.

## CONCLUSION

This population debate is crucially important to the interests of future generations and deserves input from all interested sectors of society. The substantial involvement of the BCA is thus welcome. Although the debate is, of necessity, partly values driven, it also deserves to be informed by the best science and reasonable arguments. Here, the BCA case for population growth, as represented by *Population Futures* is vulnerable to criticism. In addressing its two main aims, *Population Futures* understates the environmental effects of population growth, uncritically accepts the efficacy of various management strategies, and ignores much relevant literature. Consequently, it will be seen by opponents of population growth as an advocacy document serving narrow sectional interests rather than a balanced assessment that could inform the public and government policy.

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- <sup>2</sup> See - [www.bca.com.au](http://www.bca.com.au), (1999)
- <sup>3</sup> ATSE web site, op. cit.
- <sup>4</sup> *ibid.*, p. i
- <sup>5</sup> *ibid.*, p. 8
- <sup>6</sup> *ibid.*

- <sup>7</sup> *ibid.*, pp.23, 27
- <sup>8</sup> *ibid.*, p. 8
- <sup>9</sup> [www.dwe.csiro.au/futures/ecumene/wshbio](http://www.dwe.csiro.au/futures/ecumene/wshbio) , [p.2]
- <sup>10</sup> ATSE, *op. cit.*, p. 8
- <sup>11</sup> *ibid.*
- <sup>12</sup> *State of the Environment Australia, State of the Environment Advisory Council*, Department of the Environment, Sport and Territories, Melbourne, CSIRO Publishing, Executive Summary, 1996, p.25
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- <sup>14</sup> R. Simpson, A. Petroschevsky and I. Lowe, 'An ecological footprint analysis for Australia', *Australian Journal of Environmental Management*, vol. 7, no. 1, 2000, pp. 11-18. An ecological footprint is the amount of land necessary to meet human needs. It can be interpreted at different levels (such as an individual person or city and so on) and includes land required for food, consumer goods, energy, housing, transport and waste processing'.
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