

# Economic and Social Opportunities to Develop Northern Australia

## Overview

- 2.1 This chapter commences with an overview of the unique geography and demography of Northern Australia and proceeds with a broad discussion of the opportunities for developing Northern Australia, building on issues presented in the Government's *Green Paper on Developing Northern Australia*. A number of innovative ideas presented in evidence are also discussed which extend the range of potential activities in the North, while others relate to economic sustainability.

## Geography and Demography

- 2.2 As noted in Chapter 1, the Committee has defined Northern Australia as the area above the Tropic of Capricorn but for the purposes of this inquiry it includes all of the Northern Territory. This is an area comprising almost half of Australia's land mass and has diverse and unique landscapes ranging from tropical rainforests, wetlands, to grassland savannah and desert. It supports a rich biodiversity with many endemic species.
- 2.3 Northern Australia also includes offshore islands as diverse as the Torres Strait Islands to Christmas and the Cocos Islands in the Indian Ocean.
- 2.4 Northern Australia has seven World Heritage Sites. These were declared because of their inherent natural and scientific values.<sup>1</sup> Kakadu and

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<sup>1</sup> The Great Barrier Reef, the Wet Tropics of Queensland, Kakadu National Park, Uluru-Kata Tjuta, Ningaloo Coast, Purnululu National Park, Riversleigh Australian Fossil Mammal Site.

Uluru-Kata Tjuta are also on the World Heritage List because of their cultural values.

- 2.5 The northern climate is dominated by a humid wet season from October to April (average maximum temperatures above 33 degrees centigrade) followed by a cooler less humid dry season (averaging 30 degrees centigrade in the far north and mid-20s in the south). Some 60 per cent of Australia's rainfall falls in Northern Australia and is concentrated along the northern coastal regions – some areas experience over 1000 mm of rain. Rainfall decreases further south and west with the Pilbara and Alice Springs experiencing low annual rainfall of less than 350 mm.<sup>2</sup>
- 2.6 Over the past century Northern Australia has warmed by between 0.7 and 0.9 degrees centigrade and this trend is expected to continue. Rainfall too has changed:
- Since 1970, rainfall has increased by about 30 to 50 mm each decade in parts of the Northern Territory and northern Western Australia. Conversely, eastern and central Queensland have seen a drying trend of the same amount each decade for the same period.<sup>3</sup>
- 2.7 Whether this change will continue is unclear.<sup>4</sup>
- 2.8 Living in this environment is a small population of just over 1 million people (five per cent of Australia's total population) residing mainly along the coastline of north-east Queensland and in Darwin. Elsewhere the region is sparsely populated.<sup>5</sup>
- 2.9 The demography of Northern Australia is significantly different from that of the rest of Australia:
- population growth has been 1.9 per cent over the past decade – compared with 1.5 per cent national average (this varies, however, with some areas exceeding and other areas being much less than the national average);<sup>6</sup>
  - 22 per cent of the population is less than 15 years old; only 3.7 per cent are aged 75 and over – compared to 19 per cent and 6.3 per cent nationally; and

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2 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 5.

3 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 6, citing CSIRO, 2012, *Climate Change Science Information Paper: Australian Rainfall – Past, Present and Future*.

4 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 6.

5 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 2.

6 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 2.

- over 16 per cent of the population identifies as Aboriginal and Torres Strait Islander – compared to 3 per cent nationally.<sup>7</sup>
- 2.10 The Northern Australian Aboriginal and Torres Strait Islander population is much younger than the non-indigenous population and is growing at a faster rate.<sup>8</sup>
- 2.11 In summary, Northern Australia is a diverse and distinctive geographic region with a different demographic to that of Australia generally. This offers unique advantages, but also presents significant challenges.

## Aboriginal and Torres Strait Islander Engagement

- 2.12 The Committee acknowledges and recognises that Aboriginal and Torres Strait Islanders have rights as Traditional Owners and/or Native Title holders over significant areas of Northern Australia, both land and sea. In addition the Committee respects the centrality of Aboriginal and Torres Strait Islanders' language and culture. The Committee acknowledges that any future development of Northern Australia will require the engagement of Aboriginal and Torres Strait Islander peoples, not only as land owners but as participants and potentially partners and leaders in the development process.
- 2.13 The Committee recognises that outside of the major metropolitan centres, Aboriginal and Torres Strait Islander peoples are a clear majority of the population and the largest landholders. This is particularly the case for remote communities, which are dispersed widely across Northern Australia.
- 2.14 Many of those who live in these communities live in poverty, have poor educational and health outcomes and few employment opportunities. In addition many live in communities where there are chronic housing shortages and where roads, other infrastructure, telecommunications and health services are wanting. It is not the purpose of this Committee to inquire into these matters and it notes that the responsibility for them rests across governments. Nevertheless, it is apparent that if Aboriginal and Torres Strait Islander people are to participate equally in the development of the North these fundamental measures of poverty and disadvantage need to be addressed.
- 2.15 The Committee notes that the Aboriginal and Torres Strait Islander population of Northern Australia remain largely as an untapped source of

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7 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 5.

8 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 5.

labour in a region where there have historically been chronic labour shortages. However, it is apparent that unless and until there is a dramatic improvement in educational and training outcomes for Aboriginal and Torres Strait Islander people in the region, then it is unlikely that they will have significant penetration of or be in demand generally in the broader labour market.

- 2.16 The Committee acknowledges and has heard evidence of significant Aboriginal employment programs which have been developed by and for Aboriginal and Torres Strait Islander communities. Land and sea rangers are a standout in this regard as is the western Arnhem land initiative on carbon farming.
- 2.17 The Committee noted the engagement of Aboriginal and Torres Strait Islanders across the North with various industry sectors, particularly the agricultural, pastoral, mining, tourism as well as the fishing industries, both recreational and commercial.
- 2.18 The Committee also noted the high level of engagement of Aboriginal and Torres Strait Islander people across the North with Aboriginal and Torres Strait Islander organisations, among them Land Councils, resource centres and health and legal services as well as providers of other services, including housing. The Committee understands that these organisations, grounded in the community, are often the most significant employers of Aboriginal and Torres Strait Islander people within the region and that they provide important pathways for training and employment.
- 2.19 The Committee has also been privileged to see the desire by some Aboriginal and Torres Strait Islander people, even in the more remote communities, to set up and run small businesses. The Committee was able to observe the success that can be achieved when an Aboriginal or Torres Strait Islander business targets Aboriginal or Torres Strait Islander workers as their workforce. Rusca Brothers, referred to later in this report, are a standout in this regard.
- 2.20 Land tenure is an issue which has been raised by many, particularly by non-Aboriginal and Torres Strait Islander Australians, during the course of the inquiry. Some of this concern has been expressed around perceived delays in native title processes or because of an apparent inability to access land held as inalienable freehold title under the Northern Territory Aboriginal Land Rights (Northern Territory) Act (ALRA). However, there was also strong evidence from both the Northern (NLC) and Central Land Councils (CLC) disputing assertions around the ALRA title pointing to commercial and private leases agreements under section 19 of the Act. There was recognition, particularly by the NLC, that there had been administrative issues which had caused some delays in the processing of

leases in the past, but that this was now no longer the case. The Committee heard no evidence that Aboriginal people were seeking to alter the underlying inalienable freehold title over Aboriginal land in the Northern Territory and given statutory recognition under the ALRA. On the contrary, evidence from the Land Councils in the Territory was that Traditional Owners were happy to use the current provisions of the Act for both commercial and private development proposals.

## Trade

- 2.21 The Green Paper commented that ‘by 2050 Asia could account for half of global output, trade and investment’. As a consequence of rapid industrialisation and urbanisation in Asia, demand for resources will increase. Also, it is projected that by 2020 ‘more than half of the world’s middle class will be in Asia [and] will demand better quality goods and a wider range of services, creating export opportunities.’<sup>9</sup>
- 2.22 The proximity of Northern Australia to Asia provides an opportunity to take advantage of this anticipated growth. Northern Australia already makes a significant contribution to Australia’s trade efforts. The Department of Foreign Affairs and Trade (DFAT) advised:
- Australia’s trade in goods and services reached a new high in 2013, with two-way trade growing to \$645 billion (from \$624 billion in 2012). Minerals and fuels, especially iron ore and coal, play a vital role in Australia’s economic success, making up around half of the nation’s exports (\$157 billion in 2013). Northern Australia is a key driver of this export sector – in 2013, northern Australia was responsible for over two-thirds of Australia’s minerals and fuels exports.<sup>10</sup>
- 2.23 Further information is provided in the Green Paper which noted that in 2013, 55 per cent of Australia’s total exports by sea (\$121 billion) was through northern ports. Figure 8 in the Green Paper provides information on the value of various commodities exported through Northern Australian ports in 2012–13. This indicates that about 80 per cent comprised coal, petroleum, gas, and crude materials such as iron ore and uranium.<sup>11</sup>

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9 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 18.

10 DFAT, *Submission 163*, p. 4.

11 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, pp. 10, 11.

- 2.24 During the inquiry, the Committee received evidence of plans and proposals to upgrade a number of ports in Northern Australia. Such upgrades would increase the amount and variety of trade through those ports. Detailed information is included in Chapter 3.
- 2.25 The DFAT advised that Northern Australia also attracted significant foreign investment – the ‘majority of foreign direct investment in Australia’s mining industry in 2012 (totalling \$206 billion) focused on the northern states.’<sup>12</sup>
- 2.26 Much of the opportunities identified in the rest of this chapter, if realised, will directly contribute to Australia’s trade with the rest of the world.

## Resources Sector

- 2.27 The Green Paper commented that Northern Australia contained:
- ... a number of the world’s largest resource provinces and mines, including the Pilbara iron ore province, Bowen Basin coal province, Argyle Diamond Mine, Mount Isa lead-zinc province and the world’s largest manganese mine at Groote Eylandt. ... there are vast quantities of bauxite at Gove in the Northern Territory and Weipa on Cape York in Queensland.<sup>13</sup>
- 2.28 There are also phosphate mines near Mount Isa and on Christmas Island.<sup>14</sup>
- 2.29 The Green Paper adds that:
- \$24 billion worth of projects have been completed;
  - \$231 billion of projects have been committed;
  - \$147 billion are at the feasibility stage; and
  - \$81 billion have been publicly announced.<sup>15</sup>
- 2.30 Despite this high level of activity, Northern Australia provides significant additional opportunities for the resources sector. The Association of Mining and Exploration Companies stated that Northern Australia is highly prospective for a range of minerals and that the area remains ‘significantly under explored.’ Further, outside of a few key centres, Northern Australia is ‘devoid of key infrastructure that could be

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12 DFAT, *Submission 163*, p. 4.

13 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 7.

14 Geoscience Australia, *Australian Atlas of Minerals Resources, Mines and Processing Centres, Phosphate* <[www.australianminesatlas.gov.au/aimr/commodity/phosphate.html#phosphate](http://www.australianminesatlas.gov.au/aimr/commodity/phosphate.html#phosphate)> August 2014.

15 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 7.

reasonably be expected to turn the minerals prospectively into operating mines.’<sup>16</sup>

2.31 The Australian Petroleum Production and Exploration Association (APPEA) advised that Australia’s total gas resources were estimated at 819 trillion cubic feet; oil reserves were estimated at 5656 million barrels.<sup>17</sup> Potential areas in Northern Australia identified in evidence were:

- Northern Territory – six onshore basins with estimated potential reserves of 240 trillion cubic feet of ‘unconventional gas’;<sup>18</sup>
- the Browse Basin, Western Australia – possibly comparable to the North West Shelf,<sup>19</sup> with potentially ‘14.9 [trillion cubic feet] of dry gas and 441.2 million barrels of condensate’;<sup>20</sup>
- the Canning Basin, Western Australia – potentially ‘the sixth or seventh largest deposit of shale gas in the world’;<sup>21</sup> and
- the Kidson Sub-Basin, Western Australia – with the potential for significant oil reserves.<sup>22</sup>

2.32 There is also the imperative to extend existing mines, especially where they are crucial to the viability of nearby towns. Two examples were provided to the Committee:

- the extension of bauxite mining near Weipa through the development of the South of Embley deposit – this would have a mine life of about 40 years;<sup>23</sup> and
- extending the life of the existing Mount Isa copper, lead and zinc mine to 2060 through expanded mining and concentrate production.<sup>24</sup>

2.33 The potential for mining development to stimulate regional growth was highlighted in discussion of the Galilee Basin near Bowen in Northern Queensland.

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16 Mr Graham Short, National Policy Officer, *Committee Hansard*, Perth, 7 April 2014, p. 59.

17 APPEA, *Submission 242*, pp. 3, 4.

18 Northern Territory Government, *Submission 92.2*, p. 3.

19 Mr Paul Martin, Deputy Chief Executive Officer, Shire of Broome, *Committee Hansard*, Broome, 5 May 2014, p. 17.

20 Woodside, *Browse FLNG* <[www.woodside.com.au/our-business/browse/Pages/default.aspx](http://www.woodside.com.au/our-business/browse/Pages/default.aspx)> June 2014.

21 Mr Martin Pritchard, Executive Director, Environs Kimberley, *Committee Hansard*, Perth, 7 April 2014, p. 7.

22 Dr Roger Higgins, *Committee Hansard*, Port Hedland, 10 April 2014, p. 22.

23 Mr Brad Welsh, Manager, Community Relations, Rio Tinto Alcan, *Committee Hansard*, Weipa, 3 July 2014, p. 35.

24 Mr David Rynne, Director of Economics and Infrastructure, Queensland Resources Council, *Committee Hansard*, Brisbane, 20 June 2014, p. 16.

- 2.34 The Galilee Basin region covers an area of approximately 247 000 km<sup>2</sup> and contains one of the world's largest inferred resources of high-volatile, low-sulphur thermal coal. Unlike the Bowen Basin, this resource has not yet been exploited. The Queensland Government advises that infrastructure investments of over \$20 billion for up to 10 years will be required before this resource can be marketed.<sup>25</sup>
- 2.35 The Whitsunday region, near both the Bowen and Galilee Basins, currently derives 25 per cent of its GDP from mining. The Whitsunday Regional Council notes that improved rail infrastructure from the West, through the Whitsunday region and connecting with developments at Abbot Point, would be fundamental to provide a 'pit to port' solution for the production, transportation and export of coal product across the North.<sup>26</sup> The Northern Queensland Bulk Ports recommended development of port facilities at Abbot Point and at Mackay to provide 'unique long-term solutions to underpin the economic growth of Northern Australia'.<sup>27</sup>
- 2.36 As well as opening up new projects or extending mine life there is the opportunity to leverage Australia's involvement in gas energy resource production.
- 2.37 Involvement in the emerging technology of floating liquefied natural gas plants (FLNG) was seen by ConocoPhillips as presenting a significant opportunity for Australia to 'become a global leader in LNG development, through the delivery of support services.' ConocoPhillips added:
- ... Darwin is well positioned to create engineering and procurement centres of research excellence through the North Australian Centre for Oil and Gas at Charles Darwin University.<sup>28</sup>
- 2.38 The possibility of using existing natural gas supplies to reduce dependence on imported diesel was raised by Mobile LNG. The proposal was to liquefy natural gas taken from existing gas pipelines at four LNG hubs and transport it to end users via specialised tanks using existing transport networks. The LNG would be used in 'power stations or liquid fuel for shipping, mine-haul vehicles, heavy duty vehicles, road transport and rail locomotives.' Mobile LNG suggested that such a system could achieve significant cost savings:
- ... reductions in the cost of living through cheaper fuel are in the order of 20 to 40 per cent, largely depending on the treatment of

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25 Premier of Queensland, *Submission 219*, pp. 10, 22.

26 The ongoing expansion of this facility is estimated to increase the current 50Mtpa capacity to 190Mtpa. Whitsunday Regional Council, *Submission 140*, p. 2.

27 North Queensland Bulk Ports, *Submission 57*, p. 9.

28 ConocoPhillips, *Submission 137*, p. 5.



the diesel fuel rebate. [It would] improve Australia's export competitiveness at the same time as reducing our carbon footprint and increasing energy security.<sup>29</sup>

- 2.39 In addition to mining traditional commodities, new minerals are being prospected which have the potential to leverage new downstream manufacturing.
- 2.40 Northern Minerals advised that it had three heavy rare earth element exploration projects in the East Kimberley and Tanami regions, one of which had the potential to 'define a mineral resource of 28 084 tonnes of total rare earth oxide.'<sup>30</sup> Currently the plan was to ship the oxide offshore for refining, but there was an opportunity for downstream processing in Australia.<sup>31</sup> Northern Minerals also drew attention to the creation in China of a vertically integrated supply chain exploiting Chinese control of the supply of rare earths. This had resulted in a 'specialist industry in Baotou that provides significant employment and local economic development opportunities in the region.'<sup>32</sup> Products include MRI scanners which sell for approximately \$1 million.<sup>33</sup>
- 2.41 Other products can arise using the waste from the mining and gas industries.
- 2.42 The Chamber of Minerals and Energy of Western Australia told the Committee that many gas fields remain undeveloped because of their carbon dioxide emissions or carbon dioxide content and that there would be a 'huge benefit' if that gas could be put into new processes.<sup>34</sup>
- 2.43 An example was provided by ConocoPhillips who told the Committee that helium was extracted from the waste carbon dioxide from its LNG plant in Darwin.<sup>35</sup> More speculative was the research described by Curtin University for carbon dioxide waste streams to be converted to methane (natural gas) using solar energy and rare earth catalysts. Such technology, Curtin University advised, could be available in 10 years.<sup>36</sup> Carbon

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29 Mr Andrew White, Managing Director, *Committee Hansard*, Perth, 7 April 2014, p. 13.

30 Northern Minerals, *Submission 98*, pp. 1-2.

31 Mr George Bauk, Managing Director and Chief Executive Officer, *Committee Hansard*, Perth, 7 April 2014, p. 66.

32 Northern Minerals, *Submission 98*, p. 5.

33 Mr George Bauk, *Committee Hansard*, Perth, 7 April 2014, p. 66.

34 Mr William Witham, Manager North West, *Committee Hansard*, Perth, 7 April 2014, p. 66.

35 Mr Robin Antrobus, General Manager, Government and Public Affairs, *Committee Hansard*, Perth, 7 April 2014, p. 65.

36 Mr Boyd Milligan, Adjunct Senior Research Fellow, Curtin University Sustainability Policy Institute, *Committee Hansard*, Perth, 7 April 2014, pp. 9-10

dioxide gas is also being used to grow algae in a project run by the James Cook University (JCU).<sup>37</sup>

- 2.44 Two further examples of wastes becoming an asset were provided to the Committee:
- Karratha and Districts Chamber of Commerce and Industry advised that mine dewatering had resulted in the irrigation production of sorghum for cattle feed in areas in the Pilbara;<sup>38</sup> and
  - a company developed by the Ashburton Aboriginal Corporation was converting used cooking oil from mining camps into bio diesel and selling it to Rio Tinto for use in their 'drill and blast' activities.<sup>39</sup>

## Primary Production Sector

- 2.45 The Green Paper provided an overview of the primary production activity in Northern Australia, including the pastoral, agricultural, and fisheries and aquaculture industries, and commented on opportunities to expand the sector. The Green Paper also noted that a ministerial working group has been created to:

... look at the merits of already well developed proposals for new and existing dams, as well as other water infrastructure options such as storing water in underground aquifers or water reuse.<sup>40</sup>

## Pastoral Industry

- 2.46 The Commonwealth Scientific and Industrial Research Organisation (CSIRO) advised that the beef industry is the nation's second largest agricultural industry and that 45 per cent of the 28 million national herd is in Northern Australia. As well, over 90 per cent (690 000 head) of live cattle exports are from Northern Australia.<sup>41</sup>
- 2.47 Herd numbers or productivity could be increased by:
- Restricting cattle to small paddocks with drinking trough water for short periods and then moving them to fresh paddocks. Beetaloo Station near Katherine, Northern Territory (NT), has doubled its 40 000 herd by this method and expected to increase herd numbers to 200 000.

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37 JCU, *Submission 251*, p. 4.

38 Mr John Lally, Chief Executive Officer, *Committee Hansard*, Karratha, 9 April 2014, p. 27.

39 Dr Stuart Gunzburg, Enterprise and Research and Development Manager, *Committee Hansard*, Tom Price, 8 April 2014, p. 17.

40 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, pp. 9, 28.

41 CSIRO, *Submission 108*, p. 8.

The practice preserves the pasture cover, increasing water holding capacity and decreasing weed infestation.<sup>42</sup>

- The Committee notes the CSIRO report on small-scale irrigation, utilising groundwater, opportunities for the Northern Australia beef industry. The report commented that a high proportion of pastoral properties in the North may have the suitable soils and water availability to grow forage on-property. This could drive positive change to beef production systems and boost productivity.<sup>43</sup> An example of such a system was shown to the Committee when it visited GoGo Station, Fitzroy Crossing, Western Australia (WA). Forage sorghum was being grown through pivot irrigation as well as by rain-fed cultivation. Cattle were ‘finished off’ on this sorghum before being moved off the property to market. The Committee was also shown a large undeveloped area with potential for further cropping.
- The use of water pumped from Rio Tinto’s Pilbara Marandoo Mine has enabled the Hamersley Agriculture Project. The Project uses 20 gigalitres per year pumped from the mine to irrigate 840 hectares under hay production. The resulting annual production of 30 000 tonnes of hay supply Rio Tinto’s pastoral stations in the Pilbara.<sup>44</sup>
- Improving herd quality through finding a market for unproductive cattle. The Australian Agricultural Company is opening an abattoir in Darwin which will include processing of older unproductive cows, thereby reducing the herd age and increasing productivity.<sup>45</sup>
- A similar operation is proposed near Broome in the first instance to produce manufacturing beef from cattle that are too old or unsuitable for live export. The Broome project aims also to provide local processing of cattle that have been finished using irrigated crops. The vision is to value add locally and introduce additional market options besides live exports.<sup>46</sup>

2.48 The viability of establishing an abattoir in north-west Queensland has been assessed by the North-West Queensland’s Strategic Development Study Working Group. The aim would be to ‘process local beef cattle to minimise live cattle transport costs.’ It commented that there was potential

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42 Major General Hon. Michael Jeffery, Chairman, Outcomes Australia – Soils for Life, *Committee Hansard*, Perth, 7 April 2014, p. 46.

43 CSIRO, *Mosaic Irrigation for the Northern Australian Beef Industry – An Assessment of Sustainability and Potential, Synthesis Report*, December 2013, p. 9.

44 ABC Landline, 21 May 2013, *Making Hay* <[www.abc.net.au/landline/content/2013/s3741731.htm](http://www.abc.net.au/landline/content/2013/s3741731.htm)> August 2014.

45 Mr Jason Strong, Managing Director, *Committee Hansard*, Brisbane, 30 May 2014, p. 71.

46 Mr Jack Burton, Yeeda Station, *Committee Hansard*, Broome, 5 May 2014, p. 62.

for 100 000 head per annum, but this could increase if there was expanded irrigation in the Flinders and Gilbert Rivers:

There is currently high demand for cattle from existing abattoirs. However the reduced transport costs and carcass shrink, and the potential Meat Standards Australia (MSA) premium benefits (combined benefits estimated at around \$4 million per annum) would place the local facility in a stronger competitive position to receive North-West cattle.<sup>47</sup>

2.49 The assessment concluded that while the project was currently ‘marginally viable’, it could improve with:

- Increasing demand in the Asian market
- Increased number of head
- Synergies from integrated grazing, processing, and distribution
- Increased regional collaboration and branding (differentiate North-West product and achieve a price premium)
- Establishing a ‘carcass works’ model (e.g. quartering only) to reduce labour and input requirements.<sup>48</sup>

2.50 There may also be the potential to increase the harvesting of Northern Australia’s feral animals such as camels. The Ngaanyatjarra Council stated that there were some 200 000 to 300 000 feral camels and that it was exporting thousands of camels a year to North Africa:

... we try and average 250 camels a week while we are mustering, and we try and muster 10 months of the year. They are selling into North Africa, and they have a very strong market there. One thing I have learned about the camel business is we don’t have to create a market; there is a huge market for camel meat.<sup>49</sup>

2.51 The Council added that it wished to build its annual capacity from 10 000 to 20 000 and to construct holding paddocks to even out the numbers it could supply over the year.<sup>50</sup>

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47 North-West Queensland’s Strategic Development Study Working Group, *North-West Queensland’s Strategic Development Study, the Final, May 2014*, pp. 57, 58.

48 North-West Queensland’s Strategic Development Study Working Group, *North-West Queensland’s Strategic Development Study, the Final, May 2014*, p. 58.

49 Mr Alexander Knight, Manager, Land and Culture, *Committee Hansard*, Alice Springs, 19 May 2014, pp. 23, 24.

50 Mr Alexander Knight, *Committee Hansard*, Alice Springs, 19 May 2014, p. 24.

## Horticulture and Agriculture Industry

### Horticulture

- 2.52 Growcom, which represents Queensland fruit and vegetable growers, provided production figures for northern Queensland. These amounted to over \$600 million worth (almost \$725 million if central Queensland is included).<sup>51</sup> Growcom told the Committee that there were significant opportunities for developing existing growing areas in every major region in north Queensland.<sup>52</sup> There was a need to focus on exports for future growth, however, because growth opportunities in the domestic market were limited.<sup>53</sup>
- 2.53 In the Northern Territory production amounted to \$180 million annually:
- ... the Northern Territory is home to a substantial Vietnamese farming community. [The] Vietnamese produce around \$60 million in mangoes and Asian vegetables. Theirs is a story of small family operations which have grown into strong businesses through determined development, gains and losses, but eventual sustainability and growth. Their model of business is typical of the success stories in our region.<sup>54</sup>
- 2.54 The Northern Territory Farmers Association advised that 'further growth in horticultural crops will come from focused research such as export mangoes.'<sup>55</sup>

### Cropping

- 2.55 The CSIRO advised that there was currently 135 000 hectares of irrigated agriculture in Northern Australia, but with at least 17 million hectares of suitable soil the 'availability of water suggests that a much greater area is physically possible.'<sup>56</sup> This is likely to be an underestimate – CSIRO stated:
- When you focus on a catchment or two at a time we tend to find that the water and soil resources are greater than you would determine by taking a broad look across all of the north. So, to put it in a nutshell again, the more you look the more you tend to find.<sup>57</sup>

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51 Growcom, *Submission 99*, p. 3.

52 Ms Rachel Mackenzie, Chief Advocate, *Committee Hansard*, Brisbane, 30 May 2014, p. 46.

53 Ms Rachel Mackenzie, *Committee Hansard*, Brisbane, 30 May 2014, p. 45.

54 Northern Territory Farmers Association, *Submission 166*, p. 2.

55 Northern Territory Farmers Association, *Submission 166*, p. 3.

56 CSIRO, *Submission 108*, p. 10.

57 Dr Peter Stone, Deputy Director, *Committee Hansard*, Brisbane, 30 May 2014, p. 15.

- 2.56 As an example, CSIRO drew attention to its study of the Flinders and Gilbert project which identified ‘over 1000 gigalitres of water resources that could be captured, stored and used in those two catchments’, and ‘around 11 million hectares of irrigable soil’.<sup>58</sup>
- 2.57 Pinnacle Pocket Consulting, while emphasising that it was not being critical of the CSIRO study, also argued that the amount of water and suitable land area identified in the study was underestimated.<sup>59</sup>
- 2.58 The CSIRO’s submission identified crops which might successfully be grown in the North:
- cotton – there were 600 000 hectares potentially available in 21 catchments;
  - grain and the pasture legumes, especially soy bean, to supply Indonesian markets (there were strong benefits in rotating with sugarcane production);
  - sugarcane for both sugar and for ethanol; and
  - wheat – high yields were possible when grown with adequate moisture.<sup>60</sup>
- 2.59 The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) added to this list:
- coarse grains for servicing the pig and poultry sectors in China and Southeast Asia; and
  - guar – a food additive and an organic base for fracking in the coal seam gas industry.<sup>61</sup>
- 2.60 The opportunity for sugarcane was highlighted by Canegrowers who, referring just to Queensland, stated:
- Sugar production around the world is expected to increase by 65 per cent over the next 20 years ...
- There are 1.5 million hectares suitable for sugarcane production that were identified by the Queensland land audit. If all of that land were to be produced, the Australian industry would increase by 400 per cent, we would be the second-largest sugar producer in the world and we could be looking at developing 100 000 jobs in western Cape York ...

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58 Dr Peter Stone, *Committee Hansard*, Brisbane, 30 May 2014, p. 15.

59 Pinnacle Pocket Consulting, *Submission 231.1*, p. 1.

60 CSIRO, *Submission 108*, p. 10.

61 Ms Patricia Gleeson, Senior Economist, *Committee Hansard*, Canberra, 21 March 2014, p. 33.

Australia is in a unique position where we can increase our production. Brazil, Indonesia, India, Thailand are reaching the limits of their physical capacity. We are not.<sup>62</sup>

- 2.61 During the inquiry, the Committee inspected the Flinders–O’Connell Irrigation Scheme proposal at Richmond, and the Etheridge Integrated Agriculture Project (EIAP) at Georgetown, Qld, and was advised of a potential project in north-west Queensland.
- 2.62 The Richmond proposal involved ‘a weir in the Flinders River which diverted water into a 200 000 ML storage.’ All the water would be used for irrigation before the temperatures rose in the summer and caused excessive evaporation. Richmond Shire Council advised that a diverse range of crops could be grown on the black soils in the area.<sup>63</sup>
- 2.63 At Georgetown it was proposed to divert ‘less than 10 per cent’<sup>64</sup> of the Gilbert catchment flood flows from the Einasleigh and Etheridge Rivers into a two million ML off-river storage.<sup>65</sup> Integrated Food and Energy Developments Pty Ltd (IFED) stated that the storage would ‘hold 3½ years worth of water.’<sup>66</sup> This water would be used to trickle tape irrigate 65 000 hectares of sugarcane and guar bean. The project would also incorporate other infrastructure such as an electricity co-generation plant, primary processing plants, as well as the aquaculture of red claw crayfish.<sup>67</sup>
- 2.64 Concerns have been raised about the sustainability of the IFED project and these are discussed later in the chapter.
- 2.65 The Committee was also advised by the Napranum Aboriginal Council of some of 130 000 hectares of land in the Billy’s Lagoon area, north-west Queensland which was suitable for sorghum and other grains. An earlier project in the area had not proceeded because of the *Wild Rivers Act 2005* and the *Vegetation Management Act 1999*.<sup>68</sup>

## Forestry

- 2.66 The CSIRO advised the Committee that the Australian forestry industry’s 2020 vision paper ‘clearly identified significant opportunities for

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62 Mr Jonathan Pavetto, Policy Officer, *Committee Hansard*, Brisbane, 30 May 2014, p. 22.

63 Councillor John Wharton, Mayor, *Committee Hansard*, Normanton, 2 July 2014, p. 12.

64 Mr David Hassum, Director, IFED, *Committee Hansard*, Brisbane, 20 June 2014, p. 13.

65 IFED, *Submission 81*, p. 12.

66 Mr David Hassum, *Committee Hansard*, Brisbane, 20 June 2014, p. 13.

67 IFED, *Submission 81*, p. 12; *Submission 81, Exhibit 75: Integrated Business Model EIAP – Project Components*, p. 1.

68 Councillor Philemon Mene, *Committee Hansard*, Weipa, 3 July 2014, pp. 2–3.

expansion of the forestry industry in Northern Australia' and cited lower land costs as an advantage.<sup>69</sup>

- 2.67 The TFS Corporation, a company growing sandalwood plantations, stated that it had about 7600 hectares of plantation and planned to increase this area to 22.5 thousand hectares over 15 years.<sup>70</sup> One hectare of plantation when harvested at 15 years would be expected to produce over 300 kilograms of sandalwood oil at a value of \$1.6 million.<sup>71</sup> Because of its high value product, TFS Corporation considered itself to be an economic driver of development:

... when you purchase a parcel of land the percentage of soil suitable for sandalwood is not the whole parcel of land.

... we are only interested in that piece of soil which we can grow our sandalwood on but because of its high value we can provide the infrastructure for the development and those people who grow melons, chia or whatever can get the benefit of that and become sublessees to us. We see that as a win-win, we see that trees and food can go together, but where you have got a high end value product like sandalwood it becomes an economic driver.<sup>72</sup>

- 2.68 Other forestry operations were drawn to the Committee's attention by African Mahogany Australia (AMA) which advised that it had some 14 000 hectares of African mahogany plantations in the Douglas Daly region, Northern Territory. Sustainable harvesting of 200 000 tonnes per annum was due to commence in 2017. It was predicted that the timber would sell for \$4000 per tonne.<sup>73</sup>
- 2.69 The AMA also pointed to plantations of acacia on the Tiwi Islands which were just beginning commercial production and were providing 100 jobs.<sup>74</sup>
- 2.70 Further opportunities were suggested through producing biopellets from woody weeds. (The Committee is not suggesting that woody weeds be grown in plantations, but that processing such plants is a way of controlling these pests and provides an example of adding value to forestry by-products.)

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69 CSIRO, *Submission 108*, p. 10.

70 Hon. Christopher Ellison, Advisory Director, *Committee Hansard*, Perth, 7 April 2014, pp. 40, 42.

71 TFS Corporation, *Submission 250*, p. 15.

72 Hon. Christopher Ellison, *Committee Hansard*, Perth, 7 April 2014, p. 43.

73 AMA, *Submission No. 158*, pp. 1, 2.

74 AMA, *Submission No. 158*, p. 3.



- 2.71 Harvesting Sunshine, quoting research carried out in 1998, advised that *Mimosa pigra* could be processed 'to produce a useful fuel gas, and that the gas can be converted to electricity using commercially available system components.'<sup>75</sup>
- 2.72 A similar project was raised by Pioneer Corporation Pty Ltd which proposed to convert the woody weed prickly Acacia, *Acacia nilotica*, into wood briquettes and torrefied briquettes.<sup>76</sup> These would be used as a feedstock for electricity generation. Pioneer Corporation estimated that over 100 million tonnes of biomass was available in Northern Queensland covering some 7.5 million hectares of grazing land. It proposed to 'clear large areas of infestation and create significant new industries throughout the region', such as electricity generation, biochar and methanol production. Forestry estates would be established to replace heavy acacia infestations.<sup>77</sup>

## Carbon Farming

- 2.73 Northern Australia has a large proportion of savannah country which is prone to seasonal fires. Carbon farming involves early dry season controlled burning to pre-empt late-season hot wildfires. There is a net reduction of carbon emissions because early season cold fires produce half the carbon dioxide emissions of late season hot fires.
- 2.74 As an example, 28 000 square kilometres of the western Arnhem Land escarpment is managed as an offset to ConocoPhillips's liquefied natural gas plant in Darwin. Each year it has delivered 'way over the 100 000 tonnes of abatement' that was required.<sup>78</sup>
- 2.75 Other benefits identified by the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) were:
- the employment of a substantial number of Aboriginal and Torres Strait Islanders;<sup>79</sup>
  - employment leading to the creation of a 'work ready' labour force;
  - the creation of systems of governance to manage the income from the project;

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75 Harvesting Sunshine, *Submission 52*, p. 11.

76 Pioneer Corporation Pty Ltd, *Submission 21*.

77 Etheridge Shire Council, *Exhibit 84: Report, Pioneer Corporation Pty Ltd, Converting Prickly Acacia from Weed of National Significance to Sustainable Fuel and Energy*, pp. 4, 5, 9, 10.

78 Mr Jeremy Russell-Smith, Consultant, NAILSMA, *Committee Hansard*, Darwin, 19 August 2014, p. 37.

79 Mr Jeremy Russell-Smith, *Committee Hansard*, Darwin, 19 August 2014, p. 38.

- the ability of Aboriginal and Torres Strait Islander peoples to reinvest this income into other enterprises, such as tourism;<sup>80</sup> and
- improvements in biodiversity.<sup>81</sup>

## Fisheries and Aquaculture

2.76 The CSIRO advised that fisheries and aquaculture was worth \$232 million to the Northern Australian economy during 2006–07, and had grown by around 14 per cent ‘over the last five years’.<sup>82</sup> Australia has a significant advantage compared to other aquaculture nations because its product is known to be of high quality.

2.77 The CSIRO also commented that:

Wild fisheries appear to be managed sustainably, and the 2009 Northern Australia Land and Water Science review indicated little potential to increase yield.<sup>83</sup>

2.78 The viability of some commercial fisheries are under pressure because of fishing zone closures. Mackay Reef Fish Supplies contested the basis of some decisions:

There is the Coral Sea closure that just went through. There was no research done on that. The Gulf of Carpentaria, you are looking at that again. There was no scientific research done on the spotted mackerel of Bowen. That was done purely politically. And if anybody was involved in the Great Barrier Reef Marine Park fiasco, we were shunted pretty heavily on that, although we worked with GBRMP in various areas but the paper just got turned over.<sup>84</sup>

2.79 Regarding aquaculture, however, CSIRO indicated there was potential to increase on-land pond aquaculture developments:

Recent CSIRO advances in tropical aquaculture technology, together with emerging commercial interest in large-scale prawn farming (~\$1 billion potential value) indicate a strong trajectory for the growth of tropical aquaculture in northern Australia. Research has identified significant potential for the development of large-scale, saltwater pond aquaculture in coastal regions of northern

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80 Mr Peter Whitehead, Carbon Farming Contractor, NAILSMA, *Committee Hansard*, Darwin, 19 August 2014, p. 39.

81 Mr Jeremy Russell-Smith, *Committee Hansard*, Darwin, 19 August 2014, p. 42.

82 CSIRO, *Submission 108*, p. 11.

83 CSIRO, *Submission 108*, p. 12.

84 Mr David John Caracciolo, Director, *Committee Hansard*, Mackay, 31 May 2014, p. 16.

Australia, (about 528 000 hectares in NT, 594 000 hectares in Qld and 516 000 hectares in WA).<sup>85</sup>

- 2.80 Further, there had been ‘significant advances in environmental management technology’ in the marine aquaculture sector which would enable saltwater aquaculture to ‘play a much more significant role in responding to the huge demand for high-quality seafood from Asian markets.’<sup>86</sup>
- 2.81 The Committee notes the recent Western Australia Environmental Protection Authority approval for a Kimberley Aquaculture Development Zone north-west of Derby. It is expected that the 2000 hectares zone could produce up to 20 000 tonnes of finfish like barramundi per year.<sup>87</sup> The Port Hedland Chamber of Commerce and Industry stated that aquaculture projects in the zone were now subject to a 21-day approval process.<sup>88</sup>
- 2.82 Seafarms Group Ltd advised the Committee that it was developing Project Sea Dragon in Northern Australia:
- ... to meet the growing global demand for seafood at a scale that enables it to leverage Australia’s comparative advantages in biosecurity, marine science, access to key raw materials and expertise in large scale resource and agricultural development.<sup>89</sup>
- 2.83 At full-scale, production would amount to ‘over 100 000 tonnes of high-quality, black tiger prawns on grow-out farms comprising approximately 10 000 hectares.’
- The total [capital expenditure] is in excess of AUD\$1.2 bn and the project would employ some 1400 [full-time equivalents] in the Project’s key operational centres of Darwin, Kununurra and the farm site in western Northern Territory.<sup>90</sup>
- 2.84 In Queensland there is considerable potential to expand aquaculture from the present 700 hectares production area. The Australian Prawn Farmers Association, however, conveyed its frustration at being constrained in its plans to expand and thereby create an additional 200 jobs and increase revenues from \$70 million to \$412 million.<sup>91</sup>

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85 CSIRO, *Submission 108*, p. 12.

86 CSIRO, *Submission 108*, pp. 12–13.

87 ABC Rural, *Kimberley Aquaculture Zone given Environmental Green Light*, <[www.abc.net.au/news/2014-02-18/kimberley-aquaculture-zone/5267608](http://www.abc.net.au/news/2014-02-18/kimberley-aquaculture-zone/5267608)>June 2014.

88 Mr Owen Hightower, Vice-President, *Committee Hansard*, Port Hedland, 10 April 2014, p. 18.

89 Seafarms Group Ltd, *Submission No. 287*, p. 1.

90 Seafarms Group Ltd, *Submission No. 287*, p. 1.

91 Australian Prawn Farmers Association, *Submission No. 271*, p. 2.

- 2.85 Besides traditional aquaculture such as fish and prawns, the Committee was told about two innovative projects which could herald two new directions for aquaculture.
- 2.86 During its visit to the IFED project the Committee was briefed on the proposal to grow redclaw crayfish. Redclaw is native to the Gilbert River system and can command \$20–32 a kilogram. Redclaw production is integrated into the proposed IFED project and is an example of a potential new industry which could be integral to agricultural irrigation projects:
- Redclaw consume bacteria, protozoa and algae which grow in the pond and decompose organic matter. Bagasse (as bales placed in the pond), blood and bone and biologically loaded treated water and other by-products from the bio-processing precinct will provide feedstock which will be supplemented by stock feed supplied as pellets. The nutrient rich water from the ponds will then be irrigated onto sugar cane and guar bean.<sup>92</sup>
- 2.87 A second potential industry is highlighted by research being undertaken by the JCU. At the Centre for Macroalgal Resources and Biotechnology in Townsville, carbon dioxide is being used as a feedstock in the production of macro algae:
- In this process the algal biomass can be used to produce renewable fuels (biocrude), biomass energy, algal meal as an animal feedstock, functional food and feeds, as well as biochar and fertilisers.<sup>93</sup>
- 2.88 The technology, which could use carbon dioxide from a variety of sources such as coal-based power stations and natural gas facilities, is at the commercialisation stage:
- Outcomes have resulted in the implementation of pilot-scale culture at multiple sites. Our next step is to support the development of an intensive industry hub to deliver innovative and sustainable tropical agriculture systems through the commercialisation of our technology.<sup>94</sup>
- 2.89 The use of algae to create biofuel was highlighted at the August 2014 Congress of the International Association for Plant Biotechnology in

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92 IFED, *Exhibit 50: Redclaw*, pp. 1–2.

93 JCU, Centre for Macroalgal Resources and Biotechnology, *Exhibit 51: Research, Development and Implementation*, p. 1.

94 JCU, Centre for Macroalgal Resources and Biotechnology, *Exhibit 51: Research, Development and Implementation*, p. 2.

Melbourne. Oil derived from algae has been successfully used to fuel aircraft jet engines.<sup>95</sup>

## Tourism Sector

2.90 Austrade stated that the future for Northern Australia was not as a mass-market tourist destination, but instead was a region which offered unique experiences and unique products:

It does have areas of unique natural beauty. It does have unique cultural attractions that cannot be found anywhere else in the world. So it does have a number of unique selling points that can help differentiate it from other places around the world ...<sup>96</sup>

2.91 Austrade added that the Government was working with State and Territory governments and industry on a tourism 2020 strategy which was seeking to 'double the amount of overnight visitor expenditure in Australia from a baseline of \$70 billion in 2009 to between \$115 billion and \$140 billion by 2020.' The key strategy was to 'move Australia into offering higher quality product.'<sup>97</sup>

2.92 There are two components of the tourism sector in Australia: domestic tourism; and international tourism. Tourism Tropical North Queensland stated that domestic tourism was a large component in the Cairns region amounting to some 67 per cent of visitors.<sup>98</sup>

2.93 While domestic tourism is very important to Northern Australia the Committee focuses on international tourism because of its high value potential and importance to Australia's balance of trade.

2.94 The Tourism and Transport Forum (TTF) advised:

Northern Australia's proximity to Asia continues to present a significant opportunity to capitalise on the increasing propensity of these countries to travel, with Darwin representing one of the closest hubs for international and connecting services. Cairns is closer to Indonesia than it is to Sydney, while Broome sits on the doorstep of Malaysia and Singapore and is in China's time zone. ... While China has seen the most significant growth ... there has

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95 Sydney Morning Herald, *Algae-Based Biofuels a Sustainable Way to Fly*, [www.smh.com.au/national/education/algaebased-biofuels-a-sustainable-way-to-fly-20140814-103zm9.html](http://www.smh.com.au/national/education/algaebased-biofuels-a-sustainable-way-to-fly-20140814-103zm9.html) > August 2014.

96 Mr Nicolas Dowie, Assistant General Manager, Tourism Policy Branch, *Committee Hansard*, Canberra, 21 March 2014, p. 63.

97 Mr Nicolas Dowie, *Committee Hansard*, Canberra, 21 March 2014, p. 63.

98 Mr Alex de Waal, Chief Executive Officer, *Committee Hansard*, Cairns, 28 April 2014, p. 12.

been significant growth from a number of other Asian markets, including India, Indonesia, Malaysia and Korea.<sup>99</sup>

- 2.95 Cummins Economics, while recognising the potential value of the Asian market, cautioned that other markets should not be overlooked:

Largely unnoticed however, has been the spread in European visitation from the traditional UK, Germany, Switzerland and Scandinavian sources to southern and central Europe. Potential advances in the future also seem likely to come from Eastern Europe, Russia and the Middle East.<sup>100</sup>

- 2.96 The submission from the Northern Territory Government identified tourism as its largest economic sector and biggest employer – it was worth \$1.5 billion annually to the local economy. It added there was potential to achieve a \$2.2 billion contribution to the Northern Territory economy by 2020.<sup>101</sup>

- 2.97 The Queensland Government also noted tourism growth potential:

From Queensland’s perspective, there is strong tourism growth potential for high value tourism businesses such as nature-based, eco-tourism and adventure tourism activities, particularly surrounding: self-drive four-wheel drive adventuring, sport fishing, wildlife spotting, exploring land and waterscape features, cultural activities, historic sites, and the natural environment.<sup>102</sup>

- 2.98 Cruise shipping is a major component of the North Queensland tourism market. Ports North stated that cruise ship visits to Cairns were projected to grow ‘to more than 180 by 2025, delivering \$436 million over the next 25 years.’<sup>103</sup>

- 2.99 Further, the north of Western Australia was identified by Australia’s North West Tourism as being ‘well-placed geographically to capitalise from the opportunity to encourage further cruise ship visits’ because of its close proximity to Southeast Asia which was ‘one of the world’s busiest cruise regions’.<sup>104</sup>

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99 TTF, *Submission 237*, p. 9.

100 Cummings Economics, *Exhibit 76: Australia’s Tropical North – Initial Challenges, Historical Development, Current Progress and Future Prospects*, p. 163.

101 Northern Territory Government, *Submission 92*, p. 13.

102 Queensland Government, *Submission 219*, p. 30.

103 Mr Brett Moller, Chairman, *Committee Hansard*, Cairns, 28 April 2014, p. 21.

104 Australia’s North West Tourism, *Submission 262*, p. 5.

- 2.100 Australia's North West Tourism added that there was opportunity to grow the adventure cruise market along the Kimberley coast without changing port infrastructure because smaller ships were involved.<sup>105</sup>
- 2.101 Advance Cairns stated that major investment in tourist infrastructure was required to maintain competitiveness particularly in the premium end of the market.<sup>106</sup>
- 2.102 The Committee is aware of several developments along the Queensland coast aimed at the premium tourist:
- Great Keppel Island which includes '750 eco-resort villas and 300 eco-resort apartments';
  - proposals to develop a '300 room, five-star resort with fine dining and recreational facilities' at Yeppoon;<sup>107</sup> and
  - Aquis Project – a Great Barrier Reef resort proposed for Yorkeys Knob budgeted at over \$8 billion and including eight luxury hotels catering for up to 12 000 guests. The resort complex would include a championship golf course, theatres and casinos.<sup>108</sup>
- 2.103 Re-opening the casino at the Christmas Island Resort has been raised by the owner of the resort, Soft Star Pty Ltd. A casino would assist the economic viability of the territory and the development of non-casino tourism through increased flight activity. While phosphate mining will continue for the next 20 years there is a need to diversify the economy as the detention centre activity declines. Soft Star added that when the casino operated between 1993 and 1998 it had employed almost 400 staff, about one third being permanent residents of Christmas Island. The casino had been mothballed but could be reopened at relatively short notice.<sup>109</sup>
- 2.104 At the tourist activity level, cultural tourism is an important component. The Godinymayin Yijard Rivers Arts and Culture Centre stated:
- Indigenous culture is a major draw card for a large proportion of international tourists as well as a significant number of domestic visitors. While there is a small section of the market that is interested in fully immersive Indigenous cultural experiences, there is a much larger proportion looking for easily accessible, affordable but still authentic and engaging experiences.<sup>110</sup>

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105 Mr Glenn Chidlow, Chief Executive Officer, *Committee Hansard*, Broome, 5 May 2014, p. 44.

106 Advance Cairns, *Submission 69*, p. 6.

107 Capricorn Enterprise, *Submission 17.1*, p. 4.

108 Aquis Great Barrier Reef Resort: Project Overview <[www.aquiscasino.com/project-overview](http://www.aquiscasino.com/project-overview)> July 2014.

109 Soft Star Pty Ltd, *Submission 310*, p. 1.

110 Godinymayin Yijard Rivers Arts and Culture Centre, *Submission 269*, p. 3.

- 2.105 Lirrwi Tourism advised that it was planning to provide visitors to Arnhem Land with ‘diverse Aboriginal experiences’, and was developing new tours aimed at high yield markets including:
- women’s experiences to appeal to corporate customers and independent travellers;
  - expeditionary cruise ships and air touring groups focusing on the communities of Yirrkala and Galiwinku;
  - art tours targeting collectors of Aboriginal art which would visit the art centres of major Arnhem Land communities; and
  - sport fishing tours involving contemporary and traditional fishing techniques hosted by Yolngu guides.<sup>111</sup>
- 2.106 A similar enterprise is being operated by the Northern Territory Indigenous Tours which caters for small groups at the high end of the tourist market – in particular visitors tend to be interested in the Aboriginal perspective of contemporary Australia:
- ... a lot of people also want to know about the politics of Aboriginal people in Australia. We tend to talk a lot more about that compared to the flora and fauna in the Territory.<sup>112</sup>
- 2.107 Industrial tourism is also an emerging market. The Committee notes that the Hoochery Distillery in Kununurra operates daily tours of the rum distillery. Sugar mills also often conduct tours of their operations.
- 2.108 Mackay Tourism stated that there was also growing interest in mining tours and that ‘the chance for a visitor to experience an operational mine is a huge attraction’:
- It is a small but growing niche market that has potential. When governments are discussing potential mine developments, tourism could be brought to the table to put into their heads the question, ‘Have you considered tourism opportunities?’ even if they are training up a private tour company to run the tours on their behalf and they train them in their own workplace safety procedures. I have seen that work in other areas.<sup>113</sup>
- 2.109 Similar sentiments were expressed by the Shire of Ashburton which stated that tourists could:
- ... have a look at the Burrup, have a look at iron ore trains, see them loaded, see the ships in the ports – everything ... We were at Fortescue Metals opening the other night and they had all the

111 Lirrwi Tourism, *Submission 286*, pp. 5, 64.

112 Ms Tess Atie, Managing Director, *Committee Hansard*, Darwin, 19 August 2014, p. 3.

113 Mr Schwer, General Manager, *Committee Hansard*, Mackay, 31 May 2014, pp. 31, 32.



Chinese there, they had the Japanese there, the Singaporeans there. All our ore goes there. I am sure we could attract the tourists from China and Japan.<sup>114</sup>

- 2.110 The Committee was also told of tours at the Barramundi Discovery Centre in Karumba where visitors could look at the 'various stages of the hatchery process.'<sup>115</sup> The Committee suggests that similar tours could be arranged for other aquaculture projects.
- 2.111 Recreational fishing is also a potential growth area. The Amateur Fishermen's Association of the NT (AFANT) commented that such tourism was 'one of the largest growth industries in the Territory', and that popular recreational fishing areas such as the Daly River and King Ash Bay had experienced 'growth in the order of 4 to 10 times'.<sup>116</sup>
- 2.112 Opportunities to engage Aboriginal communities on Cape York Peninsula in providing recreational fishing services has been explored by the Cape York Sustainable Futures. Its research found there was considerable interest from Aboriginal people in becoming involved in this aspect of the tourism industry.<sup>117</sup>
- 2.113 In northern Queensland recreational fishing is booming. There are tensions however with commercial fisheries which is in decline in deference to recreational fishing. Debbie's Seafood told the Committee:
- ... the recreational fishers are in no way a small group. Decisions seem to be made to suit them. The snapper is one which has gone through in the last 18 months. Snapper needed protection but because there is no commercial fishery on snapper, there was no-one else to point the finger at except the recreational sector and that just got thrown out and thrown aside.<sup>118</sup>
- 2.114 Mackay Reef Fish Supplies added there was a requirement for commercial fishers in the Barrier Reef Fishery to document details of their catch so that the Great Barrier Reef Marine Park Authority could manage the fish stock. In contrast, there was little control on the recreational fishing sector:

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114 Councillor Kerry White, Shire President, *Committee Hansard*, Tom Price, 8 April 2014, p. 4.

115 Mr Oliver Pring, Director of Corporate Services, Carpentaria Shire Council, *Committee Hansard*, Normanton, 2 July 2014, p. 4.

116 AFANT, *Submission 266*, p. 3.

117 Cape York Sustainable Futures, *Submission 212, Appendix 10, Identifying Indigenous Business Opportunities in the Recreational Fishing Tourism Industry on Cape York Peninsula*.

118 Mr Mark Ahern, Manager, *Committee Hansard*, Mackay, 31 May 2014, p. 16.

There are thousands of boats in the recreational sector and people are supposed to catch four fish each, or six fish, whatever it is.

Who knows what they catch?<sup>119</sup>

- 2.115 In conclusion, Northern Australia's tourism sector is underperforming. Tourism Northern Territory stated that 'since 2000 we have seen international visitation drop by 51.3 per cent at Kakadu and by in excess of 35 per cent at Uluru.'<sup>120</sup> This view was shared by TFF which stated:

... a tenth of international visitors to Australia make their way to the Great Barrier Reef, northern Australia's other drawcards record far lower scores. The greater Port Douglas area, including Cape Tribulation and the Daintree, features in around four per cent of international visitors' itineraries, with only a slightly smaller number visiting either the Whitsunday Islands or Fraser Island.

... Uluru, only persuades three per cent of international visitors to make the trip to see the rock and Kata Tjuta ... only one per cent visit either Kakadu or Litchfield national parks. WA's key northern attractions, Ningaloo Marine Park and Purnululuonly (Bungle Bungles), capture less than a third of one per cent respectively of international tourists.

While the images of these iconic natural assets are often used to attract international visitors to Australia, the powerful marketing pull of the major cities, Sydney and Melbourne, ultimately delivers them a far greater share of international visitors than regional areas. The challenge for northern Australia is to convert the enormous recognition of its natural icons into greater visitation numbers.<sup>121</sup>

## Manufacturing Sector

- 2.116 The Green Paper noted that 'much of the success of Northern Australia's economy had been tied to the mining and energy sector', but that 'reliance on a single industry (especially one prone to boom and bust cycles) poses risks'. It advocated diversification of the economy and proceeded to

119 Mr David John Caracciolo, Director, *Committee Hansard*, Mackay, 31 May 2014, p. 16.

120 Mr Tony Mayell, Chief Executive Officer, *Committee Hansard*, Darwin, 20 May 2014, p. 78.

121 TFF, *Submission 237*, p. 10.

identify opportunities beyond mining and resources, such as agriculture and tourism.<sup>122</sup>

- 2.117 The creation of special economic zones (SEZs) could be a way to diversify Northern Australia's economy by encouraging broader industry investment. Traditionally, SEZs have targeted manufacturing rather than the 'development of extractive industries such as agriculture and resources'.<sup>123</sup>

## Special Economic Zones

- 2.118 Several regions were identified in submissions – including the Pilbara<sup>124</sup>, the Kimberley<sup>125</sup> and the Tennant Creek/Barkly Region of the Northern Territory<sup>126</sup> – identified as possible locations for a SEZ. North Queensland Airports advocated creating an SEZ 'particularly in and around airports',<sup>127</sup> and proposed Cairns as a preferred site.<sup>128</sup>
- 2.119 As part of its detailed analysis of the benefits of special economic zones, Australians for Northern Development and Economic Vision (ANDEV) argued that 'the optimal policy is to create one SEZ across all of Northern Australia with one SEZ agency established as a one-stop shop agency for State, Territory and Federal laws'.<sup>129</sup>
- 2.120 The particular features of the suggested SEZs varied between proposals, but included:
- reduced State/Territory and Federal taxation;
  - streamlined regulatory requirements;
  - reduced foreign investment thresholds across all sectors, excluding defence; and
  - tax incentivised infrastructure bonds to attract Australian and overseas capital into infrastructure projects.<sup>130</sup>
- 2.121 ANDEV suggested that the major benefits of SEZs, 'as proven across the world in successful SEZs' included:
- driving economic growth, jobs, income tax revenues, and exports;

122 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 25.

123 Chamber of Commerce and Industry of Western Australia, *Submission 160*, p. 6.

124 Pilbara Regional Council, *Submission 25*.

125 Broome Chamber of Commerce and Industry, *Submission 125*, pp. 12–14.

126 Tennant Creek Regional Economic Development Committee, *Submission 100*, p. 2.

127 Mr Kevin Brown, Chief Executive Officer, North Queensland Airports, *Committee Hansard*, Cairns, 28 April 2014, p. 5.

128 North Queensland Airports, *Submission 185*, p. 17.

129 ANDEV, *Submission 147*, p. 3.

130 ANDEV, *Submission 147*, p. 3.

- attracting major private investments from overseas capital markets;
  - creating partnerships on investments/projects with neighbouring nations thereby cementing foreign relations;
  - developing under-utilised resources and increasing returns on investments;
  - strengthening existing settlements and creating new viable permanent settlements; and
  - increasing employment opportunities for Aboriginal communities.<sup>131</sup>
- 2.122 The Broome Chamber of Commerce and Industry (BCCI) supported the creation of a SEZ for the Kimberley and was confident that this would ‘over a period of 20 years, more than repay the short term loss of revenue to governments.’<sup>132</sup>
- 2.123 Several submissions did not favour the creation of SEZs. The Institute of Chartered Accountants Australia observed that:
- ... the use of tax incentives to create ‘economic zones’ in one part of the country creates tax competition within our national income tax system (with attendant constitutional concerns) and leads to similar requests elsewhere from those outside the eligibility boundary.<sup>133</sup>
- 2.124 The Chamber of Commerce and Industry of Western Australia (CCIWA) also opposed the creation of a SEZ, stating that it:
- ... simply creates distortions across factor markets and results in inefficiencies in the allocation of resources across the broader economy. [Also] regional development and sustainable economic growth would be tied to the continuation of the special conditions associated with the SEZ. There is also little evidence to support the notion that SEZs are a viable, successful policy option in other jurisdictions around the world.<sup>134</sup>
- 2.125 The CCIWA noted that SEZs typically occurred in developing countries ‘with significant government oversight and control over economic activity’ and often resulted in ‘investment, taxation and employment conditions which are similar to a developed country, such as Shenzhen in China’.<sup>135</sup>

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131 ANDEV, *Submission 147*, p. 4.

132 BCCI, *Submission 125*, p. 14.

133 Institute of Chartered Accountants Australia, *Submission 126*, p. 2.

134 CCIWA, *Submission 160*, p. 6.

135 CCIWA, *Submission 160*, p. 6.

- 2.126 The Chamber of Commerce and Industry Queensland (CCIQ) was also unsupportive of SEZs, but suggested that ‘in the short term there is a case to afford some degree of preferential tax treatment to lure business to that area’. CCIQ was adamant, however, that the preferential treatment of an area such as an SEZ should not be permanent, nor even medium term.<sup>136</sup>
- 2.127 The Green Paper acknowledged the benefit of SEZs but noted the implications for other parts of the country. It raised a further constraint—The Constitution:
- For example, federal taxation cannot discriminate between states (or within states) and preference cannot be given to one state (or part of a state) over another in laws or regulations of trade, commerce or revenue.<sup>137</sup>
- 2.128 The Green Paper commented however that the merits of SEZs in Northern Australia needed to be carefully examined.<sup>138</sup>

## Other Potential Manufacturing Initiatives

- 2.129 The Iron Boomerang project, if realised, could provide leverage for manufacturing in northern Queensland and the Pilbara, Western Australia. The proponents of this project believe that this innovative ‘outside the square’ concept would place iron ore smelters in both regions, with coal supplied by rail from Queensland and iron ore supplied by rail from the Pilbara.<sup>139</sup> Further details are provided in Chapter 3.

## Medical Sector—Rapid Response to Disasters

- 2.130 The Committee has received evidence from the National Critical Care and Trauma Response Centre (NCCTRC) about its ability to respond to disasters both in Australia and overseas.
- 2.131 The NCCTRC was established following the Bali terrorist attack in 2005. It provides ‘a rapidly deployable, well-trained team of nurses, allied health professionals, logisticians and doctors who can respond to particular disasters’ and are drawn from across Australia and New Zealand.<sup>140</sup>

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136 Mr Nick Behrens, General Manager Advocacy, *Committee Hansard*, Brisbane, 30 May 2014, p. 10.

137 Australian Government, *Green Paper on Developing Northern Australia*, Canberra, 2014, pp. 55–6.

138 Australian Government, *Green Paper on Developing Northern Australia*, Canberra, 2014, pp. 55–6.

139 East West Lines Parks Ltd, *Submission 6*.

140 Dr Leonard Notaras, Chief Executive, Department of Health, NT, *Committee Hansard*, Darwin, 19 August 2014, p. 31.

- 2.132 Depending on the size of team required to be deployed, a response to an emergency can be mounted within 24 hours. NCCTRC described the process in responding to Cyclone Haiyan which impacted the Philippines city of Tacloban in November 2013:
- ... we were activated by the interdepartmental emergency task force at 11 am on Monday, and we had the full team assembled in Darwin by midnight that night. All the equipment was at RAAF Base Darwin by 0100 hours that night. The delay then became access to the Tacloban city airport.<sup>141</sup>
- 2.133 The NCCTRC conducts regular training exercises for potential new medical personnel as well as to provide refresher training. It is also in discussion with WA Health and INPEX to provide a disaster medical cache in Broome and at RAAF Truscott to enable a local rapid disaster response to, for example, oil rig disasters.<sup>142</sup>

## Research and Education Sector

- 2.134 The Green Paper notes that Northern Australia has 'six universities, a number of research institutes and centres, more than 200 registered training organisations and approximately 50 technical and further education institutions.'<sup>143</sup> The Green Paper also identified the concept of 'tropical economy' as an idea worth exploring:
- As part of one of the world's few developed countries that includes the tropics, northern Australia businesses and institutions can meet the needs of tropical markets ...
- Several institutions are actively engaged in the tropical economy.<sup>144</sup>

## Opportunities for Research Collaboration

- 2.135 With the expertise currently in Northern Australia's institutions there is a significant opportunity for collaboration to create research hubs.
- 2.136 Support for positioning northern Australia 'as a training hub for health professionals for Australia's near neighbours (eg: Papua New Guinea,

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141 Dr Nicholas Coatsworth, Acting Executive Director, *Committee Hansard*, Darwin, 19 August 2014, p. 33.

142 Dr Nicholas Coatsworth, *Committee Hansard*, Darwin, 19 August 2014, p. 33.

143 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 13.

144 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 24.

- Solomon Islands, Timor and Indonesia' was provided by the Greater Northern Australia Regional Training Network (GNARTN).<sup>145</sup>
- 2.137 The value of co-location of expertise was espoused by Charles Darwin University (CDU):
- ... you create not only a critical mass and you share the costs and opportunities from expensive infrastructure ... When you put students in that environment with young, absorbing minds, you create an incredibly exciting place where they want to engage, network and see new opportunities.<sup>146</sup>
- 2.138 The Menzies School of Health Research added that it was important to base the research locally because local researchers were the people who would work with government, and communities and health services and 'really understand things and are committed to making a difference.'<sup>147</sup>
- 2.139 The Menzies School stated that it was seeking to establish, in collaboration with CDU, a Northern Australia Centre of Research Excellence:<sup>148</sup>
- We want to build a cohort of leaders in Indigenous health research and young Indigenous researchers ... We want to build on our established partnerships with colleagues and health services in Malaysia and Indonesia to really have a fundamental impact on issues like malaria, tuberculosis and other issues in our region.<sup>149</sup>
- 2.140 The Menzies School added that it was crucial that there also was collaboration with JCU, Baker IDI Central Australia and Telethon in Perth.<sup>150</sup>
- 2.141 The JCU is to be the base of the newly created Australian Institute of Tropical Health and Medicine (AITHM). The Queensland Government advised the Committee that it had committed \$42 million towards the AITHM which had been matched by the Commonwealth Government. There would be three campuses in Townsville, Cairns and the Torres Strait. The AITHM 'will focus on tropical infectious diseases, chronic disorders with high prevalence in the tropics and health services in tropical, regional, rural and remote communities'.<sup>151</sup>

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145 GNARTN, *Submission 144*, p. 9.

146 Professor Simon Maddocks, Vice-Chancellor, *Committee Hansard*, Darwin, 20 May 2014, p. 47.

147 Professor Alan Cass, Director, *Committee Hansard*, Darwin, 20 May 2014, p. 42.

148 Menzies School of Health Research, *Submission 55, Attachment A: Northern Australia Centre For Research Excellence, Driving the North Australia Agenda: Engagement with Asia and Developing Indigenous Leadership*.

149 Professor Alan Cass, *Committee Hansard*, Darwin, 20 May 2014, p. 40.

150 Professor Alan Cass, *Committee Hansard*, Darwin, 20 May 2014, p. 42.

151 Queensland Government, *Submission 219*, p. 33.

- 2.142 The Committee's attention was drawn to a proposal for a northern agricultural co-operative research centre (CRC) by the Rural Industries Research and Development Corporation (RIRDC). The main focus of the proposal was to build confidence for capital investment, reducing business risks and develop enterprises in the North. The critical focus of the proposed CRC was to:
- identify products which could grow in the North and which had competitive advantage for selling into Asia;
  - encourage agricultural industries that could competitively supply into Asia;
  - conduct research on land and water planning;
  - work with jurisdictions around harmonising policy, addressing the legislative issues, and promoting a more coherent development opportunity across the North; and
  - work with Aboriginal and Torres Strait Islander communities and developing opportunities for them.<sup>152</sup>
- 2.143 The RIRDC stated that the bid was 'a strong consortium with the support of the Western Australian, Queensland and Northern Territory governments, CSIRO, and the northern universities.' The consortium would need to contribute \$50 million over 10 years to match a similar contribution from the Commonwealth.<sup>153</sup>
- 2.144 The Committee notes that the Central Queensland University (CQU) has a high reputation for agricultural research being ranked at a '5' which is well above the world standard.<sup>154</sup>
- 2.145 A further example of collaboration was provided by the Australian Institute of Marine Science (AIMS) which advised the Committee that it had agreements forming hubs of marine science expertise in Townsville, Darwin, and Perth. A key goal of these hubs was the development of early career scientists.<sup>155</sup>

## Opportunities for Sports Research and Tourism

- 2.146 An opportunity to create a centre catering for elite sports training research and medical facilities has been raised by the Cairns Business and Sporting Group. It suggested that Cairns was in a good position, because of the

152 Ms Anwyn Lovett, Acting Managing Director, *Committee Hansard*, Canberra, 21 March 2014, p. 36.

153 Ms Anwyn Lovett, *Committee Hansard*, Canberra, 21 March 2014, pp. 37, 39.

154 Australian Research Council, *University Results*, <[www.arc.gov.au/era/outcomes\\_2012/Institution/CQU](http://www.arc.gov.au/era/outcomes_2012/Institution/CQU)> August 2014.

155 AIMS, *Submission 106*, p. 8.



availability of accommodation, to compete with the three tropical sports acclimatisation training centres in Kuala Lumpur, Hong Kong, and Singapore.<sup>156</sup>

The climate of Far North Queensland is perfectly suited to acclimatisation training for teams preparing to travel overseas to play in SE Asia, as well as being perfectly suited to train athletes in preparation for the 2006 Olympic Games to be held in Rio de Janeiro.<sup>157</sup>

- 2.147 The proposed complex would include a '20 000 seat rectangular stadium, 500 seat hockey stadium, 300 seat netball stadium and the Tobruk Aquatic Centre', and had the potential to significantly increase the numbers of visitors to Cairns.<sup>158</sup>

## Opportunities for Education and Training

### Tertiary Education Sector

- 2.148 The Green Paper commented that there were opportunities for universities to increase their overseas student enrolments because of Asia's proximity to Northern Australia and the growing Asian middle class's desire for a world-class education.<sup>159</sup>

- 2.149 The Queensland Government advised that JCU continued to expand with campuses at Townsville, Cairns, Mount Isa and internationally. CQU was established in Rockhampton, Mackay, and Cairns and had plans for expansion:

Northern Queensland Tertiary education institutions are well established in attracting international students for university TAFE and English language education, as well as domestic students. Tertiary education, dentistry, and tropical disease research are regional specialities.<sup>160</sup>

- 2.150 A similar message was provided by the Northern Territory Government which advised that CDU had experienced:

... a 25 per cent increase in enrolments over the past two years. In 2013 CDU recorded a 300 per cent increase in international student enrolments compared to 2006; a statistic in sharp contrast to the

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156 Cairns Business and Sporting Group, *Exhibit 9: Sports Tourism and Sports Medicine Infrastructure Plan October 2011*, p. 5.

157 Cairns Business and Sporting Group, *Exhibit 94*: p. 5.

158 Cairns Business and Sporting Group, *Exhibit 94*: p. 4.

159 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 25.

160 Queensland Government, *Submission 219*, p. 35.

national trend. The number of international students now exceeds 1100 from 57 countries.

- 2.151 In contrast, University of Notre Dame Australia was reducing its Broome campus. It stated that it was refocusing ‘the campus into a hub for professional training for teachers, nurses and other health professionals.’<sup>161</sup> It was closing its higher education courses because of declining enrolments, the inability to find appropriately qualified staff, and ‘the fact that the cost of delivery was not matched by government funding.’<sup>162</sup> It was, however, intending to invest more resources into its Nulungu Research Centre.<sup>163</sup>
- 2.152 On the domestic front, CQU was enthusiastic about its merger in mid-2014 with the Central Queensland Institute of Technical and Further Education (TAFE). The merger:
- ... will increase our capacity to deliver a variety of post-secondary education services not only to the Central Queensland region but also more broadly across our complete footprint.<sup>164</sup>
- 2.153 The CQU recognised that developing Northern Australia required providing education and training to local communities which themselves would never be able to sustain a TAFE or university because of the lack of economies of scale.<sup>165</sup> Consequently, it was developing a model of distance education, but one which involved a physical presence:
- Most distance education means lecture notes online and you fill out a few multiple-choice questions. What we have realised is that good education in communities in regional Australia actually requires you to have a presence there. CQU has pioneered what we call a distance support model, where we do provide the best content in the world online but we partner with local communities to develop study centres that may have only one or two staff and service a community of maybe a couple of thousand people.<sup>166</sup>
- 2.154 The need for access to tertiary education for the local population in the North was enthusiastically put to the Committee by Ms Jan Ford who suggested that ‘the universities of the future are different from the

161 Professor Celia Hammond, Vice Chancellor, *Committee Hansard*, Perth, 7 April 2014, p. 1.

162 Professor Celia Hammond, *Committee Hansard*, Perth, 7 April 2014, p. 2.

163 Professor Celia Hammond, *Committee Hansard*, Perth, 7 April 2014, p. 1.

164 Professor Jozua Viljoen, Pro Vice Chancellor, *Committee Hansard*, Mackay, 31 May 2014, p. 22.

165 Professor William Dawson, Director, Appleton Institute, *Committee Hansard*, Mackay, 31 May 2014, pp. 22–3.

166 Professor William Dawson, *Committee Hansard*, Mackay, 31 May 2014, p. 23.

universities of the past' and that there could be centres of excellence in regional towns.<sup>167</sup>

### E-Learning

2.155 There is significant opportunity for institutions in the North to use the new digital technology to broaden their reach and the experiences they offer. CQU commented that the traditional model of the university was changing:

What we are starting to see internationally is the globalisation of content. Content will come from the best person in the world to teach that topic ... the traditional model of university is not going to exist in 50 years from now. We are starting to see a proliferation of different models and different ways of servicing people with the best content in the world.<sup>168</sup>

2.156 The JCU stated that it was 'increasingly leveraging the online environment to support quality face-to-face learning experiences.' Nevertheless, about 60 per cent of its students were the first in the family to go to university. Consequently, they needed support to transition to an online learning environment and this would often 'require student access to designated study centres to access support from skilled learning advisers.'<sup>169</sup>

2.157 Both CQU and the University of Notre Dame Australia recognised the value of retaining face-to-face teaching to provide the social aspects of learning.<sup>170</sup>

2.158 An example of e-learning was provided by the Mount Isa Centre for Rural and Remote Health, JCU. It stated that the Cloncurry Shire Council had contributed to a learning centre in Cloncurry where nursing students, medical students and pharmacy students could access their lectures while living in or visiting Cloncurry for their clinical placements. The mixed model using technology and providing local support and working with local practitioners had created a local workforce in Cloncurry.<sup>171</sup>

2.159 Internationally, JCU advised it was collaborating with the University of the South Pacific and the Commonwealth of Learning to deliver 'learning

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167 Ms Jan Ford, Spokesperson, Port Hedland Community Progress Association, *Committee Hansard*, Port Hedland, 10 April 2014, p. 29.

168 Professor William Dawson, *Committee Hansard*, Mackay, 31 May 2014, p. 27.

169 Professor Robyn McGuiggan, Pro-Vice-Chancellor, Faculty of Law, Business and the Creative Arts, *Committee Hansard*, Townsville, 2 April 2014, pp. 13, 14.

170 Professor William Dawson, *Committee Hansard*, Mackay, 31 May 2014, p. 27; Professor Celia Hammond, *Committee Hansard*, Perth, 7 April 2014, p. 5.

171 Professor Sabina Margaret Knight, Director, *Committee Hansard*, Mount Isa, 3 April 2014, pp. 25-6.

services to communities and organisations, through the Pacific, on a digital platform.’ JCU concluded:

When we look at the opportunities from a research point of view, a teaching-and-learning point of view and a commercialisation point of view, I think a great deal of that opportunity rests on what can be done internationally.<sup>172</sup>

## Secondary Education Sector

2.160 There is also the opportunity to attract international students at the secondary education level.

2.161 Kormilda College is an independent school in Darwin which offers the International Baccalaureate Diploma and has boarding facilities for 230 Aboriginal children.<sup>173</sup> It stated that it drew its Aboriginal students from 35 remote area communities who were funded under ABSTUDY.<sup>174</sup> The College endeavoured to enrol several students from a particular community and provided mentoring by older students from that community. Initially there was flexibility with the length of time new students stayed each term:

... they will come in for a shorter time than other students and then they will go home because they are really homesick. But they get home and within three or four days they are ringing us to say they want to come back. So they come back the next term and they stay a little bit longer. It is a bit of a yoyo for the first 12 months but then they settle down.<sup>175</sup>

2.162 Kormilda College was also involved in an extracurricular sports program run by the Clontarf Foundation. This had resulted in a hundred per cent retention of students who were involved in the program.<sup>176</sup>

2.163 The College was considering dividing into two constituent schools:

... a day school, the Darwin International Grammar School, catering for students with a focus on a recognised international, high-quality educational preparation program for university, and the Kormilda Trade Training Academy of Excellence with a

172 Professor Chris Cocklin, Senior Deputy Vice-Chancellor, *Committee Hansard*, Cairns, 28 April 2014, p. 45.

173 Kormilda College, *Submission 174*, pp. 4, 6.

174 Dr Helen Spiers, Principal, *Committee Hansard*, Darwin, 18 August 2014, p. 64.

175 Dr Helen Spiers, *Committee Hansard*, Darwin, 18 August 2014, p. 68.

176 Dr Helen Spiers, *Committee Hansard*, Darwin, 18 August 2014, p. 70.

specialist focus on Intensive English and Mathematics classes and post-school further learning or job readiness.<sup>177</sup>

- 2.164 The plan would enable the expansion of both the number of international students as well as the number of Aboriginal boarding students.<sup>178</sup> Aboriginal students would transfer to the International School when they were academically ready.<sup>179</sup>

### Vocational Education Sector

- 2.165 The Green Paper noted that there were 'more than 200 registered training organisations and approximately 50 TAFE institutions' in Northern Australia.<sup>180</sup>
- 2.166 During its visit to Broome, the Committee inspected the Kimberley Training Institute and was impressed by the range of courses offered and the quality of training. The Committee also experienced being in the simulator which was used for training maritime pilots for the ports of Broome, Dampier, Port Hedland and Wyndham. It is also used to model port design.
- 2.167 Northern Australia's proximity to the Asia-Pacific region creates opportunities to provide TAFE services internationally. The Queensland Government advised that partnerships had already been created with 'a number of countries in the Asia-Pacific, including China and Papua New Guinea' and that:

TAFE Queensland will continue to grow its business in the Asia-Pacific region to increase its international student market and to establish strong ties with Australia's key trading and business partners.<sup>181</sup>

- 2.168 While TAFE institutes offer a range of courses, they often do not provide the specialist courses required by industry.<sup>182</sup>
- 2.169 Indeed, Cambridge Gulf Ltd stated that specialist training was often done in-house:

I believe the TAFE here works pretty well. We have the TAFE and Kimberley Group Training; we have a couple of really decent

177 Kormilda College, *Submission 174*, p. 9.

178 Mr Peter Jones, *Committee Hansard*, Darwin, 18 August 2014, p. 65; Dr Helen Spiers, *Committee Hansard*, Darwin, 18 August 2014, p. 66.

179 Mr Peter Jones, Chair of the Board, *Committee Hansard*, Darwin, 18 August 2014, p. 63.

180 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 13.

181 Queensland Government, *Submission 219*, p. 40.

182 Mrs Barbara O'Driscoll, Chairperson, Newman Chamber of Commerce and Industry, *Committee Hansard*, Perth, 7 April 2014, p. 20.

training institutions here. Over at the port, even though they are good training institutions, we generally take care of our training in-house – we have very specific needs, so we will bring the trainer up ... Also the small business centre does a lot of business related training, customer service training and that sort of thing for the business community.<sup>183</sup>

- 2.170 The Queensland Government, however, has moved to improve responsiveness to the skills and trading needs of industry by creating TAFE Queensland. It advised that:

TAFE's new commercial structure will ensure a holistic view of TAFE across the State, including North Queensland, recognising the diverse needs of the various communities throughout the region.<sup>184</sup>

- 2.171 Further, the Queensland Government stated the proposed amalgamation of the Barrier Reef, Mount Isa and Tropical North Queensland TAFEs would enable the provision of greater coverage and broader scope of services to local communities.<sup>185</sup>

- 2.172 A recent initiative of JCU has been the establishment of the Northern Clinical Training Network based in Cairns, Townsville, and Mackay. This aims to provide:

A seamless transition between medical undergraduate, junior doctor and early vocational training ... and to remove barriers between stages of training, creating a critical mass of clinical teaching infrastructure and to support development of clinical research and scholarship in the north.<sup>186</sup>

- 2.173 Despite the existence of TAFE and other training organisations in Northern Australia, research by Ninti One Ltd indicated that:

... training and qualifications are not a pre-requisite to engagement in employment in remote Australia has 44 per cent of all employees have not completed a certificate or higher qualification.<sup>187</sup>

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183 Mr Anthony Chafer, Chief Executive Officer, *Committee Hansard*, Kununurra, 7 May 2014, p. 18.

184 Queensland Government, *Submission 219*, p. 35.

185 Queensland Government, *Submission 219*, p. 35.

186 Northern Clinical Training Network, *Our Purpose, Vision and Aspirations* <[www.nctn.net.au/nctnweb/about-us-header/our-purpose](http://www.nctn.net.au/nctnweb/about-us-header/our-purpose)> August 2014.

187 Ninti One Ltd, *Submission 88*, p. 4.

2.174 As noted above, training is often provided in-house. An example was provided to the Committee by the Rusca Brothers Group which has Theiss, Santos, Leighton and Glencore as clients:

These types of groups basically do not want to have the training done on their sites. There is a safety concern. Obviously it is a large cost to house them on site. We said: 'We've done it all in house ourselves. We train them on our own sites, our local jobs. We have a bit of a stepping stone, where they work in our civil branch. It might be low productivity, where they are actually learning the ropes, and they get to be able to move into these other pastures and take up a job with one of the larger tier 1 companies that we currently have some long-term contracts with.'<sup>188</sup>

## Government Sector

2.175 The Green Paper noted that the public sector plays a major role in Northern Australia:

Public administration, education, healthcare and social assistance accounted for almost 30 per cent of total Northern Australian employment in 2011. The Australian Defence Force has a long-standing and substantial presence, with over 15 200 service personnel and public servants based in the north, including Alice Springs. There are also 6000 other Australian Government employees across northern Australia.<sup>189</sup>

2.176 While the Green Paper raised the opportunity to co-locate 'local, state and national government services, giving communities and business better access to government',<sup>190</sup> it did not canvass potential opportunities to relocate sections of the Commonwealth Public Service or Defence assets to the North.

## Public Service

2.177 The City of Townsville argued that elements of several Federal Departments should be relocated to Townsville. This included elements of:

- Department of Foreign Affairs and Trade (South East Asia and Pacific trade and international policy sections) – Townsville was

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188 Mr Robert Rusca, Managing Director, *Committee Hansard*, Darwin, 20 May 2014, p. 53.

189 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 9.

190 Australian Government, *Green Paper on Developing Northern Australia*, Canberra 2014, p. 63.

‘geographically closer to Port Moresby than it is to Brisbane or Canberra [and] relocation would facilitate greater regional trade and closer diplomatic ties’;

- Department of Resources, Energy and Tourism – it ‘should be in a region which makes a significant contribution to the Australian economy through tourism and minerals processing and export’;
- AusAID and the Departments of Environment, Defence and Agriculture – they ‘would benefit from the expertise developed [in Townsville] and could facilitate international improvements through aid programs and other exchanges’; and
- ‘Defence, [Defence Materiel Organisation], Transport and Infrastructure, Customs.’<sup>191</sup>

2.178 Relocation could be encouraged, the City of Townsville argued, by ‘offering faster career progression in regional areas and moving executive level positions to the region’, and by ‘establishing and prioritising Departmental graduate programs in regionally located Departments for intakes from both regional and non-regional areas’.<sup>192</sup>

2.179 The Liberal National Party Northern Development Policy Committee suggested an opportunity was also presented by the merger of the Department of Immigration and Border Protection with the Australian Customs and Border Protection Service. It suggested locating the new combined agency in Cairns.<sup>193</sup>

## Defence

2.180 Currently, there are a significant number of defence force bases across the North,<sup>194</sup> and these support many companies which service their needs:

Commercial servicing, especially of naval and border services of vessels and to a lesser extent surveillance aircraft, has played a role in supporting the development of maritime and aviation servicing capability with wider regional economic benefits.<sup>195</sup>

2.181 The *Defence White Paper 2013*, released in May 2013, was intended to complement the *Australia in the Asian Century White Paper* and the *National*

191 City of Townsville, *Submission 170*, p. 8.

192 City of Townsville, *Submission 170*, p. 9.

193 Ms Robyn Quick, Chair, *Committee Hansard*, Brisbane, 20 June 2014, p. 28.

194 Details are provided in *Australian Defence Force Posture Review, Annex B, Map of ADF Facilities, Training Areas, Selected Civil Ports and Offshore Resources* <[www.defence.gov.au/oscdf/adf-posture-review/docs/base\\_map.pdf](http://www.defence.gov.au/oscdf/adf-posture-review/docs/base_map.pdf)> January 2014.

195 Cummings Economics, *Exhibit 76: Australia’s Tropical North Initial Challenges, Historical Development, Current Progress and Future Prospects*, p. 170.



*Security Strategy* and to be seen as a statement of the then Australian Government's priority regarding security and prosperity, and 'on maintaining a strong Australian Defence Force to meet Australia's national security challenges'.<sup>196</sup>

- 2.182 The White Paper identified an inherent tension in locating Australian Defence Force bases – 'population and industry support factors tend to influence a south and south-east disposition, while strategic factors are weighted towards the north and north-west disposition.'<sup>197</sup> Its review of ADF posture concluded that Australia's strategic environment did not require widespread changes to the location of ADF bases, but instead concluded that some bases and training areas needed upgrades:

These upgrades are largely longer-term in nature. They mostly relate to improving the capacity of ADF bases, facilities and training areas to support future capabilities, particularly in Australia's north and west, and to sustain high tempo operations in northern Australia and our approaches, the immediate neighbourhood and wider Indo-Pacific region.<sup>198</sup>

- 2.183 The paper proceeded to identify several airbases,<sup>199</sup> and naval bases<sup>200</sup> particularly in the north and west which needed upgrading. As well, it heralded an assessment of 'the capacity of the logistics supply chain to meet strategic fuel and explosive ordnance requirements in northern Australia', and identify 'potential improvements to the north and north-west Australian fuel network system'.<sup>201</sup>
- 2.184 The value of relocating major elements of the Navy from Sydney to the existing base at Cairns and improving naval facilities in Darwin and in the Pilbara/Kimberley area was raised by Cummings Economics. Major benefits would be in strategic positioning in the North as well as contributing to the build-up of a maritime servicing capacity which would be positioned to earn export income from the wider Asia/Pacific region. It would also strengthen potential interaction with the defence forces of neighbouring countries as well as meeting any future threats and dealing with environmental emergencies such as that caused by volcanic eruptions tsunamis and cyclone damage.<sup>202</sup>
- 2.185 Such a view was supported by Cairns Regional Council which said:
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196 *Defence White Paper 2013*, p. 1.

197 *Defence White Paper 2013*, p. 47.

198 *Defence White Paper 2013*, p. 47.

199 Air force bases included Curtin, Darwin, Learmonth, Tindal, Scherger, and Townsville.

200 Darwin and Townsville were identified to facilitate large amphibious ship operations.

201 *Defence White Paper 2013*, pp. 50, 51.

202 Cummings Economics, *Exhibit 76*: p. 170.

We do not want all our Defence people sitting in the southern part of Australia ready to reinvent the Brisbane Line. We want them up in the north here where most of their work is, both in terms of strategic military importance and also aid to countries north of us when they have natural disasters. Our response to that is normally fairly quick from here. We have the Army and the Air Force in Townsville, we have the Navy in Cairns and the Navy in Darwin. Darwin and Cairns must rate as the two most common-sense places to be looked at in terms of the further growth of naval facilities.<sup>203</sup>

- 2.186 An example of the possibility of moving defence assets to the North was provided by Advance Cairns which suggested that HMAS *Choules* be relocated north to HMAS *Cairns* when the first Canberra Class Amphibious Assault Ship (LHD<sup>204</sup>) became operational.<sup>205</sup>
- 2.187 The Cairns Regional Council commented that the Cairns naval base was ‘a very high employment multiplier’ because of the servicing and maintenance of naval and Customs vessels and also of some 22 Pacific Island patrol boats. It had been told by Cummings Economics that ‘the employment multiplier effect for a naval base is 5.27.’<sup>206</sup>
- 2.188 The development of a new naval base with heavy industrial maintenance facilities was also recommended by the Australian Industry & Defence Network-NT (AIDN-NT).<sup>207</sup> This would enable expansion into the maintenance and repair of other steel hulled vessels in Darwin.<sup>208</sup>
- 2.189 ANDEV argued that such a base should be located in Exmouth, WA. This was because Exmouth was ‘located within short distance of strategic offshore infrastructure’; it was ‘the only location with all-weather road connections via the Northwest Coastal Highway’; and it was ‘already well supported by defence infrastructure’, namely RAAF Base Learmonth. ANDEV suggested establishment costs could be met by downsizing existing facilities in south east Australia.<sup>209</sup>
- 2.190 ANDEV commented that such a base in the north west would contribute significantly to the regional economy. It cited research indicating that

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203 Councillor Bob Manning, Mayor, *Committee Hansard*, Cairns, 28 April 2014, p. 15.

204 Landing Helicopter Dock

205 Mr Trent Twomey, Chair, *Committee Hansard*, Cairns, 28 April 2014, p. 4.

206 Councillor Bob Manning, Mayor, *Committee Hansard*, Cairns, 28 April 2014, p. 14.

207 AIDN-NT, *Submission 117*, p. 3.

208 Mr Arthur Boyd, President, *Committee Hansard*, Darwin, 18 August 2014, p. 57.

209 ANDEV, *Submission 147, Attachment E: Northern Defence Posture: Securing Our Natural Resources*, p. 14.

Townsville's defence community had contributed over 10 per cent of the regional GDP.<sup>210</sup>

- 2.191 Similar concerns regarding the vulnerability of Australia's North West was also expressed by the Shire of Roebourne which suggested that there was 'growing evidence that the Pilbara needs a greater military presence' because of the need to protect 'resource industry infrastructure in the Pilbara, and off our coast'.<sup>211</sup>
- 2.192 The Department of Defence (Defence) argued that it was in fact increasing its presence in the North rather than increasing its bases. It cautioned that it was unwise to 'put all your assets in one place and then find the operation is in another area of Northern Australia.'<sup>212</sup>
- 2.193 Defence added:
- it was more costly to position its personnel in the North and that, like corporate organisations, it had to 'balance the number of people [it moved] with the budget';<sup>213</sup>
  - it needed an industrial base to support its bases – it was having difficulty 'with skilled personnel in Darwin being able to maintain the current patrol boat fleet';<sup>214</sup>
  - in responding to events in the Pacific and Indian Oceans, Sydney and Learmonth, Exmouth were actually closer than Cairns and Derby;<sup>215</sup>
  - it was strategically unsound 'to put all your assets right in the area where the humanitarian response may be required because they may be affected' by that particular crisis;<sup>216</sup>
  - the resources industry in Western and Northern Australia were more concerned about domestic security issues – issues for police and their own security organisations – than external threats;<sup>217</sup>
  - in the north-west of Australia there was a significant unseen security presence – 'on any given day there are seven patrol boats, a couple of

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210 R Welters and A Delisle, *A Holistic Analysis of the Socio-economic Impact of the Australian Defence Organisation and its Interaction with the City of Townsville*, JCU, 2009.

211 Mr Peter Long, President, *Committee Hansard*, Karratha, 9 April 2014, p. 2.

212 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 24.

213 Air Marshal Mark Binskin, Vice Chief of the Defence Force, *Committee Hansard*, Canberra, 21 March 2014, p. 24.

214 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 27.

215 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 24.

216 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 25.

217 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 26.

major fleet units out patrolling out towards Christmas Island, back towards Darwin and into the Arafura Sea';<sup>218</sup> and

- security organisations are always looking for indicators and warnings about terrorist operations which would be complex operations to conduct, and which would prompt a whole of government response.<sup>219</sup>

2.194 Cummings Economics also drew attention to long-term benefits arising from defence bases in the North:

The northern cities that have had a strong defence presence now include a significant number of residents who were in the defence services ...the contribution of ex-naval personnel to the build-up of Cairns' maritime servicing sector has been important.<sup>220</sup>

2.195 The Defence White Paper also drew attention to the rotational deployment of over 1000 United States Marines to Northern Australia in 2014 and enhanced Australia-US Air Force cooperation which was expected to result in 'increased rotations of US Air Force aircraft to northern Australia.'<sup>221</sup>

2.196 A Deloitte Access Economics assessment of the economic impact of the US Marine rotation concluded that the Northern Territory gross state product would increase by \$5.6 million in 2014. The estimate was based on an expenditure of \$4.5 million by the US Marine Corps and \$3.2 million in individual Marines' combined personal expenditure. It was estimated that Australian tax revenues would increase by \$1.09 million and that Northern Territory tax revenues would increase by almost \$200 000.<sup>222</sup>

## Social Infrastructure

2.197 Increased broadband connectivity across Northern Australia presents opportunities to use new communications technology to deliver services, improve access to existing services, and undertake innovative research which could impact on social infrastructure and liveability.

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218 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 26.

219 Air Marshal Mark Binskin, *Committee Hansard*, Canberra, 21 March 2014, p. 26.

220 Cummings Economics, *Exhibit 76*: p. 170.

221 *Defence White Paper 2013*, p. 57.

222 Deloitte Access Economics, *Economic Impact of the Rotation of 1100 US Marines and Associated Equipment in Northern Australia. Report for the Department of Defence. 10 April 2013*, pp. i, ii.

## Tele-health

- 2.198 The introduction of broadband creates an opportunity to develop tele-health services in the North. The Mount Isa Centre for Rural and Remote Health considered tele-health was 'past pedal radio but not much past rad-phone stage yet.' It was at 'the precipice of things changing.'<sup>223</sup>
- 2.199 GNARTN emphasised the importance of a digitally connected Northern Australia:
- ... tele-health based services and education offer the greatest opportunity to improve health services access when this works with local communities – that is, Aboriginal medical services and state and other health service providers and education providers. So we are saying a joined up northern Australia is critical to improvement.<sup>224</sup>
- 2.200 The CRANAplus expressed the same view:
- The essential role telecommunications play and the importance of the shared electronic health platform cannot be underestimated in their function to improve health outcomes. Likewise, it may finally provide an opportunity for the collection of accurate health data. As much remote health care is not provided through traditional MBS or PBS mechanisms, there is a dearth of accurate information on which to make informed population health-planning decisions.<sup>225</sup>
- 2.201 The GNARTN advised there were a range of services being developed across the North and they were providing the opportunity for tele-health services to link health practitioners to specialists in larger centres. Most major towns and communities in WA, NT and Queensland now had access to such tele-health services.<sup>226</sup>
- 2.202 It also provided the opportunity to develop lead centres, for example, 'Darwin to be a cancer centre, a centre of excellence or a lead centre, and the Queensland to be a lead centre in tropical diseases, and WA something else.'<sup>227</sup> There was also the potential for linkage to an emergency tele-health service such as that linking Perth to WA's 'remote wheat belt and inland.'<sup>228</sup>

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223 Professor Sabina Margaret Knight, *Committee Hansard*, Mount Isa, 3 April 2014, p. 27.

224 Ms Melissa Vernon, Chair, *Committee Hansard*, Broome, 5 May 2014, p. 26.

225 Mr Christopher Cliffe, Chief Executive Officer, *Committee Hansard*, Alice Springs, 19 May 2014, p. 50.

226 Ms Melissa Vernon, *Committee Hansard*, Broome, 5 May 2014, p. 28.

227 Ms Melissa Vernon, *Committee Hansard*, Broome, 5 May 2014, p. 26.

228 Ms Melissa Vernon, *Committee Hansard*, Broome, 5 May 2014, p. 28.

2.203 There are, unfortunately, limitations to the ability of those living in Northern Australia to benefit from the new technologies. Broadband for the Bush Alliance cautioned:

High-speed broadband and telecommunications offer an opportunity to shrink the distance and isolation of remote and northern Australians. But unless remote and northern Australians are part of the digital and telecommunications-enabled world the north will not be able to develop, further population will not be able to be attracted and people will leave.

The reality is that much of northern Australia will need to rely on satellite telecommunications, which is not as good as the telecommunications their city cousins will enjoy, and has inherent limitations.<sup>229</sup>

We have a town in Queensland that the local health board wants to nominate for the tele-health trial, but it is only on satellite so it is impossible.<sup>230</sup>

## Improving Liveability in the Tropics

2.204 Broadband for the Tropics (BftT) – a volunteer working committee drawn from organisations in Townsville, Cairns, and Mackay proposed three projects to improve liveability in the North:

- Living in the Tropics – designed to ‘educate the community about wide scale benefits of applying ICT to tropical living’;
- Business in the Tropics – designed to ‘build the cultural change necessary for adoption of modern cloud-based ICT services’ for disaster recovery strategies, effective remote office communications, and building industry clusters; and
- Energy and Water Management in the Urban Tropics – designed to ‘develop the tools and systems needed to gather the essential background data sets on tropical cities’ to enable re-engineering tropical city models to reduce costs of construction and long-term maintenance, and to create better tropical urban environments.<sup>231</sup>

2.205 The third project involved collecting ‘real-time water consumption, temperature both inside and outside roofing as well as energy use in 5000 homes across northern Queensland’. This information would be used by Townsville City Council to:

229 Mr John Huigen, Chief Executive Officer, *Committee Hansard*, Alice Springs, 19 May 2014, p. 54.

230 Mr Ray Heffernan, Member, *Committee Hansard*, Alice Springs, 19 May 2014, p. 57.

231 BftT, *Submission 18, Attachment D: Tropical Innovation Project Outlines*, pp. 3, 4, 5.

... improve walkability in the tropics by understanding where to build shade and shelter structures, plant trees and improve urban accessibility. Designers will use the data set to understand the real world performance of homes and spaces and redesign them for higher level of thermal comfort and lower running costs ...

The outcome of this project will then become the template for urban design throughout tropical Australia and exportable throughout the tropical world.<sup>232</sup>

- 2.206 The BftT reiterated that there was potential to export the 'tropical products and systems developed through the tropical innovation project to other tropical zones in the world', especially as tropical countries were looking to move towards a market-based economy.<sup>233</sup>
- 2.207 There was also the opportunity to create a tropical knowledge and innovation centre to bring together academia, students, and business and to solve problems with innovative solutions. Business would get very low-cost or free ideas, and engaging younger people in problem solving would result in medium term culture change.<sup>234</sup>
- 2.208 A possible model for such a centre is the Desert Knowledge Precinct which the Committee visited for its Alice Springs public hearing. The Precinct brings together organisations and 'identifies key projects that contribute to a social, economic and environmentally sustainable future for desert Australia.'<sup>235</sup> It has recently been elevated to a statutory authority by the South Australian Government.<sup>236</sup>

## Aboriginal and Torres Strait Islander Engagement

- 2.209 The Northern Australian population includes an untapped significant pool of labour – Aboriginal and Torres Strait Islander people.
- 2.210 Ninti One Ltd believed that:
- ... based on population number, occupation and ownership of land ... the success of Northern Australia development will ultimately depend on increased Aboriginal participation in the economy.<sup>237</sup>

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232 BftT, *Submission 18, Attachment D*, p. 6.

233 Mr Geoffrey Harkness, Committee Member, *Committee Hansard*, Townsville, 2 April 2014, p. 31.

234 Professor Ian Atkinson, Committee Member, *Committee Hansard*, Townsville, 2 April 2014, p. 33.

235 *Desert Knowledge Australia*, <[www.desertknowledge.com.au/Home](http://www.desertknowledge.com.au/Home)> July 2014.

236 *Desert Knowledge Australia Set for Reinvigoration*, <[www.desertknowledge.com.au/News/Desert-Knowledge-Australia-Set-For-Reinvigoration](http://www.desertknowledge.com.au/News/Desert-Knowledge-Australia-Set-For-Reinvigoration)> July 2014.

237 Ninti One Ltd, *Submission 88*, p. 4.

- 2.211 Ninti One Ltd's submission provided demographic information:  
Northern Territory population comprises 30% of Aboriginal and Torres Strait Islander people and in some areas of Northern Australia like in Cape York 60% or in the Kimberley over 50%. The Aboriginal and Torres Strait population in Northern Australia is fast growing with half its population under 24 years in remote communities, which means that by 2050 it is likely that there will be more Aboriginal people living in Northern Australia than non-Aboriginal people. Aboriginal and Torres Strait Islander employment rates are low in remote communities with the employment to population ratio at about 45%. Aboriginal and Torres Strait Islander participation in the largest industry sectors in Northern Australia, namely mining, agriculture, government services and tourism, is low.<sup>238</sup>
- 2.212 This was supported by the Queensland Government which stated that unemployment rates ranged 'from 16.9 per cent in the Northern Peninsula Area to 62.1 per cent in Yarrabah.'<sup>239</sup>
- 2.213 Kormilda College commented on the challenge of improving Aboriginal workforce participation:  
... low levels of functional literacy and numeracy of many Indigenous school leavers which limit their capacity for taking up the work and educational opportunities which may be available. It is also impeded by the low completion rates of vocational and adult educational training courses for Indigenous students.<sup>240</sup>
- 2.214 The College is working to address this issue by using an accelerated literacy program developed by the CDU.<sup>241</sup> It was a method which could be adapted for VET courses through to science education.<sup>242</sup>
- 2.215 The Committee also received evidence from Rio Tinto Alcan of the success of the Western Cape College in Weipa which has increased the number of Aboriginal year 12 graduates from zero in 2001 to 28 in 2003 and substantially increased its Aboriginal attendance. Rio Tinto Alcan also drew attention to its school-to-work program with the College:  
The program provides school-based traineeships, apprenticeships and scholarships to ensure that local students have strong career prospects, both within and beyond our business.<sup>243</sup>

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238 Ninti One Ltd, *Submission 88*, p. 4.

239 Queensland Government, *Submission 219*, p. 35.

240 Kormilda College, *Submission 174*, p. 13.

241 Dr Helen Spiers, Principal, *Committee Hansard*, Darwin, 18 August 2014, p. 66.

242 Dr Helen Spiers, *Committee Hansard*, Darwin, 18 August 2014, p. 71.



2.216 The Committee was told by the Western Cape Regional Partnership Agreement that Aboriginal people have a desire to participate in the workforce for a number of reasons:

I meet with and talk to a vast and very diverse group of Indigenous people. And the aspirations are not so different, in terms of, parents still want their kids to have jobs; parents themselves want to have jobs; parents want their kids to go to schools ... it was very rarely to make money, or profit margins ... but it was often to leave something to their children, or to have some opportunities to perhaps safeguard their country. It is better to be working out on your country – working in rehabilitation, seed collection, fishing; a whole lot of things that you feel you are actually part of rather than divorced from. So it is a very different view of economic development ... But it is still economic development.<sup>244</sup>

2.217 Employing Aboriginal and Torres Strait Islander workforce will not only benefit communities in developing local skills and providing income but also enables companies to reduce overhead expenses associated with fly-in, fly-out workers.<sup>245</sup> An example was provided by the Napranum Aboriginal Shire Council which is building houses in Napranum, Weipa at a saving of around \$70 000 per house:

... the Federal Government allocated \$450 000 per house and the contractor is going for around \$420 000 ... We are able to deliver them from around \$350 000 ...

The saving is because there is no big profit for the council, and there are the other issues I have told you about, such as salaries and wages. If you get the tradesmen from Cairns or Melbourne or somewhere, they ask for premium rates. When we get them from here they are at home, so they do not need any additional accommodation or a living-away-from-home-allowance.<sup>246</sup>

2.218 The Committee is aware of several highly successful Aboriginal owned companies based in Northern Australia, two of which have adopted slightly different strategies in boosting Aboriginal employment.

2.219 Rusca Brothers seeks to source Aboriginal workers from communities near its worksites. For example, when it built a mine service road for Western

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243 Mr Jim Singer, General Manager, Communication and External Relations, *Committee Hansard*, Weipa, 3 July 2014, p. 32.

244 Ms Liz Logan, Co-ordinator, *Committee Hansard*, Weipa, 3 July 2014, pp. 27–8.

245 Queensland Government, *Submission 219*, p. 36.

246 Mr Amos Njaramba, Chief Executive Officer, *Committee Hansard*, Weipa, 3 July 2014, p. 7.

Desert Resources, it included trainee workers from the nearby Borroloola community:

It was 170 kilometres through some of the roughest terrain in the Roper Bar area down to the port. During that time, we were on site from 18 months to two years and we had probably 250 people working for us. Out of those we had 50 per cent Indigenous. Out of those people we had a large number of people who had never worked before from Borroloola community and from the Roper Bar region.<sup>247</sup>

2.220 An outcome of the project was the permanent employment of 16 Aboriginal people from Borroloola to load and operate the iron ore loading facility at Bing Bong Port.<sup>248</sup>

2.221 Rusca Brothers adopts a close mentoring role with its trainee workers and retains 'around 90 or 95 per cent' of its trainees:

The reality is that if somebody is going to leave, we put in a huge amount of effort to keep them. It might be that they go on a little short-term break, but the reality is that we are still touching base with them and we want them back to the [training] centre and then back out to the jobs.<sup>249</sup>

2.222 The company also has a finance section to look after the needs of its workforce even to the extent of arranging two bank accounts for them and ensuring 'that at the end of the day there is money for the direct debits and there are banking opportunities when they are financing cars.' Rusca Brothers has also invested in developing a 100 block housing subdivision at Humpty Doo so it could offer 10 of its workers a housing and land package. A second 100 lot subdivision will have 20 blocks set aside for its workers.<sup>250</sup>

2.223 Another Aboriginal owned company, Northern Project Contracting (NPC) partners with local businesses hoping to leave a legacy of expertise. Originally a drilling contracting company, it is now seeking to diversify as demand for its drilling services from Century Mine declines:

Northern Project Contracting is 100 per cent Indigenous owned by the Waanyi people, who are predominately around Gregory and Doomadgee. It was set up around 10 years ago as a commercial vehicle to drive economic development for that particular language group ...

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247 Mr Robert Rusca, *Committee Hansard*, Darwin, 20 May 2014, p. 53.

248 Mr Robert Rusca, *Committee Hansard*, Darwin, 20 May 2014, p. 53.

249 Mr Robert Rusca, *Committee Hansard*, Darwin, 20 May 2014, p. 53.

250 Mr Robert Rusca, *Committee Hansard*, Darwin, 20 May 2014, p. 56.

We turnover approximately \$20 million and 65 per cent of our employees are Indigenous people. As Century is closing, our strategy now is really to distribute our services through a community partnership model, which is where we work with other Indigenous community groups who have similar aspirations to the Waanyi people and help them develop economic opportunities that they may not have been able to develop because of a lack of experience.<sup>251</sup>

- 2.224 Besides drilling contracting, NPC has a building construction partnership with the Marra Worra Worra, received a commitment from the Department of Defence for a \$10 million building contract, and is seeking to assist Aboriginal communities to export beef into the Chinese market. It is also seeking to diversify into agriculture.<sup>252</sup>
- 2.225 Many Aboriginal people live in small remote communities distant from major development projects. These people do not necessarily wish to travel to development sites and in fact could provide a stable long-term local workforce. The Northern Land Council (NLC) cautioned that over-reliance on any one particular sector to drive development presented risks and that a vibrant and productive Northern Australia should feature economic activity in a number of diverse industries. The NLC commented that governments and private sector proponents should:
- ... realise the important role of small, locally based ‘niche’ industries, such as arts and crafts or ecotourism enterprises – as a driver of local employment and economic development. Collectively, these types of industries can be as important to Aboriginal communities as large-scale developments, which in some cases present risks of delivering royalties and other benefits mostly outside of the community or region they are based in.<sup>253</sup>
- 2.226 An example of local Aboriginal employment opportunities was provided by NAILSMA which commented that the western Arnhem Land carbon farming project employed on an annual basis up to 400 people.<sup>254</sup>
- 2.227 Further, a joint project sponsored by Cape York Sustainable Futures and the Australian Government Fisheries Research and Development Corporation has sought to identify Aboriginal business opportunities in the recreational fishing and tourism industry on Cape York Peninsula. It

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251 Mr Bradley Jackson, Managing Director, *Committee Hansard*, Normanton, 2 July 2014, p. 18.

252 Mr Bradley Jackson, *Committee Hansard*, Normanton, 2 July 2014, p. 18.

253 NLC, *Submission 165*, p. 9.

254 Mr Jeremy Russell-Smith, Consultant, *Committee Hansard*, Darwin, 19 August 2014, p. 38.

found that there was a wider range of potential activities besides recreational fishing:

While the cultural aspect would provide a major marketing point for any indigenous business, proposed lodges, camping areas and tours would create enterprises that also involved ecotourism, bird watching and history related activities.<sup>255</sup>

- 2.228 It is clear to the Committee that Aboriginal and Torres Strait Islander Communities have the potential and desire to become involved in the development of Northern Australia in both larger scale projects and smaller local niche business activities. Development of such small-scale businesses would diversify the economy and provide a hedge against the boom and bust cycles of a resource-based economy.

## Sustainability

- 2.229 There have been a significant number of reports into and attempts at developing Northern Australia – see Chapter 1. The Committee is concerned, therefore, that this report does not become one in a long list of reports proposing ways to develop the North. The Committee is encouraged, therefore, by the Government’s resolve to achieve an outcome through the White Paper and beyond.
- 2.230 The key issue in the Committee’s opinion is that any proposal for change must be sustainable – economically, socially, and environmentally.

## Economic Sustainability

- 2.231 This chapter has highlighted several projects which present significant opportunities to develop Northern Australia. That these projects have not proceeded is in part because they have yet to meet the criterion of economic viability.
- 2.232 The Committee agrees with the view that the development of the North should largely be through private sector investment and ingenuity rather than government intervention. If projects are to have long-term viability they must be economically sound and provide an appropriate return to investors without government subsidy.
- 2.233 This is not to say that the provision of infrastructure enablers where government traditionally has had a financial role should not be supported. Often the provision of economic enablers such as key transport, water and

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255 Cape York Sustainable Futures, *Submission 212, Appendix 10: Identifying Indigenous Business Opportunities in the Recreational Fishing Tourism Industry on Cape York Peninsula*, p. 8.

energy infrastructure will open the way to the private sector to invest in development projects.

- 2.234 Increasing the number of viable development projects in Northern Australia will draw people to the North. This population increase will in turn increase the demand for, and economic viability of social infrastructure such as schools, hospitals, and service sector businesses.
- 2.235 There are a variety of impediments to creating economically viable development opportunities and these are discussed in detail in Chapter 4.

## Environmental Sustainability

- 2.236 Concerns have been raised with the Committee that various development projects in Northern Australia had potential to adversely impact the environment.

## Harbour Dredging

- 2.237 Dredging for the proposed South of Embley bauxite project at Weipa was a concern for the Gulf of Carpentaria Commercial Fishermen's Association. It stated that it was likely to lose about 20 per cent of its resource area for grey mackerel and Spanish mackerel.<sup>256</sup>
- 2.238 The Mackay Conservation Group argued that dredging activities at Abbot Point would impact on the Great Barrier Reef through the dispersal of material from the offshore dredging dump site onto the Reef. It proposed that the dredged material should be deposited on land.<sup>257</sup>
- 2.239 North Queensland Bulk Ports Corporation, responsible for Abbot Point, responded that marine material exposed to air on land potentially suffered acid sulphate build-up. It acknowledged that this problem could be managed, but at a cost of between \$140–400 million depending on the location chosen (this compared to \$40 million for offshore disposal). It predicted that its offshore disposal site at 40 metres deep would not be subject to re-suspension of dumped material even in heavy cyclonic events.<sup>258</sup>
- 2.240 The Committee notes that recently there has been a suggestion that the dredge spoil be dumped in a disused salt works near Bowen.<sup>259</sup>

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256 Mr Gary Ward, Chairman, *Committee Hansard*, Georgetown, 2 July 2014, p. 30.

257 Mrs Patricia Julien, Research Analyst, *Committee Hansard*, Mackay, 31 May 2014, p. 37.

258 Mr Bradley Fish, Chief Executive Officer, *Committee Hansard*, Mackay, 31 May 2014, p. 42.

259 The Australian, 30 August 2014, *Fix found to reef fears over Abbot Point dredging*, <[www.theaustralian.com.au/national-affairs/state-politics/fix-found-to-reef-fears-over-abbot-point-dredging/story-e6frgczx-1227041833763](http://www.theaustralian.com.au/national-affairs/state-politics/fix-found-to-reef-fears-over-abbot-point-dredging/story-e6frgczx-1227041833763)> September 2014.

- 2.241 The Committee notes that the issue of dredging at Abbot Point has resulted in ongoing vigorous debate and comprises part of the terms of reference for an inquiry into the Great Barrier Reef being conducted by the Senate Environment and Communications References Committee. That committee is due to report in early September 2014.

### Mining Developments

- 2.242 The Mackay Conservation Group opposed coal mining in the Galilee Basin because it, and associated railway works, would result in loss of biodiversity and dust pollution from open coal rolling stock. It was also critical of the environmental offsets program because under the program offsets had a limited life so there was the potential for a particular offset to be used more than once.<sup>260</sup>

### Use of Water

- 2.243 Concerns have been raised about the IFED mixed broad acre agriculture proposal near Georgetown:
- that it was unviable because it was using soils which were ‘quite unsuitable because of its shallow and infertile nature’;<sup>261</sup>
  - its water allocation had the potential to use all the water allowed for the Gilbert River catchment, thereby denying water for other potential irrigation projects on the good soils in the catchment;<sup>262</sup> and
  - its use of water could adversely impact the prawn industry in the Gulf of Carpentaria – as an example, it was alleged that damming the Ord River had adversely affected prawn harvests.<sup>263</sup>
- 2.244 The Committee notes that detailed soil testing in the proposed IFED irrigation precinct has yet to be done.<sup>264</sup>
- 2.245 Regarding the second point, IFED stated that it proposed to use ‘less than 10 per cent of the flood flows out of the Gilbert catchment’ and that it only diverted water when the rivers were in flood.<sup>265</sup>
- 2.246 Regarding the potential impact on fisheries due to restricting water flow, CSIRO stated:

260 Mrs Patricia Julien, Research Analyst, *Committee Hansard*, Mackay, 31 May 2014, pp. 34, 35.

261 Mr Greg Ryan, Gilbert River Working Group Committee, *Committee Hansard*, Georgetown, 2 July 2014, p. 21.

262 Mr Greg Ryan, *Committee Hansard*, Georgetown, 2 July 2014, p. 22.

263 Mr Andrew Prendergast, General Manager, Prawn Division, Austral Fisheries, *Committee Hansard*, Georgetown, 2 July 2014, pp. 30, 33.

264 Mr Greg Ryan, *Committee Hansard*, Georgetown, 2 July 2014, p. 28.

265 Mr David Hassum, *Committee Hansard*, Brisbane, 20 June 2014, p. 13.

It is not simply the amount of fresh water coming into estuaries that determines their value as fishery breeding grounds; it is the timing, when it comes in. So the reference to the impact of the Ord River scheme is that it is continually releasing water during the dry season, and that is diluting the estuarine environment, so that it does not become salty enough for certain things to happen. At other times of year, in other places, restricting the amount of fresh water going into the estuary would have a negative impact on the breeding of a range of fishery species. It is not simply a matter of saying: 'Is holding back water, or releasing water, into estuaries good or bad?' The answer is: it depends on the dynamics of the fishery and when the water is being released or when it is being held back.<sup>266</sup>

2.247 The Committee sought further information from Griffith University.

2.248 The key points in Griffith University's submission were that the wet-dry tropical rivers had highly variable flows between seasons, and between years. Consequently their species had become highly adapted to the conditions, with the result that:

Changes in flow as a result of water extraction are therefore highly likely to have significant effects on species inhabiting these systems. In order to minimise effects, the following issues need to be kept in mind:

- The need for longitudinal connectivity of rivers from estuaries to headwaters to allow fish species to migrate
- Continued floodplain and saltflat flooding for extended periods during the wet season to maintain critical habitat and food sources for fish species
- Minimising barriers on floodplains that may restrict flow and species movement
- Maintaining early wet season flows to reduce hypersaline conditions in estuaries that have developed over the dry season
- Freshwater flows bring nutrients to the nutrient-depauperate coastal waters, fuelling the productivity of these waters.<sup>267</sup>

2.249 Further, the use of mean annual flow amounts for water allocation was inappropriate – the median values were more meaningful. For example, for the Gilbert River:

January mean values are 91 564 ML while median values are 14 943 ML. So under a scenario of, for example, ~35% of mean annual flow extracted, this would mean that in 40% of years all or

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266 Dr Peter Stone, *Committee Hansard*, Brisbane, 30 May 2014, p. 20.

267 Professor Michele Burford, Australian Rivers Institute, *Submission 307*, p. 1.

almost all of the water would be extracted ... leaving nothing for the functioning of the river that year.<sup>268</sup>

- 2.250 The sustainable use of aquifers was raised by CSIRO. It identified some 120 000 hectares in Northern Australia which could be sustainably irrigated using 'fill and spill aquifers' – those that renew themselves annually.

One of the challenges in using groundwater resources is that a lot of aquifers have very slow water dynamics. So if you remove a lot of water in a decade, the impacts of that might not become apparent for many decades. That poses something of a challenge to sustainably managing those aquifers. It becomes much simpler if the aquifers respond to water addition and subtraction very quickly. Basically, you can tell how that aquifer is handling the various water inputs and outputs pretty easily.<sup>269</sup>

- 2.251 The CSIRO also drew attention to the Great Artesian Basin Sustainability Initiative (GABSI). This was designed to address the uncontrolled release of water from the Great Artesian Basin through a cap and pipe program. The program had the aim of preserving volumes of water in the aquifer, but more importantly it was preserving the groundwater pressure.<sup>270</sup> Funding for the program had been cut before it had been completed.
- 2.252 The Committee notes the recent announcement by the Minister for the Environment, that as part of the approval process for the Carmichael Coal Mine project in the Galilee Basin, 730 GL of water were to be 'returned to the Great Artesian Basin every year for five years.'<sup>271</sup>
- 2.253 The Committee concludes that large-scale extraction of water from the river systems and aquifers in Northern Australia needs to be preceded by thorough scientific evaluation.

## Conservation Benefits

- 2.254 Not all possible developments in Northern Australia have potential to adversely affect the environment. Indeed some have the potential to contribute to conservation. As noted above, the opportunity to harvest feral animals such as camels, and use introduced woody weeds as a

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268 Professor Michele Burford, *Submission 307*, p. 2.

269 Dr Peter Stone, *Committee Hansard*, Brisbane, 30 May 2014, p. 17.

270 Dr Peter Stone, *Committee Hansard*, Brisbane, 30 May 2014, p. 18.

271 Hon. Greg Hunt MP, Minister for the Environment, *Media Release, Strictest Conditions on Carmichael Coal Mine Project*, 28 July 2014,

<[www.environment.gov.au/minister/hunt/2014/mr20140728.html?utm\\_source=mins&utm\\_medium=rss&utm\\_campaign=feed](http://www.environment.gov.au/minister/hunt/2014/mr20140728.html?utm_source=mins&utm_medium=rss&utm_campaign=feed)> July 2104.



biofuel feedstock could significantly improve the environment. In addition, carbon farming assists in improving biodiversity.

## Biosecurity

2.255 Broadscale agriculture relying on monoculture, and increased concentrations of stock animals, because of live exports, raises the possibility of outbreaks and proliferation of pests and diseases. The Department of Agriculture stated:

Our favourable pest and disease status underpins the agriculture sector's ability to export, and effective management of biosecurity ensures that we can maintain the status ... Northern Australia's remoteness and a relative lack of development have provided a natural barrier to exotic pests and diseases. More economic activity and movement of people and materials in Northern Australia will increase the risk of pests and diseases being introduced and spreading throughout Australia. Increased biosecurity efforts will be required, involving collaboration across governments, industry and communities.<sup>272</sup>

2.256 The Department stated that targeted surveillance was the key to ensure pests and diseases did not enter or establish themselves, and in maintaining access for Australia's agricultural produce to international markets. It drew attention to its Northern Australia Quarantine Strategy which engaged Aboriginal and Torres Strait Islander communities in actively managing biosecurity. It noted that the Strategy had '40 fee-for-service contracts' equating to 'approximately 10 full-time equivalents' worth of contract services for delivery by third party Aboriginal and Torres Strait Islander rangers.'<sup>273</sup>

2.257 The Weipa Town Authority, nevertheless, was concerned at recent quarantine staff reductions. It stated that staffing in the Cape York region had been halved to one officer. It considered that five staff would be needed to provide adequate quarantine coverage.<sup>274</sup>

2.258 Similar views were expressed by the Wet Tropics Management Authority:

... the [biosecurity] system, as such, is intellectually sound, but I fear that it is under resourced. All the biosecurity officials I meet

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272 Ms Sally Standen, Assistant Secretary, Governance Division, *Committee Hansard*, Canberra, 21 March 2014, p. 29.

273 Department of Agriculture, *Submission 238*, pp. 16, 17.

274 Mr Richard Noonan, Deputy Chair, *Committee Hansard*, Weipa, 3 July 2014, p. 15.

are very dedicated to the cause, but nevertheless things continue to slip through.<sup>275</sup>

## Conclusion

2.259 In this chapter, the Committee has identified in broad terms the opportunities for developing Northern Australia and discussed some specific projects. Following Chapters provide more detail on specific projects and identify some of the impediments to Northern Australia's development.

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275 Mr Andrew Maclean, Executive Director, *Committee Hansard*, Cairns, 28 April 2014, p. 55.