

NORFOLK



ISLAND

THE ADMINISTRATION OF NORFOLK ISLAND

POPULATION AND PLANNING ON NORFOLK ISLAND

Report No.2: Population and Sustainability issues

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POPULATION AND PLANNING ON NORFOLK ISLAND

This report has been prepared in response to anticipated amendments to laws on Norfolk Island that would require the planning system to take on a more prominent role in establishing and enforcing controls that effectively set a limit on Norfolk Island's population.

Report No.1 in this series found that the current Norfolk Island Plan provides scope for a population of around 10,400 to 10,900 people, based on the maximum development potential of land being achieved, and the likely dwelling occupancy rates. The report raises the concern that a population increase to this level would not be sustainable, and raises the question of what would in fact be a sustainable population level for Norfolk Island and what factors would influence sustainability.

1. Examples of population issues and the question of limits

1.1 Australia

Report No.1 was produced on 3 May 2011. Shortly after that, on 13 May 2011, the Commonwealth Government coincidentally released "*Sustainable Australia – Sustainable Communities*"; a sustainable population strategy for Australia.¹ The Strategy is perhaps most notable in the fact that it does not set a population target or limit for Australia. The Strategy justifies this by arguing that changing utilization of resources and improvements in technology can influence the "optimum" population limit for Australia.² Examples given for this include increased water supply, greater yields in food production, and increasing use of alternative, renewable energy. The policy emphasizes that it is more important to focus on ways of improving community well-being, protecting the environment and making more effective use of resources, rather than attempting to set an absolute limit on population and on restricting growth.

The decision by the Commonwealth Government to not set a population limit was contrary to the wishes of many of the organizations and individuals who wrote submissions in response to the earlier Issues Paper produced by the Commonwealth Government. Sustainable Population Australia (SPA) for example, argued that Australia must stabilize then reduce its population to a level consistent with the nation's carrying capacity³, based on ecological limits.⁴ The submission raises the concern that the decision to not set a definite population limit may be being influenced by property developers and is contrary to the national interest. The submission sets out various factors that influence community well-being and which would be under threat as the population continues to increase, including water and food security, land devoted to agricultural production and natural habitat, the ability of infrastructure to serve our needs (e.g. waste management, transportation), open space, fresh air, easy access to shops and services, a sense of community and volunteering.

¹ Source: <http://www.environment.gov.au/sustainability/population/publications/pubs/population-strategy.pdf>

² Ibid, pp.24-25.

³ "Carrying capacity" is the maximum number of people a particular area can support with the resources available within that area. A sustainable carrying capacity is therefore the maximum human load the environment can sustain in the long term. A sustainable limit means there is no increase in the harm to the natural environment and no increased threat to the availability of resources.

⁴ Source: <http://www.environment.gov.au/sustainability/population/consultation/submissions/pubs/0183.doc>

1.2 Singapore

It may or may not be reasonable to not fix a population limit for a land mass as large as Australia's and where technological innovations could potentially make a significant difference to the carrying capacity of the land. Norfolk Island however has a very small land mass (35 square kilometers), and the innovations that might be developed are less likely to make as significant an impact on the carrying capacity of the island. It is appropriate to examine how other small states are dealing with the question of setting limits on population to ensure a sustainable future.

Singapore is a small island nation (694 square kilometers), densely developed and with a relatively large population that has been, and continues to, grow rapidly i.e. 4.0 to 4.84 million in less than a decade. In response to the challenges of increasing population and climate change, the government developed a Sustainable Singapore Blueprint, aimed at addressing these challenges.

The Sustainable Singapore Blueprint does not set a population limit for the country, despite its small size and population challenges. The solutions are listed as follows: ⁵

1. Improving resource efficiency (i.e. water and energy efficiency, renewable energy, waste minimization and appropriate energy pricing);
2. Enhancing the urban environment (i.e. a clean and green environment, improved air and water quality);
3. Developing capabilities (i.e. research and development into environmental sustainability);
4. Community engagement (i.e. promoting community efforts, and industrial efficiency).

Singapore benefits from a strong economy ⁶, with expertise and a competitive advantage in the research and development of innovative technologies that can help to address the population issues it faces. While Norfolk Island can certainly benefit from innovative technologies, it cannot lead the way by being a hub for research and development in the way that Singapore can. Although Singapore and Norfolk Island are both small island states, the similarity ends there, and there are great differences in issues of population growth and sustainability.

1.3 Lord Howe Island

Lord Howe Island has a smaller population than Norfolk Island, with a permanent resident population of 350 and an official limit of 400 on the number of tourists that can be accommodated on the island. ⁷ The island is within the state of New South Wales, and it is a domestic destination for flights from mainland Australia.

The resident population on Lord Howe Island has risen steadily over the years, from 228 in 1954 to 286 in 1988, to 325 in 2001.⁸ The 2002 report in which these figures are quoted raised concern that the number of new dwellings being approved and built was far outstripping population growth (i.e. 49 new dwellings between 1988 and 2001, compared with a population rise of just 39 during the same period).⁹ The proportional rises were 41% growth in the number of dwellings compared with 13% in the population.

⁵ http://www.sidsnet.org/msi_5/docs/nars/AIMS/Singapore-MSI-NAR2010.pdf

⁶ GNI at current market prices (SGD million) of 258,657.7.

⁷ Source: <http://www.lordhoweisland.info/conservation/factsheet.htm>

⁸ Source: http://www.sinclair.org.au/LHI_Management_Strategy.pdf

⁹ Ibid, p.12.

Concerns about population growth and over-development contributed towards the strict controls that now apply to Lord Howe Island. The population level is now tightly controlled, not through limits applied to individuals (e.g. immigration permits), but through controls on land ownership and new development.

All land on Lord Howe Island is owned by the Crown, and the law does not allow for freehold private ownership. Two types of leases are granted: Perpetual leases for residential purposes, and Special leases for other purposes (e.g. agriculture). Perpetual leases, and thereby development rights, are issued to “Islanders” in line with the Lord Howe Island Local Environmental Plan 2010, which limits the number of future dwellings to no more than 25 during the 20 year period up until 2025. Perpetual leases can only be inherited by a lineal descendent of the leaseholder, and transfer and subleasing of perpetual leases is strictly controlled.

The tight controls on development and land ownership on Lord Howe Island are intended to achieve a sustainable future for the island, as set out in the Aims of the Lord Howe Island Local Environmental Plan 2010.¹⁰ The Plan aims to facilitate limited development of land for residential and other purposes, while at the same time conserving the natural environment and World Heritage values of the island, and enhancing the wellbeing and welfare of present and future generations. The Plan notes the importance of “ecologically sustainable use of resources”, “ecologically sustainable development” and “sustainable agriculture”.

In summary, Lord Howe Island is subject to strict limits on land ownership and occupation and development, which indirectly but effectively control population growth on the island. These controls are a response to the recognition that there are limits to the extent to which the island can be developed while at the same time preserving the natural habitat and landscape value of the island and thereby the World Heritage listing. The limit on the number of new dwellings that may be approved and built will need to be reviewed by 2025 when the current limit expires.

1.4 Christmas Island

As with Norfolk Island, Christmas Island is a remote territory of Australia with a similar resident population (1,348 at the 2006 Census, down 4% since the 2001 Census).¹¹

Christmas Island is experiencing very particular population issues as a result of it becoming a detention and processing centre for asylum seekers who have arrived illegally by boat from Asia. As a result, the population has risen to over 3,500, more than half of whom are in detention.¹² The issues on Christmas Island are not caused by the asylum seekers themselves, but by the influx of officials, security guards, translators, police and teachers, which has led to a dramatic increase in the demand for short-term accommodation.¹³ Landlords have terminated long-term rental agreements in favour of more lucrative short-term rentals. The changes clearly benefit landowners, but disadvantage those who do not own their own house and rely upon rental accommodation: a situation similar to what happens in mining boom towns.

The situation on Christmas Island is unique and shows that islands of similar sizes and populations can experience very different sets of issues relating to population, and therefore the solutions must also be very different.

¹⁰ Source: <http://www.legislation.nsw.gov.au/sessionalview/sessional/epi/2010-88.pdf>

¹¹ Source: <http://www.shire.gov.cx/Misc/Christmas%20Islands%20Community%20Portrait%2006Q.pdf>

¹² Source: <http://www.theage.com.au/national/population-boom-hits-island-paradisecumalcatraz-20100405-rn4o.html>

¹³ Ibid.

1.5 Norfolk Island

Over the years, there have been several external reports written on Norfolk Island that have examined the question of and need for a population limit.

In 1973, the Commonwealth commissioned Professor Gilbert J Butland, pro-Vice-Chancellor of the University of New England Armidale, to advise on the future population capacity of Norfolk Island, which would form a basis for immigration policy.¹⁴ In his subsequent report, “*A Long Term Population Study of Norfolk Island*”, Professor Butland made particular recommendations in relation to population limits, and these were adopted by the Norfolk Island Council on 17 October 1974 with an amendment to bring forward the limits from 1983 to 1980, as follows:¹⁵

1. *Policies should be devised to limit residential population to a maximum of 2000 by 1980.*
2. *Once the maximum tourist intake of 20,000 is reached in 1980 it would be preferable to contain residential population growth to an annual rate of 2%. Natural increase on present indication will stabilize at about 0.75% per annum allowing continued migration post 1980 at the rate of 1.25%, or 25 to 30 persons each year.*

The 1976 Royal Commission report into matters relating to Norfolk Island (known as “the Nimmo Report”) noted that, “because of its small size, Norfolk has clear limits to the number of people it can carry.”¹⁶ The Nimmo Report noted an opinion that the growth rate suggested in the Butland Report should be revised to zero and every effort be made to maintain a local resident population at whatever maximum is deemed to be the optimum in the future.¹⁷

The Commonwealth Grants Commission “*Report on Norfolk Island 1997*” states: “*Norfolk Island has special immigration laws designed to keep population in line with the Island’s physical and economic capacity... this seems a reasonable policy objective*”.¹⁸ The (Norfolk Island) *Immigration Act 1980*¹⁹ establishes a range of permits that non-residents must apply for and hold in order to enter Norfolk Island. Under the Act, the executive member may set a quota for the number of general entry permits that may be granted, and applicants are required to satisfy to the executive member that they have “a special relationship with Norfolk Island”. Furthermore, the Act states that applications for the more permanent classification of Resident are required to show that they have “assimilated into the community of Norfolk Island”.

The table below shows that, following a rapid population increase during the 1960s and 1970s, the population has remained relatively stable, in the range of 1750 to 2050 for the last 30 years.

	1961	1966	1971	1976	1981	1986	1991	1996	2001	2006
<u>Permanent residents</u>										
Born on Norfolk Island	N/A	N/A	509	N/A	616	656	551	541	577	567
Born elsewhere	N/A	N/A	691	N/A	764	772	927	929	997	1009
<u>Sub Total</u>	719	897	1200	N/A	1380	1428	1478	1470	1574	1576
<u>Temporary residents</u>	45	100	222	N/A	469	549	434	302	463	287
TOTAL	764	997	1422	1635*	1849	1967	1912	1772	2037	1863

* The population for 1976 is an estimate only.

¹⁴ Source: <http://www.info.gov.nf/reports/external%20reports/1976%20Royal%20Commission%20Nimmo.pdf> p.167

¹⁵ Ibid, p.167.

¹⁶ Ibid, p.85.

¹⁷ Ibid, p.86.

¹⁸ Source: <http://www.info.gov.nf/reports/external%20reports/1997%20Grants%20Commission.pdf>

¹⁹ Source: <http://www.info.gov.nf/legislation/ConsolidatedActs/ImmigrationAct1980.doc>

Careful management of this permit system has ensured a stable population level over the years since the permit system was introduced. The Immigration Policy and Guidelines (consolidated as at 11 July 2011), lists the objectives to be considered when considering permit applications, including:²⁰

To ensure a measured and appropriate management of the permanent and temporary population of Norfolk Island having regard to:

- (a) *The fragile environment of Norfolk Island;*
- (b) *The culture and heritage of the community;*
- (c) *The economic and infrastructure resources of Norfolk Island;*
- (d) *The need to sustain a vital and healthy commercial sector within the community;*
- (e) *The need to promote or maintain economic growth within the community;*
- (f) *Any immigration policy promulgated or determined by the Legislative Assembly.*

Concerns have been raised that the Norfolk Island immigration regime restricts the rights of Australian citizens to move freely within the Commonwealth of Australia and that such laws are therefore unconstitutional.²¹ Complaints about the immigration rules were considered by the Australian Human Rights and Equal Opportunity Commission (HREOC) during an inquiry in 1997. The Commission subsequently found that the implementation of the Norfolk Island immigration regime “violates the right of all Australians to liberty of movement and freedom of choice of residence without discrimination and free from arbitrary decision making under article 12 of the *International Covenant on Civil and Political Rights (ICCPR)*”.²² The Commission recommended that the Norfolk Island laws relating to immigration regime be replaced by the (Commonwealth) *Migration Act 1958*, and that population and tourist numbers on Norfolk Island be instead regulated by planning and zoning regulations.²³ The Commission’s report was tabled in the Norfolk Island Legislative Assembly on 19 May 1999,²⁴ and the recommendations were adopted in a 2003 Inquiry into governance on Norfolk Island by the Joint Standing Committee on the National Capital and External Territories²⁵, but the recommendations were not implemented.

Shortly after the Commission's report was published in 1999, the UN Human Rights Committee published a General Comment on Article 12 of the *International Covenant on Civil and Political Rights*, the article that sets out the liberty of movement and freedom of choice of residence as well as the allowable limitations, within the territory of a State (e.g. Australia). The Committee makes clear that restrictions are permissible only in exceptional circumstances and that laws authorizing the application of restrictions should use precise criteria and may not confer unfettered discretion on those charged with their execution.²⁶

The “Norfolk Island Road Map” signed by the Commonwealth and Norfolk Island Governments includes an intended action in 2011/12 to extend the (Commonwealth) *Migration Act 1958* to Norfolk Island.²⁷ This action would effectively override the (Norfolk Island) *Immigration Act 1980*. In accordance with the Road Map, the policy and guidelines associated with the Immigration Act have already been amended to include consideration of Australian business investors and self-funded retirees to live on Norfolk Island as part of the resident population.²⁸

²⁰ Source: http://www.info.gov.au/adminforms/immigration/Immigration_PolicyGuidelines_20110711.pdf

²¹ Source: http://www.humanrights.gov.au/pdf/human_rights/norfolk_island.pdf

²² Ibid, p.3.

²³ Ibid, p.40.

²⁴ Source: http://www.info.gov.au/hansard/8thAssembly/1999_05_19.doc

²⁵ Source: <http://www.info.gov.au/reports/External%20Reports/2003%20JSC%20Governance.pdf>

²⁶ Source: <http://www.unhchr.ch/tbs/doc.nsf/MasterFrameView/6c76e1b8ee1710e380256824005a10a9?Opendocument>

²⁷ Source: <http://www.info.gov.au/news/Information/Norfolk%20Island%20Road%20Map%20-%202%20March%202011.pdf>

²⁸ Source: http://www.info.gov.au/adminforms/immigration/Immigration_PolicyGuidelines_20110711.pdf

2. Limits to population growth

The first question that needs to be addressed is whether it is appropriate and necessary to continue to apply limits on population on Norfolk Island. If the answer is yes, the second question is whether the means by which limits are applied should be changed, and if so, how might limits be applied instead.

2.1 Comparison with Lord Howe Island

Of the examples set out in Section 1 of this report, Lord Howe Island has the characteristics most similar to those of Norfolk Island. These two islands are similar in relation to their isolation and geographical location in relation to mainland Australia, their population density (based on the areas not reserved as National Park), their history of settlement since the mid-1800s, and their heavy reliance upon the tourism industry.

There are no restrictions on the movement of people between Lord Howe Island and mainland Australia, or on Australian citizens taking up residence on Lord Howe Island. Restrictions on the supply of Crown leases and on approvals for new dwellings do however have the effect of indirectly limiting the island's population, i.e. an Australian citizen is free to take up residence on the island, but cannot obtain a Crown lease or sublet a lease except in special circumstances (e.g. if no Islander is willing to take up a lease). The restrictions that apply on Lord Howe Island effectively control the population, but do not contravene the International Covenant on Civil and Political Rights.

The vast majority of dwellings on Norfolk Island are in Freehold land tenure and in private ownership. As such there are no laws or conditions preventing the sale of land to non-islanders. The Norfolk Island immigration laws however can potentially prevent Australian citizens (including those who purchase land and a dwelling on the island) from residing in that dwelling, and the Australian Human Rights and Equal Opportunity Commission found these immigration restrictions to be in violation of Australian and International human rights laws.

In light of the above, and of the intended actions in the Norfolk Island Road Map, it would appear to be appropriate and necessary for Norfolk Island to adopt an alternative means of population control, e.g. land use / zoning laws.

2.2 Overview of the various limits to growth

Report No.1 in this series shows that the land use / planning controls currently allow for a significant population increase on Norfolk Island. Considering possible future population increase, is there a point which, if reached, would result in an unsustainable future for Norfolk Island? How is this determined and measured? Any assessment of the need for population limits needs to examine the various factors that can influence and limit population growth. These factors are set out in various publications, but the following, derived from Graymore (2005)²⁹ provides a useful and concise summary:

- Availability of natural resources:
Includes water, food, land, soil, timber, minerals, fossil fuels and other energy sources, biodiversity and fibres.
- Economic limits to growth:
Includes the cost of providing infrastructure (dams, schools, roads, hospitals, shopping centres, employment), and the rehabilitation of the environment.

²⁹ Source: <http://www4.gu.edu.au:8080/adt-root/uploads/approved/adt-QGU20060303.132137/public/02Main.pdf>

- **Ecological limits to growth:**
The resilience of an ecosystem can be affected by the health of the ecosystem, and the lowest amount of biodiversity required in order to retain resilience and continue to function in the face of disturbance. An ecosystem's ability to persevere is threatened by extinctions, by deterioration in water, air and soil quality, and by the ability of the ecosystem to absorb changes and/or adapt to changed circumstances. A threat to the ecosystem represents a threat to the foundation of economic and human welfare.
- **Social limits to growth:**
Includes consideration of the factors that impact on quality of life, for example availability of clean water and food, access to health care, education and employment opportunities, the prevalence of air and water pollution, community structure / cohesiveness, crime rates and housing affordability and choice. Personal security, a sense of community and belonging, privacy without isolation, and an aesthetically pleasing living environment are all factors that contribute to the happiness and wellbeing of a population.
- **Limits to technology:**
Improved technology can effectively raise the limits to growth but it could alternatively lead to lower limits caused by the impact a technology has on the environment. Technological innovation cannot be relied upon to indefinitely produce increases in human carrying capacity. It can however increase the efficiency of resource use and lower the impact of consumption on the environment.

The following sections of this report set out the factors that limit population growth that are relevant to Norfolk Island, and grouped into 3 main sections: 1. environmental, 2. infrastructure, and 3. social & economic factors.

2.3 Environmental factors that influence sustainability

(a) Carbon footprint of Norfolk Island

The current "ordinarily resident" population of Norfolk Island is slightly lower than it was at the time of the 2006 Census, i.e. down to approximately 1809.³⁰ According to Immigration Services, the average number of visitors on the island at any one time in 2010 was 485,³¹ therefore the average total number of people present on Norfolk Island at any one time is approximately 2294 (round up to 2300).

A study conducted by the University of Sydney's Centre for Integrated Sustainability Analysis in 2006 examined greenhouse gas emissions on Norfolk Island.³² The study found that, given a number of assumptions, greenhouse gas emissions generated on the island plus greenhouse gas emissions generated through importation of goods to the island amount to about 25,000 tonnes CO₂-e (equivalent carbon dioxide), or about 14 tonnes CO₂-e per resident at that time.³³ The study notes that the Australian average was about 25 tonnes CO₂-e per capita at that same time³⁴ although average emissions in Australia have more recently (2008) been estimated to be 27 tonnes per capita.³⁵

³⁰ Source: Mitchell Evans, Administration of Norfolk Island, personal communication, 9 August 2011.

³¹ Ibid.

³² Source: <http://www.isa.org.usyd.edu.au/publications/NorfolkTBL.pdf>

³³ Ibid, p.28.

³⁴ Ibid, p.28.

³⁵ Source: <http://www.environment.gov.au/sustainability/population/consultation/submissions/pubs/0183.doc>

The Norfolk Island emissions figure does not, however, take into account the greenhouse gas emissions arising from the movement of tourists to and from the island. The 2006 study estimated that the 28,724 arrivals in 2006 resulted in about 30,000 tonnes of greenhouse gas emissions, or about 1 tonne per average return trip.³⁶ As such, the total greenhouse gas emissions for Norfolk Island during 2006 was around 55,000 tonnes CO₂-e, i.e. more than double the emissions before tourist movements are taken into account.

The 2006 study found that, if tourist yields (i.e. the amount tourists spend while on holidays on Norfolk Island) were to increase, the per capita income for Norfolk Island residents would similarly increase, resulting in higher greenhouse gas emissions assuming the additional income is spent on imports (i.e. a \$1,000 per capita increase in income in a 12-month period would result in a total of 600 additional tonnes of greenhouse gas emissions).³⁷ In comparison, a modest increase in tourist numbers (1,900 arrivals per year) to also achieve an increase of \$1,000 per capita annual income on the island would result in a much higher increase in greenhouse gas emissions (i.e. an additional 2,390 tonnes, or 4 times more than the increase caused by increased tourist yields).³⁸ The conclusion is that movement of tourists to and from the island has a major impact on greenhouse gas emissions, and that an increase in tourist yields would cause significantly less harm to the environment than an increase in tourist numbers, based on these increases having the same net increase in per capita income on the island.

On the basis of the evidence available, an increase in the “ordinarily resident” population of Norfolk Island would lead to a relatively minor increase in greenhouse gas emissions generated on the island and as a result of imports to the island (i.e. around 14 tonnes CO₂-e per annum for each additional resident), but if these new residents are moving from Australia, they would no longer be generating greenhouse gasses there, where the average emissions are about 27 tonnes CO₂-e per person per annum. Greenhouse gas emissions generated from Australia’s External Territories (including Norfolk Island) make up less than 0.1% of the national total.³⁹ The overall impact of a net increase in the ordinarily resident population of Norfolk Island to the planet is therefore negligible and perhaps a slight improvement compared with the current population.

(b) Carrying capacity of Norfolk Island

The previous section discussed the carbon footprint of Norfolk Island. A similar concept is the “ecological footprint”, which is a measure of the area of land needed to support a population, with consideration of lifestyle, energy use, food consumption and other resources.⁴⁰ Linked to this concept is “carrying capacity”, which refers to the maximum population that an environment can sustain indefinitely, given the food, habitat, water and other necessities available in the environment.⁴¹

In 2010, the Australian Capital Territory (A.C.T.) Standing Committee on Climate Change, Environment & Water commenced an Inquiry into the ecological carrying capacity of the A.C.T. The Terms of Reference for the A.C.T. Inquiry sought submissions in relation to “appropriate

³⁶ Ibid, p.28.

³⁷ Ibid, p.30.

³⁸ Ibid, p.30.

³⁹ Source: <http://www.climatechange.gov.au/~media/publications/greenhouse-acctg/state-territory-inventory-2009.pdf>

⁴⁰ Source: <http://www.parliament.act.gov.au/downloads/reports/Discussion%20paper%20-%20FINAL.pdf>

⁴¹ Source: http://en.wikipedia.org/wiki/Carrying_capacity

ecological carrying capacities”.⁴² The use of the word “appropriate” raised questions in the submission subsequently made by Sustainable Population Australia. The submission raises the issue that an ever-increasing population compromises quality of life / standards of living, and uses the examples of rises in real estate prices and traffic congestion, concluding that these effects of population increases are not “appropriate”.⁴³

A study published by the University of Sydney’s Integrated Sustainability Analysis Research Group in December 2010 found that the ecological footprint of the A.C.T. in 2008/09 was 3.2 million “global hectares”, which is roughly 14 times the area of the A.C.T. and one of the highest in Australia.⁴⁴ The main factors contributing to the increase in the A.C.T.’s ecological footprint are the consumption of goods and services.⁴⁵

The overall ecological footprint for Norfolk Island is extremely difficult to estimate in the absence of detailed studies or itemisation of imports by weight. Foodlands Supermarket imports approximately 3,400 to 3,500 tonnes of product per year to the island, including cleaning products, pet food, etc, and the weight of packaging.⁴⁶ With approximately 2,300 persons present on Norfolk Island at any time, this represents approximately 1.5 tonnes per person on Norfolk Island per year. Food exports from Norfolk Island are of a negligible quantity. Meat is imported to Norfolk Island despite the high proportion of rural holdings on Norfolk Island dedicated to pasture for animals bred for meat. In 2010, the Administration of Norfolk Island attended the slaughter of 354 cattle, 36 sheep and 207 pigs, and yet this was still not sufficient to satisfy the island’s demand for meat.

Each time a large rural agricultural portion of land on Norfolk Island is subdivided, it potentially decreases the viability of the land for agricultural production and likelihood that it will be used for agricultural production, which in turn impacts on the carrying capacity of the island. The Norfolk Island Plan sets minimum area requirements for portions in the Rural and Rural Residential zones with a view to preserving land for agriculture, as per the following:

- The objectives and guidelines for the Rural Zone include (Clause 10(1)(a)): *“preserve larger parcels of land so that viable agriculture can be maintained”*.
- The intent of the Rural Residential Zone includes: *“provide opportunities for primarily residential use or development in a rural or natural setting and where that use or development is located on parcels of land that are large enough to support small scale rural uses but which are unlikely to provide economically viable rural use or development”*.⁴⁷

Report No.1 in this series showed that the Norfolk Island Plan has scope to allow for the creation of up to 59 net additional portions in the Rural Zone and up to 105 net additional portions in the Rural Residential Zone. If these opportunities are taken up and the portions subsequently developed, it will impact on the agricultural viability of the land, and of Norfolk Island as a whole.

⁴² Source: http://www.parliament.act.gov.au/downloads/terms-of-reference/ToR_Inquiry%20into%20ecological%20c%20c.pdf

⁴³ Source: <http://www.parliament.act.gov.au/downloads/submissions/35%20Sustainable%20population%20australia.pdf>

⁴⁴ Source:

http://www.environmentcommissioner.act.gov.au/_data/assets/pdf_file/0015/211182/ACT_Ecological_Footprint_08-09_final_report.pdf

⁴⁵ Ibid.

⁴⁶ Peter Walkinshaw, personal communication, 16 August 2011.

⁴⁷ Source: <http://www.info.gov.nf/land&env/NIPlan/Norfolk%20Island%20Plan%20Complete%20100312.pdf>

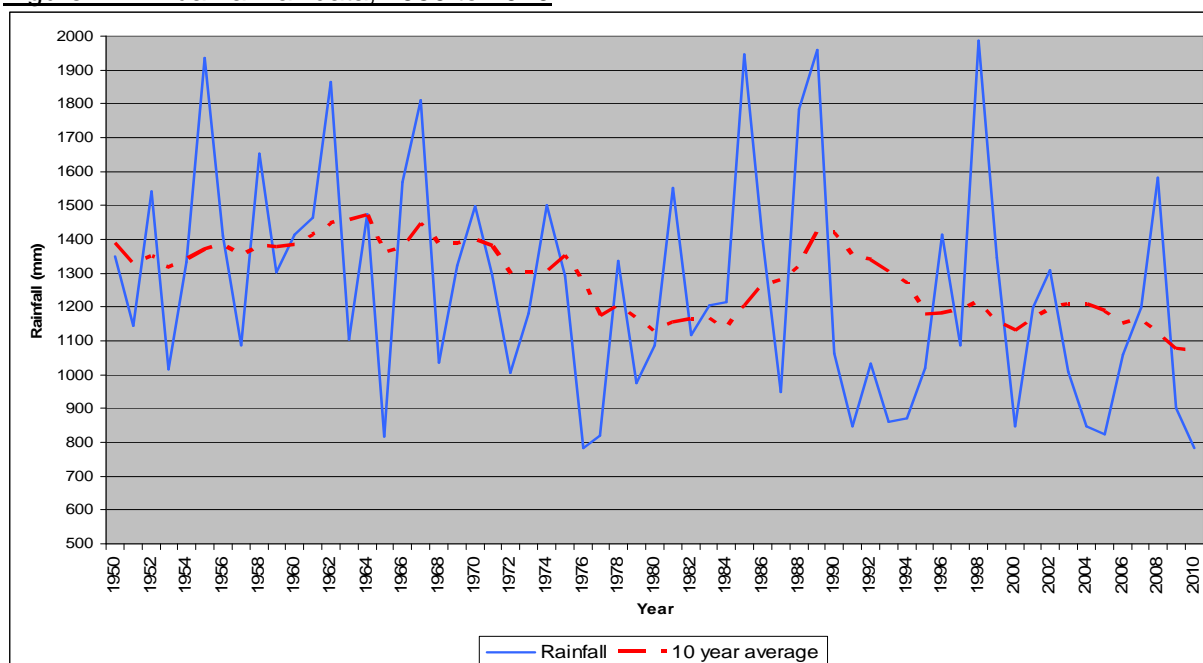
Locally caught fish also make up a reasonable proportion of food consumed on Norfolk Island. Fish catches are monitored by the Norfolk Island Fishing Association (NIFA). Due to the lack of a harbour or marina on Norfolk Island, fishing boats are lowered into the water by crane. This system caters for small recreational fishing vessels only. Approximately 80 fishing vessels are registered with NIFA, and due to adverse weather conditions, there are only around 60 days in a year that are suitable for the launching and retrieval of boats.⁴⁸ NIFA estimates that the annual catch in the waters around Norfolk Island is around 200 tonnes.⁴⁹ This equates to an average of approximately 87 kilograms of locally caught fish per year for each person present on Norfolk Island. Despite the amount of fish being caught in waters around Norfolk Island, large quantities of frozen fish are also imported to Norfolk Island for local consumption. The ability of the local fishing fleet to meet any increased demand for locally caught fish (e.g. caused by increased population) would ultimately be limited by the number of fishing vessels and the number of days that are suitable for launching and retrieval of vessels.

Clearly, Norfolk Island is not and cannot be self-sustainable in food production, also the evidence available indicates that the population is already living beyond the carrying capacity of the island, and an increase in the population will exacerbate this situation.

(c) Water supply

The median annual rainfall on Norfolk Island is 1293 millimetres(mm) per year.⁵⁰ The graph below shows annual rainfall data from 1950 to 2010 and the 10-year average, i.e. the average annual rainfall of the 10 years immediately prior to each year. From 1950 to the mid-1970s, the 10-year average was around 1300 to 1470 mm per year. During the last 15 years, the average has been around 1100 to 1200 mm per year. This Bureau of Meteorology data indicates an overall decline in rainfall on Norfolk Island during the last 60 years, and a wide fluctuation in annual rainfall, anywhere between a low of around 800mm to nearly 2000mm per year.

Figure 1: Annual rainfall data, 1950 to 2010



⁴⁸ Nutley, S. 2007, *Norfolk Island Fishery*.

⁴⁹ Ibid.

⁵⁰ Source: http://www.bom.gov.au/climate/averages/tables/cw_200288.shtml

The degree to which rainfall fluctuates from year to year, and from month to month, corresponds with the degree of uncertainty of water supply. All new dwellings built on the island are required to connect to rainwater tank(s) with a capacity of at least 44,000 litres in the case of dwellings with up to 4 bedrooms, and at least 69,000 litres in the case of larger dwellings.⁵¹ This requirement does not however guarantee that the tank(s) will not empty during a particularly dry period, and water security can never be 100% guaranteed.

The amount of rainwater available for household use depends on a number of factors: rainfall (as discussed above), the size of the roof and the efficiency of water collection from the roof, the capacity of water tank(s), and the amount of water used by the household. The first three of these factors are used in a formula to determine the volume of water collected in storage tanks (“runoff”), as follows:

$$\text{Runoff (litres)} = A \times (\text{rainfall} - B) \times \text{roof area}^{52}$$

- A: means efficiency of collection. Values of 0.8 to 0.85 (that is, 80-85% efficiency) are used.
- B: means loss associated with absorption and wetting of surfaces, expressed in mm. A value of 2mm per month (24mm per year) has been used.
- Rainfall: is expressed in millilitres.
- Roof area: is expressed in square metres.

Annual rainfall on Norfolk Island is 1302mm. The formula for Norfolk Island is therefore:

$$\text{Runoff (litres)} = 0.8 \times (1302 - 24 = 1278) \times \text{roof area}$$

Roof area and therefore runoff varies from house to house. Likewise, water usage varies from house to house, but for the purposes of modeling water supplies, and average household water usage needs to be adopted. The average house in metropolitan Perth uses 337 k/L (kilolitres) of water per year.⁵³ Water usage per capita (i.e. person) in Australian States has been reported to be in the range of 81 k/L per capita (Victoria) up to 180 k/L in Western Australia.⁵⁴ Sydney’s water usage was 124 k/L per capita per year (reportedly the lowest of the capital cities)⁵⁵ and also 256 k/L per household per year.⁵⁶ The national average water use was reported as 280 k/L per household in 2000/01⁵⁷ and 103 k/L per capita in 2004/05.⁵⁸

On Norfolk Island, some households may use less water than the national average because residents are acutely aware of the need to conserve water, and have adopted a range of water saving actions (e.g. use of grey water for toilet flushing, taking short showers). In other situations on Norfolk Island, water usage will be higher than for a metropolitan area, because gardens are larger and may need more water. In some cases, residents benefit from water drawn from bores. Residences should not, however, need to rely upon bore water for household use.

⁵¹ Source: <http://www.info.gov.nf/land&env/NIPlan/Development%20Control%20Plan%20No.%202%20-%20Water%20Resources.pdf>

⁵² Source: <http://www.water.wa.gov.au/PublicationStore/first/84981.pdf> (p.51)

⁵³ Source: http://www.agric.wa.gov.au/objtwr/imported_assets/content/lwe/water/eng/fn064_2004.pdf

⁵⁴ Source: http://www.water.gov.au/WaterUse/Capitalcitywateruse/index.aspx?Menu=Level1_4_3

⁵⁵ Ibid.

⁵⁶ Mobbs, M. 2010 *Sustainable House*, p.100.

⁵⁷ Source: <http://www.environment.gov.au/soe/2006/publications/drs/indicator/335/index.html>

⁵⁸ Source: [http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~Water%20consumption%20per%20person%20\(6.3.3\)](http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~Water%20consumption%20per%20person%20(6.3.3))

For the purposes of determining water storage requirements on Norfolk Island and for convenience sake, the ABS figure of 103 kilolitres per person per year will be adopted. According to the 2006 Census, there is an average of 2.1 persons per household on Norfolk Island. This means the average usage per household is 216 k/L per year, or 18 k/L per month.

Based on the runoff formula above and typical dwelling's roof area of 215 square metres and average water usage of 18 k/l per month, we can calculate how full the dwelling's water tank(s) is from month to month. Norfolk Island experienced particularly dry summers in 2009/10 and 2010/11, so it is useful to see how an average dwelling's water supply fluctuated during this period. Monthly data from the Bureau of Meteorology from the start of 2008 to the end of 2010 was used, and it was assumed that the tank was empty at the start of 2008. The full calculations (provided in Appendix A) show that, even if the dwelling had been served by rainwater tank(s) with capacity of over 75,000 litres (i.e. this volume would be reached by April 2008), the tank(s) still would have run dry by December 2009. If total tank capacity was just 45,000 litres, the tank(s) would have run dry earlier, by October 2009. If the water storage capacity was more than 75,000 litres, the dwelling would have needed to purchase at least 100,000 litres of water by December 2010 in order to meet household needs. The situation would be far worse for dwellings that use more than 18,000 litres of water per month or dwellings with a roof area smaller than 215 square metres.

Most agricultural practices on Norfolk Island and some of the larger tourist accommodation complexes rely upon groundwater supplies taken from bores rather than on rainwater supply.⁵⁹ Many of the bores are now dry and abandoned or have turned saline due to over-pumping.⁶⁰ Norfolk Island is served by several truck drivers who deliver bore water to dwellings and businesses as required. These operators were busy during the dry summers of 2009/10 and 2010/11, supplying bore water mainly to smaller houses and flats where their smaller rainwater tanks had run dry. As a result of increased demand during the dry summers, the bores became more heavily used by the operators, and the flow of water from the bores slowed and became less reliable. In one example, an operator was only able to draw three loads per day from one bore. When this happens, the operators start using more bores in order to meet customer demand, with the cumulative effect of depleting the whole island's groundwater supplies.

The evidence available suggests that Norfolk Island is becoming increasingly unsustainable in terms of water supply / security, even with a relatively static population. The requirement for water tanks to be installed to all new dwellings does satisfy the dwelling's needs most of the time, but not necessarily during a prolonged dry period. An increased population would place further stress on the island's groundwater reserves, particularly during prolonged dry periods when rainwater tank supplies are depleted.

(d) Climate change

Climate change could potentially affect Norfolk Island in a number of ways: sea level rises, changes in the frequency and amount of rainfall, changes in average temperatures and number of very hot days, and as a result of all of these possible changes, potential changes in tourist numbers, agricultural production, impact on the natural environment (particularly the marine and coastal environments) and on heritage structures near sea level, impacts on groundwater supplies, water security and on demand for electricity.

⁵⁹ Administration of Norfolk Island 2009, *Norfolk Island Natural Resource Management Plan*, Parsons Brinckerhoff Australia Pty Ltd, p.78.

⁶⁰ *Ibid*, p.76.

Changes in rainfall are discussed in point (c) above. Changes in temperature could also impact on the demand for water, and demand for electricity (discussed in the next section of this report). The most recent temperature estimates are around a 0.7-0.9°C increase above 1990 temperatures for coastal areas of Australia by 2030.⁶¹ Other possible impacts of climate change are not likely to be directly related to changes in the island's population.

2.4 Infrastructure limitations

(a) Electricity

Electricity is supplied to Norfolk Island via 6 main generators and 6 standby units at the Norfolk Island Electricity's powerhouse.⁶² In recent years, many households and businesses have installed solar power units with generous rebates offered by the Australian Government. While these solar units supplement the generators as a power source during the day, they are not operational at night, and the generators are often working at 75 to 80% capacity.⁶³ On cloudy days when there are a high number of tourists on the island, the generators are operating at even closer to capacity.⁶⁴ An increase in the ordinarily resident population, coupled with improved tourist numbers, would pose problems for power supply on Norfolk Island, unless and until improvements could be made at the powerhouse to increase capacity, or unless and until an equivalent number of households opt for alternative energy solutions and disconnect from the electricity grid.

(b) Sewerage

Effluent is disposed of either through the island's sewerage system ("the Water Assurance Scheme") or through on-site treatment systems, mainly septic tanks. The sewerage network is connected to properties located in the centre of the island, where most of the higher density developments are located. The sewerage system currently operates at up to 50-60% capacity of the 24-hour calculated capacity of the waste water treatment plant.⁶⁵ The network currently serves about 667 units, including 440 tourist accommodation units spread across 32 properties, approximately 111 dwellings, 97 commercial / club / church premises, and about 19 public authority premises.⁶⁶ The sewerage network would ideally also be extended and connected to up to 291 additional existing dwellings / units.⁶⁷

Operating on the assumption that tourist accommodation units generate as much effluent runoff as a typical dwelling and that commercial and public connections generate a load about 50% that of a typical dwelling, we can calculate how many more dwellings the sewerage system could handle before reaching 100% capacity, as follows:

- 111 dwellings + 440 tourist accommodation units
- 116 commercial / club / church / public units x 50% = equivalent of 58 dwellings
- Total actual or equivalent dwellings = 609
- $609 / 60(\%) = 10.15 \times 100 = 1015$ actual or equivalent dwellings
- 1015 minus 609, minus up to 291 additional connections to existing dwellings and accommodation units = capacity for approximately 115 newly constructed dwellings.

⁶¹ Source: http://www.publish.csiro.au/?act=view_file&file_id=CSIRO_CC_Chapter%203.pdf

⁶² Administration of Norfolk Island 2011, *Norfolk Island Annual Report 2009-2010*, p.77.

⁶³ John Christian, personal communication, 18 August 2011.

⁶⁴ Ibid.

⁶⁵ Neil Tavener, personal communication, 24 August 2011.

⁶⁶ Source: Administration of Norfolk Island Accounts system and Tourist Accommodation Statistics, 19 August 2011

⁶⁷ Neil Tavener, personal communication, 24 August 2011.

Report No.1 in this series shows that up to 3985 additional dwellings could be constructed in the Residential and Mixed Use zones. These zones roughly correspond to the extent of the Water Assurance Scheme, and any such dwellings would need to be connected to the sewer owing to the density of development. The calculations above show that expansion to this extent would certainly present a problem, as the system can cope with only 3% of the additional development that the Norfolk Island Plan can potentially allow for, unless additional works are carried out to the pumping stations to enable timing of / spreading the load outside of existing load periods. These reports focus on possible increases in population (i.e. not number of businesses) therefore possible increases in the number of retail or office units have not been considered in these calculations.

(c) Telecommunications

Telecommunications services are provided through Norfolk Telecom. While the mobile switch can accommodate a very large increase in traffic, the current Ericsson AXE 103 landline switch has a maximum capacity of 1,400 lines, of which approximately 1,250 are currently subscribed.⁶⁸ This landline switch would need to be completely replaced if there is demand for more than 1,400 lines, and replacement cost would be very expensive.⁶⁹

(d) Waste disposal

Waste Management on Norfolk Island is carried out through the Administration of Norfolk Island Waste Management Centre. The Centre keeps track of the amount of waste processed each year, in different categories of waste. The figures for the 2009/2010 financial year are as follows:

Figure 2: Waste processed, 2009/2010⁷⁰

Household refuse dumped / burnt	910 tonnes
Glass dumped*	90 tonnes
Glass crushed	70 tonnes
Aluminium cans crushed and palletized ready for shipping	12 tonnes
Truckloads of timber waste dumped / burnt	110
Builders Waste dumped @ Headstone by appointment	550 loads
Truckloads of steel waste dumped	30
Motor vehicles burnt	38
Truckloads of whitegoods dumped / burnt	28
Steel cans shredded / dumped	14 tonnes
Household food scraps dumped	135 tonnes
Aerosols decentered / dumped	1 tonne
Soft drink bottles collected for resale	4360
Vehicle batteries collected and prepared for shipping	4 tonnes
Mulch produced as a result of green waste processing	1550m3

* During 2009/2010 a glass crusher was commissioned. Prior to this, glass was dumped.

Any increase in population would naturally lead to a rise in the amount of waste received at the Waste Management Centre, and thereby a rise in the resources needed to process the waste.

⁶⁸ Kim Davies, personal communication, 22 August 2011.

⁶⁹ Ibid.

⁷⁰ Administration of Norfolk Island 2011, *Norfolk Island Annual Report 2009-2010*, p.72.

The percentage rise in population would likely be roughly proportional to the percentage rise in waste (e.g. if the average number of people present on Norfolk Island was to increase 20% from around 2300 to 2760, the amount of household refuse would likely rise from 910 tonnes to 1092 tonnes per year, and so on). If there was to be a modest rise in the island's population, and if additional resources were to be provided, the Waste Management Centre would have the capacity to process the resulting additional volumes of waste. A significant rise in the population could present difficulties for traffic movements through the Centre at busy periods, and could present difficulties for the storage of recyclable and hazardous waste at the Centre.

(e) Roads

An increasing population would result in increasing traffic and wear and tear on the island's road network. Minor to moderate population increases would not present a major issue in this regard, although the cost of road maintenance would likely increase. A sharp population increase, or a prolonged and steady population increase over time could lead to traffic congestion at peak times in Burnt Pine, with potential problems for pedestrians and at road intersections. These problems could be addressed with pedestrian crossings and traffic management devices.

2.5 Social and Economic factors that influence sustainability

(a) Cost of public services and infrastructure

The majority of the revenue raised by the Administration of Norfolk Island is in the form of taxation revenue and charges for goods and services (i.e. approximately 92% in 2010).⁷¹ A rise in population would likely result in a similar proportional rise in government revenue raised through taxes including G.S.T., which would help to pay for any rise in the cost of providing public services and infrastructure. A population increase caused by self-funded retirees would not affect the cost of primary and secondary education, but it would increase the need for health services. The potential additional costs of an ageing population are discussed further below.

(b) Age profile

A 1997 report noted the increase in the Aged Dependency Ratio on Norfolk Island (i.e. the ratio of those aged over 65 to the working age population, aged 15 to 64), from 12.2% in 1986 to 22.2% in 1996.⁷² By 2006, it had risen further, to 24.9%.⁷³ A more recent survey (2011) by Deloitte Access Economics ("*Wellbeing Report – Norfolk Island*") including data covering over 80% of Norfolk Island's population found that the age profile of Norfolk Island is "*notably older than that of the rest of Australia*", with the median age of 46 compared with 37 for the rest of Australia.⁷⁴ The survey found that Norfolk Island has a gap in the 15 to 24 age group, and a peak in the 55 to 64 age group (compared with the peak of 35 to 44 for the rest of Australia).⁷⁵

The report on the survey suggests that the older age profile of Norfolk Island could have implications for the level of health and community services required for future years, and the supply of labour.⁷⁶ The earlier 1997 report raised the concern that a high aged dependency ratio can be a serious problem if insufficient savings have been put away to fund the blowout in health and social security costs: a problem that would be compounded by a drop in the workforce.⁷⁷

⁷¹ Administration of Norfolk Island 2011, *Norfolk Island Annual Report 2009-2010*, p.82.

⁷² Source: <http://www.info.gov.nf/reports/External%20Reports/1997%20AccessEconomics.pdf>

⁷³ Source: http://www.info.gov.nf/reports/Reports/Census_2006.pdf

⁷⁴ Source: http://www.info.gov.nf/news/Information/wellbeing/Wellbeing%20Report_Final_27Apr2011.pdf

⁷⁵ Ibid, p.5.

⁷⁶ Ibid, p.i.

⁷⁷ Source: p.9, <http://www.info.gov.nf/reports/External%20Reports/1997%20AccessEconomics.pdf>

Australia's age profile, although not as concerning as that of Norfolk Island, also raises concerns of an ageing population. The Australian Government's recently published population strategy, "Sustainable Australia – Sustainable Communities" notes that an ageing population slows economic growth due to the increasing aged dependency ratio, impacting on future living standards.⁷⁸ The Australian Government's response to the ageing population issue is to enhance employment opportunities and conditions, and to enhance access to care services for the elderly.⁷⁹

An ageing population on Norfolk Island would put additional strain on the ability of the Norfolk Island Government to be able to pay for increased health and social security costs. However, the Norfolk Island Road Map includes actions to transfer these services to the Commonwealth.⁸⁰ Once this is done, an ageing population will continue to be an issue for Australia as a whole, but the increasing cost of health and social services will no longer be an issue for the Norfolk Island Government, and therefore an apparently ageing population is not an issue for the island's sustainability or well-being *per se*.

(c) Culture

At the time of the 2006 Census, 47.6% of Norfolk Island's "permanent population" was reported to be of Pitcairn descent.⁸¹ This proportion has remained static in recent times, at 48.0% in 2001 and 46.5% in 1996.⁸² In the more recent 2011 "Wellbeing Report", 31% of respondents said they were of Pitcairn ancestry, slightly less than Australian ancestry at 35%.⁸³ In terms of how residents identify themselves, 17% identified themselves as Pitcairners, 33% as Norfolk Islanders, the rest identifying themselves as Australian, New Zealander or other.⁸⁴

The unique culture of Pitcairn / Norfolk Islanders is well documented, and many Islanders have an intense attachment to the Pitcairn culture and a strong sense of belonging on Norfolk Island. This strong bond is even enshrined in legislation, most notably in the introduction to the (C'wealth) Norfolk Island Act 1979: "*And whereas the residents of Norfolk Island include descendants of the settlers from Pitcairn Island*"... "*and whereas the Parliament recognises the special relationship of the said descendants with Norfolk Island and their desire to preserve their traditions and culture...*"⁸⁵ The Norfolk language "Norf'k", which was previously banned from being spoken at school,⁸⁶ is now also enshrined in legislation, as a language that may be spoken and written "*freely and without interference or prejudice from government or other persons*", and furthermore it may now be taught at school.⁸⁷ The Norf'k language is recognized by UNESCO as a "definitely endangered" language, with 580 speakers.⁸⁸

⁷⁸ Source: <http://www.environment.gov.au/sustainability/population/publications/pubs/population-strategy.pdf>

⁷⁹ Ibid, p.55, 61.

⁸⁰ Source: <http://www.info.gov.nf/news/Information/Norfolk%20Island%20Road%20Map%20-%20202%20March%202011.pdf>

⁸¹ Source: http://www.info.gov.nf/reports/Reports/Census_2006.pdf

⁸² Source: http://www.info.gov.nf/reports/Reports/Census_2001.pdf

⁸³ Source: http://www.info.gov.nf/news/Information/wellbeing/Wellbeing%20Report_Final_27Apr2011.pdf

⁸⁴ Ibid.

⁸⁵ Source:

[http://www.info.gov.nf/legislation/NorfolkIslandAct/Norfolk%20Island%20Act%201979%20\(CIth\)as%20of%2015%20December%202010.doc](http://www.info.gov.nf/legislation/NorfolkIslandAct/Norfolk%20Island%20Act%201979%20(CIth)as%20of%2015%20December%202010.doc)

⁸⁶ Source: <http://unesdoc.unesco.org/images/0018/001865/186521e.pdf>

⁸⁷ Source: [http://www.info.gov.nf/legislation/NumberedActs/2004/NorfolkIslandLanguage\(Norf'k\)Act2004.doc](http://www.info.gov.nf/legislation/NumberedActs/2004/NorfolkIslandLanguage(Norf'k)Act2004.doc)

⁸⁸ Source: <http://www.guardian.co.uk/news/datablog/2011/apr/15/language-extinct-endangered>

*“The preservation of language is the preservation of unique culture and hence identity, a connection between land, the people and their language that serves to maintain community solidarity and self-esteem”.*⁸⁹

If the population was to rise as a result of non-Islanders migrating to Norfolk Island, there would inevitably be a drop in the proportion of the island’s population who are of Pitcairn descent and who identify themselves as Pitcairners or Norfolk Islanders. While minor fluctuations in these proportions are unlikely to have any noticeable effect, a significant drop in the proportion of the Islander population could threaten the culture and language in various ways, for example by decreasing the opportunities to speak the Norfolk language in social circles because there are more people around who do not understand the language. The death of a language can mean a loss of identity for the community involved.⁹⁰ An increasing proportion of non-Islanders in the community could influence political decision-making on various matters relating to cultural practices, for example the acceptance of the Whale Bird egg gathering season on Phillip Island, the grazing of cattle on common lands, or the collection of “Hi-Hi’s” from the foreshore.

(d) Other community values

Many residents on Norfolk Island place great value on the social benefits that come with being part of a small, isolated community. The most obvious of these on Norfolk Island include the low rates of theft / burglary, the friendly hand-waving of motorists, the relaxed pace of life, the fresh air, natural amenity of the island and wide open spaces, the close proximity of shops and services, housing affordability, and the close connection residents have with the community as a whole. The Norfolk Island community pulls together in times of need, and residents look after each other’s welfare in a manner far stronger than the formal “neighbourhood watch” schemes on mainland Australia. The “Wellbeing Report” shows that respondents value the feeling of personal safety on Norfolk Island, and that 48% of respondents provide voluntary service to an organization or group, compared with 20% of the population in the rest of Australia.⁹¹ On Norfolk Island there is a general desire to maintain and enhance the natural environment but at the same time promote growth in the economy, particularly the tourism industry.

As with culture, these other community values are unlikely to be threatened by a small rise in the population, but a sharp rise or a steady and prolonged rise in the population could threaten these values. As the proportion of the population who know and are familiar with each other drops, so to would the cohesiveness of the Norfolk Island community.

(e) Housing affordability

Housing affordability is a problem particularly in large cities, where the demand for housing, particularly closer to the Central Business District, is so high that people are forced to pay high prices for the relatively short supply of housing, to rent or to purchase. Housing affordability is typically less of a problem in rural areas and small communities, although there are some cases, such as tourist boom towns like Queenstown in New Zealand⁹², mining boom towns like Karratha,⁹³ and the refugee / public sector boom in Christmas Island as discussed earlier in this report. A community becomes less sustainable when the price of housing becomes so high that the average household cannot afford to purchase or rent a dwelling.

⁸⁹ Source: http://sydney.edu.au/arts/research_projects/delp/endedangered-essay.php

⁹⁰ Source: http://sydney.edu.au/arts/research_projects/delp/endedangered-essay.php

⁹¹ Source: http://www.info.gov.nf/news/Information/wellbeing/Wellbeing%20Report_Final_27Apr2011.pdf

⁹² Source: http://www.qldc.govt.nz/press_releases/article/144

⁹³ Source: <http://www.aph.gov.au/hansard/senate/commttee/S10710.pdf>

Norfolk Island experiences fluctuations in tourist numbers over the years, which can have an impact on the number of people working in the hospitality industry (including Temporary Entry Permit (T.E.P.) holders), which can in turn impact on housing availability (particularly rental properties). The impact on rentals and land values would appear however to be relatively minor.

The table below shows visitor arrivals since 1987, and the number of residents classified as “itinerant”, i.e. mainly T.E.P. holders.

Figure 3: Comparison of visitor arrivals and itinerant population⁹⁴

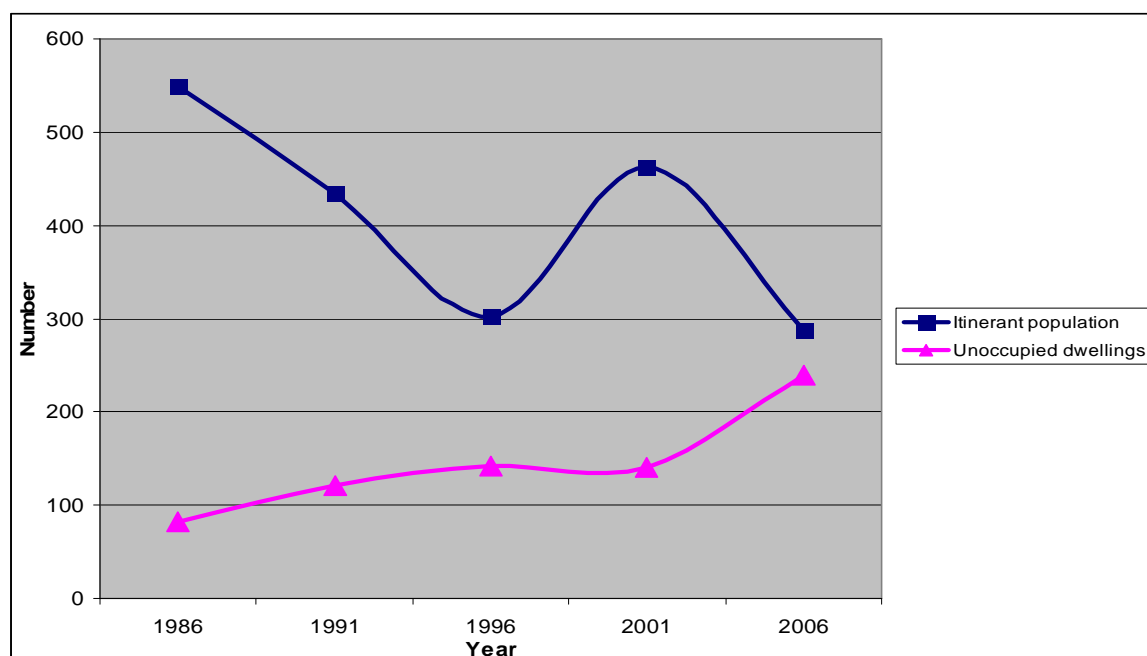
Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Yearly Totals	28737	29216	25344	25936	28180	27310	25217	29909	28196	30347	32774	37965
Itinerant population					434					302		

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Yearly Totals	36411	38462	37250	34845	39763	36356	29054	31887	34396	32877	27887	25255
Itinerant population			463					287				

The figures show that tourist arrivals were high between 1998 and 2003, and this corresponded with a relatively high number of T.E.P. holders on the island in 2001. The number of T.E.P. holders on the island was also relatively high in 1991, but the number of visitors that year was not particularly high. The number of T.E.P. holders on the island in more recent years has declined in line with visitor arrivals.

The figure below shows another comparison, this time between the itinerant population and the number of unoccupied dwellings at the time of the most recent censuses:

Figure 4: Comparison of itinerant population and number of unoccupied dwellings

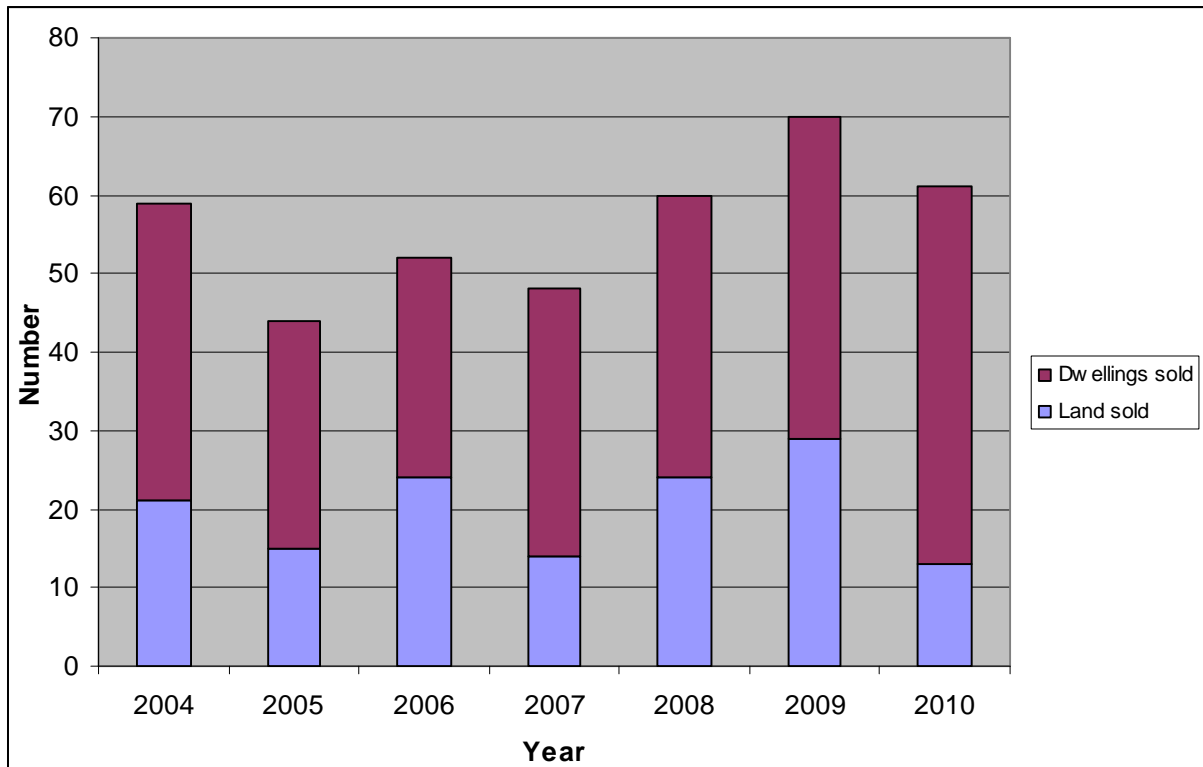


⁹⁴ Sources: http://www.info.gov.nf/reports/Visitor%20Statistics/ArriveTotal%201987_2011.xls & http://www.info.gov.nf/reports/Reports/Census_2006.pdf

The graph shows, unsurprisingly, a rough correlation between the itinerant population (most of whom would be renting dwellings) and the number of unoccupied dwellings.

Real Estate (properties for sale) is largely unaffected by visitor arrivals and the number of T.E.P. holders on the island. The graph below shows the number of vacant portions and the number of dwellings that changed ownership each year between 2004 and 2010. Although most of these properties were sold, others were transferred between family members or by court order.

Figure 5: Dwellings & vacant land sold, 2004 to 2010



The graph shows that the number of dwellings and vacant land that changed hands each year does not correlate with visitor arrivals and therefore the number of T.E.P. holders on the island, in fact the number of properties exchanged has risen since 2007 while the number of visitors has declined over this period.

If the population were to rise due to migration of self-funded retirees to Norfolk Island, it would be expected that most of these retirees would purchase a dwelling, rather than rent one. Nearly all properties for sale on Norfolk Island are multi-listed with all three Estate Agents, and one agency currently has 72 dwellings and 26 vacant portions for sale.⁹⁵ There are therefore more properties currently for sale than the number of properties sold in a year, which suggests that there is currently sufficient supply of property available for purchase if there happens to be increased demand generated by self-funded retirees. A sharp or a steady and prolonged rise in population could eventually lessen the supply of properties for sale, which would lead to an increase in prices.

⁹⁵ Lynne Moge, Norfolk Island Real Estate, personal communication, 29 August 2011.

3. Conclusion

This report finds that it may be appropriate and necessary to alter the population control mechanism for Norfolk Island, perhaps to controls that indirectly control the population as with the planning and land controls that exist for Lord Howe Island. Those controls (for Lord Howe Island) include an arbitrary limit on the number of new dwellings that may be approved and built by the year 2025, but those limits are not imposed on the basis of any notion of sustainability.

A sustainable population on Norfolk Island is determined by a wide range of factors, including environmental limits (e.g. water supply), and infrastructure limits (e.g. capacity of electricity, sewerage, telecommunications and road infrastructure). The sustainability of the Norfolk Island community is also determined to an extent by social or economic factors that are more difficult to quantify, such as the extent to which migration of new residents from Australia could eventually impact on or dilute the island's "way of life", including the Pitcairn / Norfolk Island culture, or could result in further fragmentation of the closely-knit community, community "spirit", and how increased demand for housing could lessen housing availability and affordability. A small population rise would probably not affect the island's sustainability with regard to these factors, but a sharp or steady and prolonged population rise could lead to increasingly adverse impacts.

The potential impacts on sustainability are summarized as follows:

<u>Paragraph in this report:</u>	<u>Impact on sustainability:</u>
2.3 (a) Carbon footprint:	Negligible impact (on the world).
2.3 (b) Carrying capacity:	Already unsustainable, would be even more unsustainable.
2.3 (c) Water supply:	Already becoming increasingly unsustainable.
2.3 (d) Climate change:	Negligible impact or already covered above.
2.4 (a) Electricity:	Electricity generators already up to 75-80% capacity.
2.4 (b) Sewerage:	Capacity for up to 115 new dwellings to sewerage network.
2.4 (c) Telecommunications:	1,250 current landline subscribers / current capacity of 1,400.
2.4 (d) Waste disposal:	Capacity for moderate increase in waste.
2.4 (e) Roads:	Increased need for road maintenance.
2.5 (a) Cost of services, etc:	Population increase = increase in tax revenue (sustainable).
2.5 (b) Ageing population	Sustainable subject to transfer of the cost of health service.
2.5 (c) Culture	Threatened if sharp / steady / prolonged population increase.
2.5 (d) Other values	Threatened if sharp / steady / prolonged population increase.
2.5 (e) Housing affordability	Threatened if sharp / steady / prolonged population increase.

Infrastructure limitations could be overcome with funding for upgrades, etc, but threats to cultural and community values cannot be so easily addressed. The limited water supply is a serious issue that cannot be overcome during prolonged dry periods, even with increased volumes for water tanks.

4. Next step

It is recommended that, prior to any decision to remove current migration controls to Norfolk Island, the Commonwealth Government, Norfolk Island Government, and the wider Norfolk Island community should firstly consider:

- (a) the various factors that contribute towards the notion of a sustainable community;
- (b) what limits if any should be imposed in order to maintain a sustainable community; and
- (c) how those limits should be imposed.

APPENDIX A

Rainwater storage for a typical dwelling on Norfolk Island (i.e. roof area of 215m² and water usage of 18,000 litres per month), 2008 to 2010
(Based on rainwater tank capacity of at least 75,000 litres – see April 2008).

					Roof area 215m ²			
2008/10	Rainfall	Rainfall - loss	x 0.8 efficiency		Left from previous month	Runoff	Used	Left in tank
2008 January	226	224	179.2		0	38.528	18	20.528
2008 February	243	241	192.8		20.528	41.452	18	43.98
2008 March	72	70	56		43.98	12.04	18	38.02
2008 April	324	322	257.6		38.02	55.384	18	75.404
2008 May	90	88	70.4		75.404	15.136	18	72.54
2008 June	31	29	23.2		72.54	4.988	18	59.528
2008 July	158	156	124.8		59.528	26.832	18	68.36
2008 August	91	89	71.2		68.36	15.308	18	65.668
2008 September	86	84	67.2		65.668	14.448	18	62.116
2008 October	26	24	19.2		62.116	4.128	18	48.244
2008 November	156	154	123.2		48.244	26.488	18	56.732
2008 December	78	76	60.8		56.732	13.072	18	51.804
2008 Year	1580	1556	1244.8			267.63	216	51.632
2009 January	65	63	50.4		51.804	10.836	18	44.64
2009 February	200	198	158.4		44.64	34.056	18	60.696
2009 March	61	59	47.2		60.696	10.148	18	52.844
2009 April	86	84	67.2		52.844	14.448	18	49.292
2009 May	36	34	27.2		49.292	5.848	18	37.14
2009 June	112	110	88		37.14	18.92	18	38.06
2009 July	134	132	105.6		38.06	22.704	18	42.764
2009 August	35	33	26.4		42.764	5.676	18	30.44
2009 September	117	115	92		30.44	19.78	18	32.22
2009 October	31	29	23.2		32.22	4.988	18	19.208
2009 November	8	6	4.8		19.208	1.032	18	2.24
2009 December	15	13	10.4		2.24	2.236	18	-13.524
2009 Year	901	877	701.6			150.84	216	-65.156
2010 January	13	11	8.8		-13.524	1.892	18	-29.632
2010 February	30	28	22.4		-29.632	4.816	18	-42.816
2010 March	24	22	17.6		-42.816	3.784	18	-57.032
2010 April	94	92	73.6		-57.032	15.824	18	-59.208
2010 May	109	107	85.6		-59.208	18.404	18	-58.804
2010 June	96	94	75.2		-58.804	16.168	18	-60.636
2010 July	45	43	34.4		-60.636	7.396	18	-71.24
2010 August	170	168	134.4		-71.24	28.896	18	-60.344
2010 September	93	91	72.8		-60.344	15.652	18	-62.692
2010 October	42	40	32		-62.692	6.88	18	-73.812
2010 November	48	46	36.8		-73.812	7.912	18	-83.9
2010 December	20	18	14.4		-83.9	3.096	18	-98.804
2010 Year	783	759	607.2			130.55	216	-85.452