# DEFENCE ESTATE PROJECT: REGIONAL ECONOMIC COSTS AND BENEFITS OF SELECTED AUSTRALIAN DEFENCE FORCE BASES.

**Study by the Centre of Policy Studies for the Department of Defence**

**This draft: 23 September 2003**

# Centre of Policy Studies

Centre of Policy Studies

PO Box 11E

Monash University

Victoria 3800

Australia

**ABN 12 377 614 012**

Contact person: Dr. Philip Adams

| | |
|---|---|
| Telephone: | (61-3) 9905 5094 |
| Facsimile: | (61-3) 9905 2426 |
| Email: | philip.adams@buseco.monash.edu.au |
| Web address: | http://www.monash.edu.au/policy/ |

# BACKGROUND INFORMATION

This report contains economic profiles for selected Australian Defence Force (ADF) Bases. The profiles are for use as input into the wider Defence Estate Project.

Each profile has three sections.

A. *Composition of Output and Employment, 2002.* This provides information on the current economic structure of the statistical division within which each Base is located. Data on output and employment are reported for 27 broadly defined industry groups, including Defence services, and for each Base. The industry definitions follow the official Australian and New Zealand Standard Industrial Classification (ANZSIC). ANZSIC defines the defence industry as consisting of all "units of the defence forces (including those staffed by civilian personnel employed by the defence forces) as well as of Government units mainly engaged in defence administration". Source of data for this section: Centre of Policy Studies, drawing heavily on information provided by the Australia Bureau of Statistics (contact Philip Adams).

B. *Forecast growth, average annual (%) 2002 to 2010.* This shows forecast growth rates for important economic indicators such as real value added and employment for the statistical division and state within which each Base is located. These forecasts are compiled on the assumption that there is no change in the current ADF-base structure. As such, they provide a useful basis for comparing the economic contribution of each Base reported in Section C. Source of forecasts for this section: Centre of Policy Studies (contact Tony Meagher).

C. *Economic Contribution.* This section provides an overview of the economic contribution made by each Base to their home-region economy. The economic contributions are generated by the Centre of Policy Studies' TERM model (see Appendix). Contributions are reported for three key indicators: real value added, real household consumption and employment.

## *Definitions*

### A: Composition of Output and Employment

**Output**
Output for an industry is measured as gross value added. Gross value added represents the excess of revenue over the cost of material and service inputs. It is equivalent to the cost of labour and capital plus production taxes. The sum across industries of value added is analogous to GDP, the standard measure of the value of output in the Australian economy.

**Employment**
For each industry the number of persons employed equals the number of full and part-time employees as defined for the official Labour Force survey.

**Contribution**
In this section we use the term "contribution" when referring to the share of an industry in region-wide output or employment. These shares are based on the measured amounts of value added or employment directly attributable to each industry. In Section C we use the term "contribution" to mean the overall economic contribution of an ADF base to the economy of the statistical division or to the economy of the state wherein the base is located (see definitions for Section C).

### B: Forecast Growth

**Real value added**
This is total value added measured in constant 2002 prices. At the state level, it is equivalent to real Gross State Product (GSP). At the national level it is equivalent to real Gross Domestic Product (GDP).

**Real household consumption**

This is a measure of the real purchasing value of household consumption.

**Employment**
See the definitions for Section A.

## C: Economic Contribution

The economic contribution of a Base is the sum of three components: (a) the *direct contribution* which is measured by the number of people directly employed on the base and by the output that is directly generated by that employment; (b) the *indirect contribution* that arise from input/output linkages between the base and other industrial and commercial activities such as retail trade and electricity supply; and (c) the *induced income contributions* that arise from the income spent in the local economy by base employees and their households. Thus the economic contribution of a Base will be typically larger than that suggested by the number of persons directly employed on the Base.

For each of aggregate real value added, real household consumption and aggregate employment, we report a Base's economic contribution in three ways:

**Percentage**
This expresses the Base's economic contribution as a percentage of the indicator's 2002 level. For example, if a Base's economic contribution to aggregate real value added is 1 per cent, then this means that, when all direct, indirect and induced income factors are taken into account, the Base contributes 1 per cent to the region's total value added.

**Level ($m or '000 persons in 2002)**
This is the level of the economic contribution in 2002. For example, if the Base's economic contribution to total value added in a region is 1 per cent, and the level of real value added in that region in 2002 is $100 million, then the value (or level) of the economic contribution is $1 million.

**Percentage-point contribution to forecast growth**
This shows the percentage point contribution of the Base to the annual average growth rate reported in Section B. From this information we can calculate how forecast growth in the region containing the base would be affected if the Base were shut down between now and 2010. For example, if the %-point contribution to forecast growth is 0.1, and the underlying rate of growth reported in Section B is 3.0 per cent per annum, then withdrawing the base would reduce the region's average rate of growth to 2.9 per cent per annum between 2002 and 2010.

**The Rule of Two**

Our calculations for each Base suggest that, as a rule of thumb, the value of the economic contribution of a typical Base is roughly twice that of the Base's direct contribution. In other words, if employment on a typical-Base is 1,000 persons, then the typical-Base's economic contribution to total employment in the region will be around 2,000 persons. Alternatively, if value added directly associated with the typical-Base is $100 million, then the typical-Base's economic contribution to total value added in the regional economy will be around $200 million.

This "Rule of Two" is equivalent to saying that the indirect contribution together with the induced income contributions of a typical Base is roughly equal to the typical-Base's direct contribution. Why are the non-direct contributions so large for a typical Base? One reason is that the typical-Base is quite labour intensive and most of the labour lives and spends its money in the local region. Thus income leakages out of the local region tend to be quite small. Another factor is that the typical-Base sources most of the materials and services required for daily operations from the local economy. Thus input/output linkages with local industries tend to be quite strong. Of course, as with all economic assessments there will be offsetting factors. One such factor, specific to bases in the Hunter statistical division is the deleterious effect that base-activity has on the production of coal (see the profiles for the Lone Pine Barracks and RAAF Williamtown).

# HMAS CERBERUS

# CRIB POINT, WESTERNPORT BAY, VICTORIA

***Statistical division:*** *Melbourne (Vic)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 870.1 | 0.7 | 15.6 | 0.9 |
| 2 | Forestry and fishing | 42.0 | 0.0 | 0.5 | 0.0 |
| 3 | Mining | 1,360.3 | 1.1 | 2.3 | 0.1 |
| 4 | Food, beverages and tobacco | 2,629.7 | 2.2 | 33.4 | 1.9 |
| 5 | Textiles, clothing and footwear | 833.4 | 0.7 | 27.0 | 1.6 |
| 6 | Wood and paper product manufacturing | 1,179.4 | 1.0 | 13.1 | 0.8 |
| 7 | Printing and publishing | 1,803.6 | 1.5 | 27.3 | 1.6 |
| 8 | Chemical products | 3,333.6 | 2.8 | 39.5 | 2.3 |
| 9 | Non-metallic mineral products | 782.8 | 0.7 | 8.8 | 0.5 |
| 10 | Metal products | 2,094.5 | 1.8 | 30.7 | 1.8 |
| 11 | Machinery and equipment | 4,379.6 | 3.7 | 68.6 | 4.0 |
| 12 | Other manufacturing | 769.4 | 0.6 | 24.9 | 1.4 |
| 13 | Electricity, gas and water | 2,425.0 | 2.0 | 9.0 | 0.5 |
| 14 | Construction | 6,659.4 | 5.6 | 131.9 | 7.7 |
| 15 | Wholesale trade | 7,577.6 | 6.4 | 80.9 | 4.7 |
| 16 | Retail trade | 6,397.5 | 5.4 | 262.0 | 15.2 |
| 17 | Accommodation, cafes and restaurants | 1,965.6 | 1.7 | 67.3 | 3.9 |
| 18 | Transport and storage | 6,073.4 | 5.1 | 73.3 | 4.3 |
| 19 | Communication services | 4,936.5 | 4.2 | 42.1 | 2.4 |
| 20 | Finance and insurance | 11,705.0 | 9.9 | 81.8 | 4.8 |
| 21 | Property and business services | 28,428.7 | 24.0 | 228.7 | 13.3 |
| 22 | Government administration (not defence) | 2,709.1 | 2.3 | 56.3 | 3.3 |
| 23 | Defence | 705.3 | 0.6 | 7.2 | 0.4 |
| | *HMAS Cerberus* | *(197.9)* | *(0.2)* | *(2.8)* | *(0.2)* |
| 24 | Education | 6,060.9 | 5.1 | 118.2 | 6.9 |
| 25 | Health and community services | 7,338.0 | 6.2 | 158.2 | 9.2 |
| 26 | Cultural and recreational services | 2,723.0 | 2.3 | 50.2 | 2.9 |
| 27 | Personal and other services | 2,749.5 | 2.3 | 63.5 | 3.7 |
| | *Total* | *118,532.9* | *100.0* | *1,722.3* | *100.0* |

### Remarks

HMAS Cerberus lies within the Melbourne statistical division. Melbourne has a typical capital-city economy, with a strong orientation towards service industries. In terms of output, the largest industry is Property and business services which directly contributes 24.0 per cent to total value added. Other important industries are Finance and Insurance (9.9 per cent), Wholesale trade services (6.4 per cent), Health and community services (6.2 per cent), Construction services (5.6 per cent) and Retail trade services (5.4 per cent). The defence services industry directly contributes 0.6 per cent to total value added. Of this, 0.2 percentage points can be attributed to the operations of HMAS Cerberus.

Employment in the Melbourne statistical division in 2002 totalled 1,722 thousand full and part-time jobs. Of this, 15.2 per cent were employed in Retail trade and 13.3 per cent in the Property and business services industry. Defence services personal totalled 7,200 of which 2,800 were employed at HMAS Cerberus.

### *B: Forecast Growth, average annual (%) 2002 to 2010*

| Indicator | Melbourne | Victoria | Australia |
|---|---|---|---|
| Real value added | 2.88 | 2.72 | 3.12 |
| Real household consumption | 2.75 | 2.69 | 3.10 |
| Employment | 1.13 | 1.01 | 1.24 |

#### Remarks

Melbourne has slightly better growth prospects than Victoria as a whole. This reflects its service-industry orientation: service industries have generally better growth prospects than do primary agricultural and mining industries. Victoria as a whole, though, is forecast to grow somewhat slower than Australia. Victoria loses ground mainly to Queensland and Western Australia which are forecast to grow at rates exceeding 3.5 per cent per annum during the current decade.

### *C: HMAS Cerberus's Economic Contribution*

| Indicator | Melbourne | Victoria |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 0.33 | 0.25 |
| Level ($m in 2002) | 389.9 | 455.5 |
| Percentage-point contribution to growth (section B) | 0.04 | 0.03 |
| Real household consumption | | |
| Percentage | 0.50 | 0.39 |
| Level ($m in 2002) | 412.4 | 424.0 |
| Percentage-point contribution to growth (section B) | 0.06 | 0.05 |
| Aggregate employment | | |
| Percentage | 0.36 | 0.28 |
| Level (thousand persons in 2002) | 6.1 | 6.4 |
| Percentage-point contribution to growth (section B) | 0.04 | 0.03 |

#### Remarks

HMAS Cerberus contributes 0.33 per cent, or $390 million, to total real value added in the Melbourne statistical division. This compares with the base's direct contribution (see Section A) of $198 million. For Victoria, the base contributes 0.25 per cent to total real value added, or $552 million. In terms of employment, HMAS Cerberus contributes 0.36 per cent to Melbourne's total employment, or 6,100 persons, and 0.28 per cent to Victoria's employment, or 6,400 persons. If HMAS Cerberus were to be closed between now and 2010, then the projected growth rate for real value added in Melbourne would be, on average, 0.04 percentage points per annum lower than indicated in Section B.

# BORNEO BARRACKS

# CABARLAH, QUEENSLAND

***Statistical division:*** *Darling Downs (QLD)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output ($m) | Output % | Employment (000' persons) | Employment % |
|---|---|---|---|---|---|
| 1 | Agriculture | 1,013.7 | 17.4 | 19.2 | 18.7 |
| 2 | Forestry and fishing | 27.8 | 0.5 | 0.5 | 0.4 |
| 3 | Mining | 212.2 | 3.6 | 0.3 | 0.3 |
| 4 | Food, beverages and tobacco | 274.9 | 4.7 | 4.2 | 4.1 |
| 5 | Textiles, clothing and footwear | 19.0 | 0.3 | 0.5 | 0.5 |
| 6 | Wood and paper product manufacturing | 34.7 | 0.6 | 0.6 | 0.6 |
| 7 | Printing and publishing | 25.7 | 0.4 | 0.5 | 0.5 |
| 8 | Chemical products | 35.1 | 0.6 | 0.4 | 0.4 |
| 9 | Non-metallic mineral products | 30.7 | 0.5 | 0.5 | 0.4 |
| 10 | Metal products | 56.1 | 1.0 | 0.9 | 0.9 |
| 11 | Machinery and equipment | 107.3 | 1.8 | 2.2 | 2.1 |
| 12 | Other manufacturing | 22.6 | 0.4 | 0.8 | 0.8 |
| 13 | Electricity, gas and water | 123.6 | 2.1 | 0.7 | 0.7 |
| 14 | Construction | 331.1 | 5.7 | 6.6 | 6.4 |
| 15 | Wholesale trade | 338.5 | 5.8 | 4.7 | 4.5 |
| 16 | Retail trade | 416.9 | 7.1 | 15.4 | 15.0 |
| 17 | Accommodation, cafes and restaurants | 145.1 | 2.5 | 4.3 | 4.2 |
| 18 | Transport and storage | 235.6 | 4.0 | 4.1 | 4.0 |
| 19 | Communication services | 143.3 | 2.5 | 1.2 | 1.1 |
| 20 | Finance and insurance | 215.5 | 3.7 | 1.8 | 1.7 |
| 21 | Property and business services | 809.5 | 13.9 | 6.2 | 6.1 |
| 22 | Government administration (not defence) | 209.4 | 3.6 | 3.5 | 3.4 |
| 23 | Defence | 68.9 | 1.2 | 1.6 | 1.6 |
| | *Borneo Barracks* | *(31.2)* | *(0.5)* | *(0.4)* | *(0.4)* |
| 24 | Education | 372.1 | 6.4 | 8.1 | 7.9 |
| 25 | Health and community services | 382.0 | 6.5 | 9.7 | 9.5 |
| 26 | Cultural and recreational services | 59.7 | 1.0 | 1.3 | 1.3 |
| 27 | Personal and other services | 122.6 | 2.1 | 3.0 | 2.9 |
| | *Total* | *5,833.3* | *100.0* | *102.6* | *100.0* |

### Remarks

Borneo Barracks lies within the Darling Downs statistical division in Queensland. Darling Downs is a fairly small, agricultural-oriented region. Primary agricultural industries and food manufacturers together contribute around 22 per cent to total value added and almost 23 per cent to total employment. The second largest industry in terms of output is Property and business services which directly contributes 13.9 per cent to total value added. The second largest industry in terms of employment is Retail trade which contributes 15 per cent to total employment. Output from the defence services industry represents 1.2 per cent (or $69 million) of total value added, while ADF employees comprise 1.6 per cent (or 1,600 persons) of total employment. Borneo Barracks directly contributes 0.5 per cent to total output and 0.4 per cent to total employment.

### B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Darling Downs | Queensland | Australia |
|---|---|---|---|
| Real value added | 2.89 | 3.60 | 3.12 |
| Real household consumption | 2.70 | 3.55 | 3.10 |
| Employment | 0.80 | 1.55 | 1.24 |

#### Remarks

Agriculture's growth prospects are a little below the average of all industries in Queensland. Thus agriculture-oriented regions such as Darling Downs generally have below state-average growth prospects. In a state which is projected to grow at an average annual rate of 3.6 per cent in terms of output and at an average annual rate of 1.6 per cent in terms of employment, Darling Downs is forecast to grow at an average annual rate of 1.9 per cent, with employment growth at average annual rate of 0.8 per cent.

### C: Borneo Barracks' Economic Contribution

| Indicator | Darling Downs | Queensland |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 1.08 | 0.06 |
| Level ($m in 2002) | 63.3 | 75.4 |
| Percentage-point contribution to growth (section B) | 0.13 | 0.01 |
| Real household consumption | | |
| Percentage | 1.64 | 0.09 |
| Level ($m in 2002) | 65.0 | 69.2 |
| Percentage-point contribution to growth (section B) | 0.20 | 0.01 |
| Aggregate employment | | |
| Percentage | 1.17 | 0.07 |
| Level (thousand persons in 2002) | 1.2 | 1.6 |
| Percentage-point contribution to growth (section B) | 0.15 | 0.01 |

#### Remarks

Borneo Barracks' total economic contribution to the Darling Downs economy is roughly twice that of its direct contribution (Section A). The base contributes 1.08 per cent to real value added, or $63 million, and 1.17 per cent to total employment, or 1,200 persons. Without Borneo Barracks, the projected growth rate for real value added in Darling Downs would be, on average, 0.13 percentage points per annum lower than indicated in Section B.

# LONE PINE BARRACKS

# SINGLETON NSW

***Statistical division:*** *Hunter (NSW)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 356.5 | 2.0 | 7.9 | 3.2 |
| 2 | Forestry and fishing | 46.1 | 0.3 | 1.0 | 0.4 |
| 3 | Mining | 1,572.9 | 9.0 | 8.2 | 3.3 |
| 4 | Food, beverages and tobacco | 397.4 | 2.3 | 4.8 | 1.9 |
| 5 | Textiles, clothing and footwear | 28.6 | 0.2 | 1.0 | 0.4 |
| 6 | Wood and paper product manufacturing | 96.5 | 0.6 | 1.5 | 0.6 |
| 7 | Printing and publishing | 103.0 | 0.6 | 1.5 | 0.6 |
| 8 | Chemical products | 208.3 | 1.2 | 1.8 | 0.7 |
| 9 | Non-metallic mineral products | 77.3 | 0.4 | 1.0 | 0.4 |
| 10 | Metal products | 910.2 | 5.2 | 10.2 | 4.1 |
| 11 | Machinery and equipment | 454.1 | 2.6 | 6.4 | 2.6 |
| 12 | Other manufacturing | 30.0 | 0.2 | 0.8 | 0.3 |
| 13 | Electricity, gas and water | 617.6 | 3.5 | 3.0 | 1.2 |
| 14 | Construction | 1,075.2 | 6.1 | 20.4 | 8.2 |
| 15 | Wholesale trade | 867.9 | 4.9 | 10.8 | 4.3 |
| 16 | Retail trade | 1,046.9 | 6.0 | 41.8 | 16.7 |
| 17 | Accommodation, cafes and restaurants | 482.7 | 2.8 | 14.0 | 5.6 |
| 18 | Transport and storage | 668.8 | 3.8 | 10.4 | 4.2 |
| 19 | Communication services | 326.6 | 1.9 | 3.3 | 1.3 |
| 20 | Finance and insurance | 864.6 | 4.9 | 6.7 | 2.7 |
| 21 | Property and business services | 3,767.7 | 21.5 | 22.0 | 8.8 |
| 22 | Government administration (not defence) | 545.7 | 3.1 | 7.9 | 3.2 |
| 23 | Defence | 228.5 | 1.3 | 3.1 | 1.3 |
| | *Lone Pine Barracks* | *(28.9)* | *(0.2)* | *(0.4)* | *(0.2)* |
| 24 | Education | 885.0 | 5.0 | 17.9 | 7.2 |
| 25 | Health and community services | 1,230.3 | 7.0 | 28.7 | 11.5 |
| 26 | Cultural and recreational services | 256.8 | 1.5 | 4.6 | 1.9 |
| 27 | Personal and other services | 391.3 | 2.2 | 8.9 | 3.6 |
| | *Total* | *17,536.5* | *100.0* | *249.7* | *100.0* |

### Remarks

Lone Pine Barracks lies within the Hunter statistical division. Hunter has a large coal mining industry and generates much of the electricity used in Sydney. Outside of mining and electricity generation, the region has a fairly typical economy, with a diverse range of agricultural, manufacturing and service industries. The largest industry in terms of output is Property and business services which contributes over 20 per cent to total output. Then follows mining which contributes 9 per cent. The largest employer is Retail trade which provides 16.7 per cent of all jobs in the region. The second largest employer is Health and community services which makes up 11.5 per cent of total employment. The defence services industry directly contributes 1.3 per cent (or $229 million) to total value added, and 1.3 per cent (or 3,100 persons) to total employment. The output and employment shares for the Lone Pine base are 0.2 per cent and 0.2 per cent.

## B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Hunter | NSW | Australia |
|---|---|---|---|
| Real value added | 2.69 | 2.98 | 3.12 |
| Real household consumption | 2.55 | 2.90 | 3.10 |
| Employment | 0.91 | 1.20 | 1.24 |

### Remarks

Hunter's main primary industry, coal mining, has relatively weak growth prospects due to forecast slow growth in exports (principally to Japan). This is the main reason why the region's growth potential is below that of NSW as a whole.

## C: Lone Pine Barracks' Economic Contribution

| Indicator | Hunter | NSW |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 0.25 | 0.03 |
| Level ($m in 2002) | 43.9 | 63.4 |
| Percentage-point contribution to growth (section B) | 0.03 | 0.00 |
| Real household consumption | | |
| Percentage | 0.44 | 0.04 |
| Level ($m in 2002) | 49.8 | 58.2 |
| Percentage-point contribution to growth (section B) | 0.06 | 0.00 |
| Aggregate employment | | |
| Percentage | 0.31 | 0.03 |
| Level (thousand persons in 2002) | 0.8 | 0.7 |
| Percentage-point contribution to growth (section B) | 0.04 | 0.00 |

### Remarks

Lone Pine Barracks' economic contribution to the Hunter region is 0.25 per cent to total real value added, or $44 million, and 0.31 per cent to total employment, or 800 persons. It is of interest to note that Lone Pine's economic contribution would have been larger if not for the importance of coal to the Hunter region. Hunter-produced coal is mainly exported. The world market for coal is very competitive, hence any increases in local costs, which reduce the competitivess of Hunter-produced coal, tends to have a relatively large negative impact on the coal industry and hence on the Hunter economy. Though quite small, the presence of the Lone Pine base does result in land prices and the prices of Hunter produced services being higher than they otherwise would be. These higher prices flow through to higher production costs in all Hunter industries, including coal. Thus our modelling shows that the presence of the Lone Pine base depresses coal exports and coal production, leading to a lower economic contribution than would otherwise be the case.

Without Lone Pine Barracks, the projected growth rate for real value added in Hunter would be, on average, 0.03 percentage points per annum lower than indicated in Section B.

# DIGO "FORTUNA" BENDIGO

# BENDIGO VIC

***Statistical division:*** *Loddon-Campaspe (Vic)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 369.6 | 7.7 | 6.1 | 8.1 |
| 2 | Forestry and fishing | 6.4 | 0.1 | 0.1 | 0.1 |
| 3 | Mining | 59.4 | 1.2 | 0.2 | 0.2 |
| 4 | Food, beverages and tobacco | 275.7 | 5.8 | 3.8 | 5.0 |
| 5 | Textiles, clothing and footwear | 26.9 | 0.6 | 0.8 | 1.1 |
| 6 | Wood and paper product manufacturing | 26.3 | 0.6 | 0.4 | 0.5 |
| 7 | Printing and publishing | 61.9 | 1.3 | 1.0 | 1.3 |
| 8 | Chemical products | 51.2 | 1.1 | 0.6 | 0.8 |
| 9 | Non-metallic mineral products | 42.4 | 0.9 | 0.5 | 0.7 |
| 10 | Metal products | 60.6 | 1.3 | 0.8 | 1.1 |
| 11 | Machinery and equipment | 142.4 | 3.0 | 2.3 | 3.1 |
| 12 | Other manufacturing | 20.4 | 0.4 | 0.6 | 0.8 |
| 13 | Electricity, gas and water | 135.5 | 2.8 | 0.5 | 0.7 |
| 14 | Construction | 298.0 | 6.2 | 6.0 | 7.9 |
| 15 | Wholesale trade | 227.0 | 4.8 | 2.4 | 3.2 |
| 16 | Retail trade | 302.7 | 6.3 | 12.2 | 16.2 |
| 17 | Accommodation, cafes and restaurants | 87.6 | 1.8 | 2.9 | 3.8 |
| 18 | Transport and storage | 239.5 | 5.0 | 3.1 | 4.2 |
| 19 | Communication services | 183.8 | 3.8 | 1.6 | 2.2 |
| 20 | Finance and insurance | 286.6 | 6.0 | 2.0 | 2.6 |
| 21 | Property and business services | 799.6 | 16.7 | 5.1 | 6.8 |
| 22 | Government administration (not defence) | 131.2 | 2.7 | 2.8 | 3.7 |
| 23 | Defence | 21.7 | 0.5 | 0.2 | 0.3 |
| | *DIGO Bendigo* | *(10.2)* | *(0.2)* | *(0.1)* | *(0.2)* |
| 24 | Education | 297.8 | 6.2 | 5.8 | 7.7 |
| 25 | Health and community services | 385.1 | 8.1 | 8.6 | 11.4 |
| 26 | Cultural and recreational services | 99.4 | 2.1 | 1.8 | 2.4 |
| 27 | Personal and other services | 138.7 | 2.9 | 3.1 | 4.1 |
| | *Total* | *4,777.3* | *100.0* | *75.3* | *100.0* |

### Remarks

DIGO Bendigo lies within the Loddon-Campaspe statistical division of Victoria. This is a small region heavily concentrated towards agricultural production. Primary and secondary agricultural industries make up around 13 per cent of the region's output and employment. The largest industry in terms of output is Property and business services (16.7 per cent) and Food. The largest employer is Retail trade which directly contributes 16 per cent of total employment. The defence services industry is quite small, contributing 0.5 per cent (or $22 million) to total value added, and 0.3 per cent (or 200 persons) to total employment. DIGO Bendigo makes up about half of Defence's total contribution.

### B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Loddon-Campaspe | Victoria | Australia |
| --- | --- | --- | --- |
| Real value added | 2.17 | 2.72 | 3.12 |
| Real household consumption | 2.05 | 2.69 | 3.10 |
| Employment | 0.59 | 1.01 | 1.24 |

#### Remarks

Relatively weak growth projected for agriculture accounts for why the overall growth potential for the Loddon-Campaspe is below the statewide average.

### C: DIGO Bendigo’s Economic Contribution

| Indicator | Loddon-Campaspe | Victoria |
| --- | --- | --- |
| Aggregate real value added | | |
| Percentage | 0.39 | 0.01 |
| Level ($m in 2002) | 18.4 | 24.0 |
| Percentage-point contribution to growth (section B) | 0.05 | 0.00 |
| Real household consumption | | |
| Percentage | 0.57 | 0.02 |
| Level ($m in 2002) | 18.3 | 22.1 |
| Percentage-point contribution to growth (section B) | 0.07 | 0.00 |
| Aggregate employment | | |
| Percentage | 0.41 | 0.01 |
| Level (thousand persons in 2002) | 0.3 | 0.3 |
| Percentage-point contribution to growth (section B) | 0.05 | 0.00 |

#### Remarks

Though FIDO Bendigo is a small base, its contribution to the Loddon-Campaspe is more than negligible. It contributes 0.39 per cent to total real value added in the region, or $18.4 million, and 0.41 per cent tot total employment, or 300 persons. Without FIDO Bendigo, the projected growth rate for real value added in Loddon-Campaspe would be, on average, 0.05 percentage points per annum lower than indicated in Section B.

# BLAMEY BARRACKS

# WAGGA WAGGA, NSW

***Statistical division:*** *Murrumbidgee (NSW)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 618.2 | 13.4 | 13.8 | 18.8 |
| 2 | Forestry and fishing | 10.3 | 0.2 | 0.2 | 0.3 |
| 3 | Mining | 26.8 | 0.6 | 0.1 | 0.2 |
| 4 | Food, beverages and tobacco | 313.9 | 6.8 | 3.7 | 5.1 |
| 5 | Textiles, clothing and footwear | 8.1 | 0.2 | 0.2 | 0.3 |
| 6 | Wood and paper product manufacturing | 96.2 | 2.1 | 1.2 | 1.6 |
| 7 | Printing and publishing | 26.1 | 0.6 | 0.4 | 0.6 |
| 8 | Chemical products | 19.8 | 0.4 | 0.2 | 0.2 |
| 9 | Non-metallic mineral products | 13.1 | 0.3 | 0.2 | 0.2 |
| 10 | Metal products | 45.8 | 1.0 | 0.7 | 0.9 |
| 11 | Machinery and equipment | 51.2 | 1.1 | 0.8 | 1.1 |
| 12 | Other manufacturing | 8.3 | 0.2 | 0.2 | 0.3 |
| 13 | Electricity, gas and water | 161.3 | 3.5 | 0.8 | 1.1 |
| 14 | Construction | 221.2 | 4.8 | 4.2 | 5.7 |
| 15 | Wholesale trade | 289.3 | 6.3 | 3.6 | 4.9 |
| 16 | Retail trade | 286.6 | 6.2 | 11.1 | 15.1 |
| 17 | Accommodation, cafes and restaurants | 116.9 | 2.5 | 3.3 | 4.6 |
| 18 | Transport and storage | 204.4 | 4.4 | 3.4 | 4.6 |
| 19 | Communication services | 75.4 | 1.6 | 0.8 | 1.0 |
| 20 | Finance and insurance | 184.5 | 4.0 | 1.3 | 1.8 |
| 21 | Property and business services | 841.4 | 18.3 | 4.2 | 5.7 |
| 22 | Government administration (not defence) | 160.8 | 3.5 | 2.3 | 3.1 |
| 23 | Defence | 113.2 | 2.5 | 1.5 | 2.1 |
| | *Blamey Barracks* | *(53.1)* | *(1.2)* | *(0.8)* | *(1.0)* |
| 24 | Education | 274.6 | 6.0 | 5.5 | 7.6 |
| 25 | Health and community services | 270.1 | 5.9 | 6.2 | 8.5 |
| 26 | Cultural and recreational services | 47.9 | 1.0 | 0.8 | 1.1 |
| 27 | Personal and other services | 111.2 | 2.4 | 2.5 | 3.4 |
| | *Total* | *4,596.5* | *100.0* | *73.2* | *100.0* |

### Remarks

Blamey Barracks lies within the agriculturally oriented Murrumbidgee statistical division of NSW. Primary and secondary agriculture together comprises over 20 per cent of the region's output and around 23 per cent of the region's employment. The next largest industries in terms of output are Property and business services (18.3 per cent), Wholesale trade (6.3 per cent) and Retail trade (6.2 per cent). Outside of agriculture and food processing industries, the largest employer is Retail trade which directly contributes 15.1 per cent of total employment. The defence services industry contributes 2.5 per cent (or $113 million) to total value added, and 2.1 per cent (or 1,500 persons) to total employment. Blamey Barracks makes up about half of the output and employment of Defence services in the region.

### *B: Forecast Growth, average annual (%) 2002 to 2010*

| Indicator | Murrumbidgee | NSW | Australia |
|---|---|---|---|
| Real value added | 2.39 | 2.98 | 3.12 |
| Real household consumption | 2.35 | 2.90 | 3.10 |
| Employment | 0.53 | 1.20 | 1.24 |

#### Remarks

Relatively weak growth projected for agriculture accounts for why the overall growth potential for the Murrumbidgee is below the statewide average.

### *C: Blamey Barracks' Economic Contribution*

| Indicator | Murrumbidgee | NSW |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 1.83 | 0.05 |
| Level ($m in 2002) | 83.9 | 125.8 |
| Percentage-point contribution to growth (section B) | 0.23 | 0.01 |
| Real household consumption | | |
| Percentage | 2.92 | 0.07 |
| Level ($m in 2002) | 87.7 | 106.7 |
| Percentage-point contribution to growth (section B) | 0.36 | 0.01 |
| Aggregate employment | | |
| Percentage | 2.07 | 0.06 |
| Level (thousand persons in 2002) | 1.5 | 1.3 |
| Percentage-point contribution to growth (section B) | 0.26 | 0.01 |

#### Remarks

Blamey Barracks' economic contribution to the Murrumbidgee region is worth 1.83 per cent of total value added, or $84 million. In terms of employment, the Barracks contributes 2.07 per cent to total employment, or 1,500 persons. If Blamey Barracks was removed from the region between now and 2010, then the projected growth rate for real value added in Murrumbidgee would be, on average, 0.23 percentage points per annum lower than indicated in Section B.

# KOKODA BARRACKS

# CANUNGRA, QUEENSLAND

### *Statistical division:* *Moreton (QLD)*

### *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 530.6 | 3.0 | 12.7 | 3.9 |
| 2 | Forestry and fishing | 78.5 | 0.4 | 1.5 | 0.5 |
| 3 | Mining | 518.7 | 2.9 | 1.0 | 0.3 |
| 4 | Food, beverages and tobacco | 342.5 | 1.9 | 5.2 | 1.6 |
| 5 | Textiles, clothing and footwear | 66.4 | 0.4 | 2.5 | 0.8 |
| 6 | Wood and paper product manufacturing | 123.9 | 0.7 | 2.2 | 0.7 |
| 7 | Printing and publishing | 141.8 | 0.8 | 2.7 | 0.8 |
| 8 | Chemical products | 168.4 | 0.9 | 2.0 | 0.6 |
| 9 | Non-metallic mineral products | 146.2 | 0.8 | 2.1 | 0.6 |
| 10 | Metal products | 216.9 | 1.2 | 3.5 | 1.1 |
| 11 | Machinery and equipment | 397.1 | 2.2 | 6.8 | 2.1 |
| 12 | Other manufacturing | 138.9 | 0.8 | 4.9 | 1.5 |
| 13 | Electricity, gas and water | 258.1 | 1.5 | 1.5 | 0.5 |
| 14 | Construction | 1,690.9 | 9.5 | 33.3 | 10.3 |
| 15 | Wholesale trade | 1,033.0 | 5.8 | 13.8 | 4.3 |
| 16 | Retail trade | 1,552.5 | 8.7 | 57.8 | 17.9 |
| 17 | Accommodation, cafes and restaurants | 945.3 | 5.3 | 28.0 | 8.7 |
| 18 | Transport and storage | 844.3 | 4.8 | 11.8 | 3.6 |
| 19 | Communication services | 493.1 | 2.8 | 4.0 | 1.3 |
| 20 | Finance and insurance | 984.4 | 5.5 | 8.0 | 2.5 |
| 21 | Property and business services | 3,401.4 | 19.2 | 34.5 | 10.7 |
| 22 | Government administration (not defence) | 516.1 | 2.9 | 8.5 | 2.6 |
| 23 | Defence | 41.0 | 0.2 | 0.8 | 0.2 |
| | *Kokoda Barracks* | *(40.4)* | *(0.2)* | *(0.6)* | *(0.2)* |
| 24 | Education | 914.0 | 5.1 | 20.1 | 6.2 |
| 25 | Health and community services | 1,158.9 | 6.5 | 28.4 | 8.8 |
| 26 | Cultural and recreational services | 531.3 | 3.0 | 12.0 | 3.7 |
| 27 | Personal and other services | 526.6 | 3.0 | 13.2 | 4.1 |
| | *Total* | *17,760.7* | *100.0* | *322.6* | *100.0* |

### Remarks

Kokoda Barracks lies within the Moreton statistical division. Moreton is a very service-oriented region with strong linkages to tourism. The largest industry in terms of output is Property and business services which produces 19.2 per cent of the region's output. This is followed by Construction (9.5 per cent) and Retail trade (8.7 per cent). The largest employers are Retail trade (17.9 per cent of total employment), Property and business services (10.7 per cent) and Construction (10.3 per cent). The defence services industry, which is mainly the Kokoda Barracks, contributes 0.2 per cent (or $41 million) to total value added, and 0.2 per cent (or 800 persons) to total employment.

### B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Moreton | Queensland | Australia |
|---|---|---|---|
| Real value added | 3.82 | 3.60 | 3.12 |
| Real household consumption | 3.95 | 3.55 | 3.10 |
| Employment | 1.69 | 1.55 | 1.24 |

#### Remarks

Strong prospects for international and interstate tourism, coupled with continued strong population growth gives Moreton very good growth prospects.

### C: Kokoda Barracks' Economic Contribution

| Indicator | Moreton | Queensland |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 0.57 | 0.10 |
| Level ($m in 2002) | 101.8 | 115.6 |
| Percentage-point contribution to growth (section B) | 0.07 | 0.01 |
| Real household consumption | | |
| Percentage | 0.81 | 0.15 |
| Level ($m in 2002) | 109.4 | 114.7 |
| Percentage-point contribution to growth (section B) | 0.10 | 0.02 |
| Aggregate employment | | |
| Percentage | 0.58 | 0.10 |
| Level (thousand persons in 2002) | 1.9 | 2.4 |
| Percentage-point contribution to growth (section B) | 0.07 | 0.01 |

#### Remarks

Kokoda Barracks' economic contribution to the Moreton economy is quite large. It contributes 0.57 per cent to the region's real value added, or $102 million, and 0.58 per cent to the region's employment, or 1,900 persons. Without Kokoda Barracks, the projected growth rate for real value added in Moreton would be, on average, 0.07 percentage points per annum lower than indicated in Section B.

# RAAF BASE WILLIAMTOWN

# WILLIAMTOWN, NSW

***Statistical division:*** *Hunter (NSW)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 356.5 | 2.0 | 7.9 | 3.2 |
| 2 | Forestry and fishing | 46.1 | 0.3 | 1.0 | 0.4 |
| 3 | Mining | 1,572.9 | 9.0 | 8.2 | 3.3 |
| 4 | Food, beverages and tobacco | 397.4 | 2.3 | 4.8 | 1.9 |
| 5 | Textiles, clothing and footwear | 28.6 | 0.2 | 1.0 | 0.4 |
| 6 | Wood and paper product manufacturing | 96.5 | 0.6 | 1.5 | 0.6 |
| 7 | Printing and publishing | 103.0 | 0.6 | 1.5 | 0.6 |
| 8 | Chemical products | 208.3 | 1.2 | 1.8 | 0.7 |
| 9 | Non-metallic mineral products | 77.3 | 0.4 | 1.0 | 0.4 |
| 10 | Metal products | 910.2 | 5.2 | 10.2 | 4.1 |
| 11 | Machinery and equipment | 454.1 | 2.6 | 6.4 | 2.6 |
| 12 | Other manufacturing | 30.0 | 0.2 | 0.8 | 0.3 |
| 13 | Electricity, gas and water | 617.6 | 3.5 | 3.0 | 1.2 |
| 14 | Construction | 1,075.2 | 6.1 | 20.4 | 8.2 |
| 15 | Wholesale trade | 867.9 | 4.9 | 10.8 | 4.3 |
| 16 | Retail trade | 1,046.9 | 6.0 | 41.8 | 16.7 |
| 17 | Accommodation, cafes and restaurants | 482.7 | 2.8 | 14.0 | 5.6 |
| 18 | Transport and storage | 668.8 | 3.8 | 10.4 | 4.2 |
| 19 | Communication services | 326.6 | 1.9 | 3.3 | 1.3 |
| 20 | Finance and insurance | 864.6 | 4.9 | 6.7 | 2.7 |
| 21 | Property and business services | 3,767.7 | 21.5 | 22.0 | 8.8 |
| 22 | Government administration (not defence) | 545.7 | 3.1 | 7.9 | 3.2 |
| 23 | Defence | 228.5 | 1.3 | 3.1 | 1.3 |
| | *RAAF Williamtown* | *(169.1)* | *(1.0)* | *(2.4)* | *(1.0)* |
| 24 | Education | 885.0 | 5.0 | 17.9 | 7.2 |
| 25 | Health and community services | 1,230.3 | 7.0 | 28.7 | 11.5 |
| 26 | Cultural and recreational services | 256.8 | 1.5 | 4.6 | 1.9 |
| 27 | Personal and other services | 391.3 | 2.2 | 8.9 | 3.6 |
| | *Total* | *17,536.5* | *100.0* | *249.7* | *100.0* |

### Remarks

RAAF Williamtown lies within the Hunter statistical division. Hunter has a large coal mining industry and generates much of the electricity used in Sydney. Outside of mining and electricity generation, the region has a fairly typical economy, with a diverse range of agricultural, manufacturing and service industries. The largest industry in terms of output is Property and business services which contributes over 20 per cent to total output. Then follows mining which contributes 9 per cent. The largest employer is Retail trade which provides 16.7 per cent of all jobs in the region. The second largest employer is Health and community services which makes up 11.5 per cent of total employment. The defence services industry directly contributes 1.3 per cent (or $229 million) to total value added, and 1.3 per cent (or 3,100 persons) to total employment. The output and employment shares for the airforce base are 1.0 per cent and 1.0 per cent.

## B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Hunter | NSW | Australia |
|---|---|---|---|
| Real value added | 2.69 | 2.98 | 3.12 |
| Real household consumption | 2.55 | 2.90 | 3.10 |
| Employment | 0.91 | 1.20 | 1.24 |

### Remarks

Hunter's main primary industry, coal mining, has relatively weak growth prospects due to forecast slow growth in exports (principally to Japan). This is the main reason why the region's growth potential is below that of NSW as a whole.

## C :RAAF Williamtown's Economic Contribution

| Indicator | Hunter | NSW |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 1.48 | 0.15 |
| Level ($m in 2002) | 258.7 | 373.1 |
| Percentage-point contribution to growth (section B) | 0.18 | 0.02 |
| Real household consumption | | |
| Percentage | 2.60 | 0.23 |
| Level ($m in 2002) | 293.6 | 342.6 |
| Percentage-point contribution to growth (section B) | 0.32 | 0.03 |
| Aggregate employment | | |
| Percentage | 1.85 | 0.17 |
| Level (thousand persons in 2002) | 4.6 | 4.0 |
| Percentage-point contribution to growth (section B) | 0.23 | 0.02 |

### Remarks

RAAF Williamtown's economic contribution to the Hunter region is relatively large. In terms of aggregate real value added, it contributes 1.48 per cent, or $259 million. In terms of employment, it contributes 1.85 per cent, or 4,600 persons. It is of interest to note that RAAF Williamtown's economic contribution would have been larger if not for the importance of coal to the Hunter region. Hunter-produced coal is mainly exported. The world market for coal is very competitive, hence any increases in local costs, which reduce the competitivess of Hunter-produced coal, tends to have a relatively large negative impact on the coal industry and hence on the Hunter economy. The presence of the airforce base results in land prices and the prices of Hunter produced services being higher than they otherwise would be. These higher prices flow through to higher production costs in all Hunter industries, including coal. Thus our modelling shows that the presence of the RAAF Willamtown base depresses coal exports and coal production, leading to a lower economic contribution than would otherwise be the case.

Without Lone Pine Barracks, the projected growth rate for real value added in Hunter would be, on average, 0.18 percentage points per annum lower than indicated in Section B.

# HMAS CRESWELL

# JERVIS BAY, ACT

***Statistical division:*** *formally part of ACT, but geographically and economically part of Illawarra (NSW)*

## *A: Composition of Output and Employment, 2002 (Illawarra)*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 120.4 | 1.0 | 2.6 | 1.6 |
| 2 | Forestry and fishing | 33.6 | 0.3 | 0.7 | 0.4 |
| 3 | Mining | 404.5 | 3.5 | 1.9 | 1.1 |
| 4 | Food, beverages and tobacco | 134.9 | 1.2 | 1.5 | 0.9 |
| 5 | Textiles, clothing and footwear | 33.0 | 0.3 | 1.2 | 0.7 |
| 6 | Wood and paper product manufacturing | 141.3 | 1.2 | 1.5 | 0.9 |
| 7 | Printing and publishing | 94.6 | 0.8 | 1.4 | 0.8 |
| 8 | Chemical products | 113.1 | 1.0 | 1.1 | 0.6 |
| 9 | Non-metallic mineral products | 80.5 | 0.7 | 1.0 | 0.6 |
| 10 | Metal products | 864.4 | 7.5 | 11.2 | 6.7 |
| 11 | Machinery and equipment | 213.1 | 1.9 | 3.1 | 1.8 |
| 12 | Other manufacturing | 29.5 | 0.3 | 0.8 | 0.5 |
| 13 | Electricity, gas and water | 269.7 | 2.4 | 1.3 | 0.8 |
| 14 | Construction | 792.1 | 6.9 | 15.1 | 9.0 |
| 15 | Wholesale trade | 479.7 | 4.2 | 6.0 | 3.5 |
| 16 | Retail trade | 687.7 | 6.0 | 26.9 | 15.9 |
| 17 | Accommodation, cafes and restaurants | 331.7 | 2.9 | 9.6 | 5.7 |
| 18 | Transport and storage | 546.1 | 4.8 | 7.5 | 4.4 |
| 19 | Communication services | 273.5 | 2.4 | 2.7 | 1.6 |
| 20 | Finance and insurance | 675.7 | 5.9 | 5.2 | 3.1 |
| 21 | Property and business services | 2,619.2 | 22.8 | 16.1 | 9.5 |
| 22 | Government administration (not defence) | 410.9 | 3.6 | 6.0 | 3.5 |
| 23 | Defence | 149.6 | 1.3 | 2.1 | 1.2 |
| | *HMAS Creswell* | *(25.8)* | *(0.2)* | *(0.4)* | *(0.2)* |
| 24 | Education | 696.5 | 6.1 | 14.1 | 8.3 |
| 25 | Health and community services | 776.6 | 6.8 | 18.0 | 10.6 |
| 26 | Cultural and recreational services | 208.6 | 1.8 | 3.7 | 2.2 |
| 27 | Personal and other services | 294.2 | 2.6 | 6.6 | 3.9 |
| | *Total* | *11,474.5* | *100.0* | *168.9* | *100.0* |

### Remarks

The composition of output and employment shown above is for the Illawarra statistical division. Illawarra's economy has an atypically high concentration of Metal products (mainly iron and steel from Wollongong), which directly contributes 7.5 per cent to total output and 6.7 per cent to total employment. Apart from this feature the region has a fairly typical structure with the service industries dominating. The largest of all industries is Property and business services which contributes 22.8 per cent to total output. In terms of employment, the two largest industries are Retail trade (15.9 per cent of total employment) and Health and community services (10.7) per cent. The defence services industry in Illawarra (which we assume includes the operations of HMAS Creswell) directly contributes 1.3 per cent (or $150 million) to total value added, and 1.2 per cent (or 2,100 persons) to total employment.

### B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Illawarra | NSW | Australia |
|---|---|---|---|
| Real value added | 2.56 | 2.98 | 3.12 |
| Real household consumption | 2.54 | 2.90 | 3.10 |
| Employment | 0.76 | 1.20 | 1.24 |

#### Remarks

Illawarra's forecast growth rate is a little below the forecast growth rate for NSW as a whole. This reflects the below average rate of growth forecast for metal manufacturing (principally iron and steel). Offsetting this, to some extent, is an expectation of strong growth in intra- and interstate tourism to the coastal areas of the region.

### C: HMAS Creswell's Economic Contribution

| Indicator | Illawarra | NSW |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 0.38 | 0.02 |
| Level ($m in 2002) | 43.4 | 58.0 |
| Percentage-point contribution to growth (section B) | 0.05 | 0.00 |
| Real household consumption | | |
| Percentage | 0.60 | 0.04 |
| Level ($m in 2002) | 46.1 | 53.1 |
| Percentage-point contribution to growth (section B) | 0.07 | 0.00 |
| Aggregate employment | | |
| Percentage | 0.43 | 0.03 |
| Level (thousand persons in 2002) | 0.7 | 0.6 |
| Percentage-point contribution to growth (section B) | 0.05 | 0.00 |

#### Remarks

HMAS Creswell contributes 0.38 per cent to real value added in the Illawarra region, or $43 million. In terms of employment, the Base contributes 0.43 per cent to aggregate employment, or 700 persons.

# HMAS ALBATROSS

# NOWRA, NSW

***Statistical division:*** *Illawarra (NSW)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 120.4 | 1.0 | 2.6 | 1.6 |
| 2 | Forestry and fishing | 33.6 | 0.3 | 0.7 | 0.4 |
| 3 | Mining | 404.5 | 3.5 | 1.9 | 1.1 |
| 4 | Food, beverages and tobacco | 134.9 | 1.2 | 1.5 | 0.9 |
| 5 | Textiles, clothing and footwear | 33.0 | 0.3 | 1.2 | 0.7 |
| 6 | Wood and paper product manufacturing | 141.3 | 1.2 | 1.5 | 0.9 |
| 7 | Printing and publishing | 94.6 | 0.8 | 1.4 | 0.8 |
| 8 | Chemical products | 113.1 | 1.0 | 1.1 | 0.6 |
| 9 | Non-metallic mineral products | 80.5 | 0.7 | 1.0 | 0.6 |
| 10 | Metal products | 864.4 | 7.5 | 11.2 | 6.7 |
| 11 | Machinery and equipment | 213.1 | 1.9 | 3.1 | 1.8 |
| 12 | Other manufacturing | 29.5 | 0.3 | 0.8 | 0.5 |
| 13 | Electricity, gas and water | 269.7 | 2.4 | 1.3 | 0.8 |
| 14 | Construction | 792.1 | 6.9 | 15.1 | 9.0 |
| 15 | Wholesale trade | 479.7 | 4.2 | 6.0 | 3.5 |
| 16 | Retail trade | 687.7 | 6.0 | 26.9 | 15.9 |
| 17 | Accommodation, cafes and restaurants | 331.7 | 2.9 | 9.6 | 5.7 |
| 18 | Transport and storage | 546.1 | 4.8 | 7.5 | 4.4 |
| 19 | Communication services | 273.5 | 2.4 | 2.7 | 1.6 |
| 20 | Finance and insurance | 675.7 | 5.9 | 5.2 | 3.1 |
| 21 | Property and business services | 2,619.2 | 22.8 | 16.1 | 9.5 |
| 22 | Government administration (not defence) | 410.9 | 3.6 | 6.0 | 3.5 |
| 23 | Defence | 149.6 | 1.3 | 2.1 | 1.2 |
| | *HMAS Albatross* | *(91.8)* | *(0.8)* | *(1.3)* | *(0.8)* |
| 24 | Education | 696.5 | 6.1 | 14.1 | 8.3 |
| 25 | Health and community services | 776.6 | 6.8 | 18.0 | 10.6 |
| 26 | Cultural and recreational services | 208.6 | 1.8 | 3.7 | 2.2 |
| 27 | Personal and other services | 294.2 | 2.6 | 6.6 | 3.9 |
| | *Total* | *11,474.5* | *100.0* | *168.9* | *100.0* |

### Remarks

HMAS Albatross is located in the Illawarra statistical division in NSW. Illawarra's economy has an atypically high concentration of Metal products (mainly iron and steel from Wollongong), which directly contributes 7.5 per cent to total output and 6.7 per cent to total employment. Apart from this feature the region has a fairly typical structure with the service industries dominating. The largest of all industries is Property and business services which contributes 22.8 per cent to total output. In terms of employment, the two largest industries are Retail trade (15.9 per cent of total employment) and Health and community services (10.7) per cent. The defence services industry in Illawarra directly contributes 1.3 per cent (or $150 million) to total value added, and 1.2 per cent (or 2,100 persons) to total employment. HMAS Albatross' shares in total output and employment are 0.8 per cent and 0.8 per cent.

### *B: Forecast Growth, average annual (%) 2002 to 2010*

| Indicator | Illawarra | NSW | Australia |
|---|---|---|---|
| Real value added | 2.56 | 2.98 | 3.12 |
| Real household consumption | 2.54 | 2.90 | 3.10 |
| Employment | 0.76 | 1.20 | 1.24 |

#### Remarks

Illawarra's forecast growth rate is a little below the forecast growth rate for NSW as a whole. This reflects the below average rate of growth forecast for metal manufacturing (principally iron and steel). Offsetting this, to some extent, is an expectation of strong growth in intra- and interstate tourism to the coastal areas of the region.

### *C: HMAS Albatross' Economic Contribution*

| Indicator | Illawarra | NSW |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 1.35 | 0.08 |
| Level ($m in 2002) | 155.3 | 207.9 |
| Percentage-point contribution to growth (section B) | 0.17 | 0.01 |
| Real household consumption | | |
| Percentage | 2.15 | 0.13 |
| Level ($m in 2002) | 165.0 | 189.6 |
| Percentage-point contribution to growth (section B) | 0.27 | 0.02 |
| Aggregate employment | | |
| Percentage | 1.53 | 0.09 |
| Level (thousand persons in 2002) | 2.6 | 2.2 |
| Percentage-point contribution to growth (section B) | 0.19 | 0.01 |

#### Remarks

The Albatross naval base makes a substantial contribution to the Illawarra economy. It contributes over $155 million to total value added and 2,600 jobs. Without the Base the projected growth rate for real value added in Illawarra would be, on average, 0.19 percentage points per annum lower than indicated in Section B.

# PUCKAPUNYAL MILITARY AREA

### ***Statistical division:*** *Goulburn (Vic)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 1,008.3 | 17.3 | 15.5 | 17.0 |
| 2 | Forestry and fishing | 11.8 | 0.2 | 0.1 | 0.1 |
| 3 | Mining | 39.6 | 0.7 | 0.1 | 0.2 |
| 4 | Food, beverages and tobacco | 522.0 | 8.9 | 6.4 | 7.0 |
| 5 | Textiles, clothing and footwear | 21.3 | 0.4 | 0.7 | 0.7 |
| 6 | Wood and paper product manufacturing | 61.8 | 1.1 | 0.9 | 1.0 |
| 7 | Printing and publishing | 36.1 | 0.6 | 0.6 | 0.7 |
| 8 | Chemical products | 59.7 | 1.0 | 0.7 | 0.8 |
| 9 | Non-metallic mineral products | 21.9 | 0.4 | 0.3 | 0.3 |
| 10 | Metal products | 123.3 | 2.1 | 1.8 | 2.0 |
| 11 | Machinery and equipment | 94.2 | 1.6 | 1.6 | 1.7 |
| 12 | Other manufacturing | 22.6 | 0.4 | 0.7 | 0.7 |
| 13 | Electricity, gas and water | 182.5 | 3.1 | 0.7 | 0.8 |
| 14 | Construction | 325.6 | 5.6 | 6.5 | 7.2 |
| 15 | Wholesale trade | 299.9 | 5.1 | 3.1 | 3.4 |
| 16 | Retail trade | 350.2 | 6.0 | 13.9 | 15.2 |
| 17 | Accommodation, cafes and restaurants | 123.0 | 2.1 | 3.9 | 4.3 |
| 18 | Transport and storage | 226.4 | 3.9 | 4.0 | 4.4 |
| 19 | Communication services | 113.3 | 1.9 | 1.0 | 1.1 |
| 20 | Finance and insurance | 236.1 | 4.0 | 1.7 | 1.8 |
| 21 | Property and business services | 876.4 | 15.0 | 5.0 | 5.5 |
| 22 | Government administration (not defence) | 114.9 | 2.0 | 2.4 | 2.7 |
| 23 | Defence | 94.0 | 1.6 | 1.3 | 1.5 |
| | *Puckapunyal Military Area* | *(93.1)* | *(1.6)* | *(1.3)* | *(1.5)* |
| 24 | Education | 289.3 | 5.0 | 5.7 | 6.2 |
| 25 | Health and community services | 375.0 | 6.4 | 8.3 | 9.1 |
| 26 | Cultural and recreational services | 81.3 | 1.4 | 1.4 | 1.6 |
| 27 | Personal and other services | 124.5 | 2.1 | 2.8 | 3.1 |
| | *Total* | *5,834.9* | *100.0* | *91.1* | *100.0* |

### Remarks

Goulburn's economy is heavily oriented towards primary and secondary agricultural activities. Farming and food production together comprise 26.3 per cent of total output and 24.1 per cent of total employment. The rest of the region's economy is dominated by service industries. The largest service provider in terms of output is Property and business services, but the largest in terms of employment is Retail trade. Another large employer is Health and community services. The defence services industry in Goulburn, which is essentially Puckapunyal, directly contributes 1.6 per cent (or $94 million) to total value added, and 1.5 per cent (or 1,300 persons) to total employment.

### B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Goulburn | Victoria | Australia |
|---|---|---|---|
| Real value added | 2.39 | 2.72 | 3.12 |
| Real household consumption | 2.29 | 2.69 | 3.10 |
| Employment | 0.82 | 1.01 | 1.24 |

#### Remarks

Goulburn's orientation towards agriculture means that its forecast growth rate is a little below the forecast growth rate for Victoria as a whole. This reflects the below average rate of growth forecast for agricultural production.

### C: Puckapunyal' Economic Contribution

| Indicator | Goulburn | Victoria |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 2.55 | 0.12 |
| Level ($m in 2002) | 149.0 | 214.6 |
| Percentage-point contribution to growth (section B) | 0.32 | 0.01 |
| Real household consumption | | |
| Percentage | 4.10 | 0.18 |
| Level ($m in 2002) | 151.6 | 192.7 |
| Percentage-point contribution to growth (section B) | 0.50 | 0.02 |
| Aggregate employment | | |
| Percentage | 2.91 | 0.13 |
| Level (thousand persons in 2002) | 2.6 | 3.0 |
| Percentage-point contribution to growth (section B) | 0.36 | 0.02 |

#### Remarks

Puckapunyal's economic contribution to the Goulburn region is substantial. It contributes 2.55 per cent to real value added, or $149 million, and 2.91 per cent to total employment, or 2,600 persons. Without Puckapunyal, the projected growth rate for real value added in Goulburn would be, on average, 0.32 percentage points per annum lower than indicated in Section B.

# ALBURY WODONGA MILITARY AREA

# LATCHFORD BARRACKS, VIC

***Statistical division:*** *Ovens-Murray (Vic)*

## *A: Composition of Output and Employment, 2002*

| | Industry | Output | | Employment | |
|---|---|---|---|---|---|
| | | ($m) | % | (000' persons) | % |
| 1 | Agriculture | 271.5 | 9.7 | 4.4 | 10.0 |
| 2 | Forestry and fishing | 13.0 | 0.5 | 0.1 | 0.3 |
| 3 | Mining | 18.8 | 0.7 | 0.1 | 0.1 |
| 4 | Food, beverages and tobacco | 236.4 | 8.4 | 2.6 | 5.9 |
| 5 | Textiles, clothing and footwear | 46.5 | 1.7 | 1.0 | 2.2 |
| 6 | Wood and paper product manufacturing | 50.8 | 1.8 | 0.8 | 1.8 |
| 7 | Printing and publishing | 22.2 | 0.8 | 0.4 | 0.8 |
| 8 | Chemical products | 21.5 | 0.8 | 0.3 | 0.6 |
| 9 | Non-metallic mineral products | 11.0 | 0.4 | 0.1 | 0.3 |
| 10 | Metal products | 52.2 | 1.9 | 0.8 | 1.8 |
| 11 | Machinery and equipment | 64.8 | 2.3 | 0.9 | 2.0 |
| 12 | Other manufacturing | 9.4 | 0.3 | 0.3 | 0.6 |
| 13 | Electricity, gas and water | 81.6 | 2.9 | 0.3 | 0.7 |
| 14 | Construction | 149.5 | 5.3 | 3.0 | 6.8 |
| 15 | Wholesale trade | 111.7 | 4.0 | 1.2 | 2.7 |
| 16 | Retail trade | 171.4 | 6.1 | 6.9 | 15.6 |
| 17 | Accommodation, cafes and restaurants | 68.2 | 2.4 | 2.1 | 4.8 |
| 18 | Transport and storage | 94.9 | 3.4 | 1.7 | 3.8 |
| 19 | Communication services | 51.6 | 1.8 | 0.4 | 1.0 |
| 20 | Finance and insurance | 115.8 | 4.1 | 0.8 | 1.8 |
| 21 | Property and business services | 438.8 | 15.7 | 2.7 | 6.0 |
| 22 | Government administration (not defence) | 95.1 | 3.4 | 2.0 | 4.6 |
| 23 | Defence | 112.2 | 4.0 | 1.2 | 2.6 |
| | *Albury Wodonga Military Area* | *(17.7)* | *(0.6)* | *(0.3)* | *(0.6)* |
| 24 | Education | 159.7 | 5.7 | 3.1 | 7.0 |
| 25 | Health and community services | 219.8 | 7.9 | 4.9 | 11.1 |
| 26 | Cultural and recreational services | 40.8 | 1.5 | 0.7 | 1.6 |
| 27 | Personal and other services | 69.0 | 2.5 | 1.6 | 3.5 |
| | *Total* | *2,798.0* | *100.0* | *44.4* | *100.0* |

### Remarks

The Albury Wodonga Military Area is located in the Ovens-Murray statistical division of Vic. The Ovens-Murray economy is heavily oriented towards primary and secondary agricultural activities. Farming and food production together comprise 18.2 per cent of total output and 15.9 per cent of total employment. The rest of the region's economy is dominated by service industries. The largest service provider in terms of output is Property and business services, but the largest in terms of employment is Retail trade. Another large employer is Health and community services. The defence services industry in Ovens-Murray directly contributes 4.0 per cent (or $112 million) to total value added, and 2.6 per cent (or 1,200 persons) to total employment. The Military Area's contributions are 0.6 per cent and 0.6 per cent.

### B: Forecast Growth, average annual (%) 2002 to 2010

| Indicator | Ovens-Murray | Victoria | Australia |
|---|---|---|---|
| Real value added | 2.61 | 2.72 | 3.12 |
| Real household consumption | 2.35 | 2.69 | 3.10 |
| Employment | 0.46 | 1.01 | 1.24 |

#### Remarks

Ovens-Murray's orientation towards agriculture means that its forecast growth rate is a little below the forecast growth rate for Victoria as a whole.

### C: Albury Wodonga Military Areas' Economic Contribution

| Indicator | Ovens-Murray | Victoria |
|---|---|---|
| Aggregate real value added | | |
| Percentage | 1.13 | 0.02 |
| Level ($m in 2002) | 31.5 | 40.4 |
| Percentage-point contribution to growth (section B) | 0.14 | 0.00 |
| Real household consumption | | |
| Percentage | 1.74 | 0.03 |
| Level ($m in 2002) | 31.7 | 35.1 |
| Percentage-point contribution to growth (section B) | 0.22 | 0.00 |
| Aggregate employment | | |
| Percentage | 1.24 | 0.03 |
| Level (thousand persons in 2002) | 0.5 | 0.6 |
| Percentage-point contribution to growth (section B) | 0.15 | 0.00 |

#### Remarks

The Albury Wodonga Military Area contributes 1.13 per cent to real value added in the Ovens-Murray region, or $32 million. In terms of employment, the Military Area contributes 1.24 per cent to total employment, or 500 persons. Without the Military Area, the projected growth rate for real value added in Ovens-Murray would be, on average, 0.14 percentage points per annum lower than indicated in Section B.

# Appendix: TERM and Simulation Design

This appendix contains a brief description of TERM, and of the experiment design that underlies the calculation of economic contributions reported in Section C of each profile.

## TERM

The Centre of Policy Studies (CoPS) has recently completed the construction of a new multiregional model that contains the degree of spatial disaggregation required for the Defence Estate study. This model, known as the TERM model, explicitly captures the behaviour of industries, households, investors, government and exporters at the statistical division level. For the Defence study, we employ a version of TERM that models the activities of economic agents in the regions that include the bases being investigated, and in an aggregation of all other regions.

The theoretical structure of TERM is based on that of the well-known CGE model, ORANI. Producers in each regional industry are assumed to maximize profits subject to a production technology that allows substitution between primary factors (labour, capital and land) and between geographical sources of supply. A representative household purchases goods in order to obtain the optimal bundle in accordance with its preferences and its amount of disposable income. Investors seek to maximize their rate of return, while demand by foreigners is modelled via export demand functions that capture the responsiveness of foreigners to changes in Australian supply prices.

In TERM, economic agents decide on the geographical source of their purchases according to relative prices and a nested structure of substitution possibilities. The first choice facing the purchaser of a unit of a particular commodity is whether to buy one that has been imported from overseas or one that has been produced in Australia. If an Australian product is purchased, a second decision must be made as to the particular region the commodity originates from. For instance, in the purchase of an Australian-made car, a consumer will need to choose, say, between a brand manufactured in Victoria and one made in South Australia. It is assumed that Australian-made brands are considerably more substitutable, than is an Australian brand is with a foreign brand. In order for goods to reach a customer located in a particular region, certain margin services must also be purchased. Thus the price to the regional purchaser will include a margin to the retailer and wholesaler of the good (i.e. the Trade margin) and the transporter(s) of the good. For instance, a Central Western NSW purchaser of an electronic component manufactured in Melbourne might find that the sale price includes a margin for a Melbourne distributor, for airfreight to Sydney, road transport to the Central West and a Central West retailer. It is assumed that substitution between the source of the margins may be affected by a change in the relative price of margins sourced from different geographical localities, particularly with regard to transport. Thus, for instance, Sydney and Bathurst trucking companies are assumed to compete with each other to carry goods (including our electronic component) from Sydney Airport to the Central West. TERM contains a large database which keeps track of the flow of international and interregional purchases of each commodity from each region of origin to each destination region. It also keeps track of the associated margin payments and the geographical location of the suppliers of those margins. In the case of each regional user, TERM also keeps track of the taxes payable on the purchase.

## Simulation design for calculating economic contributions

### Exogenous shocks

In calculating the economic contribution of an ADF Base using TERM, we first construct a *hypothetical scenario* in which all of the spending associated with the operations of the base occurs not in the base's home region but elsewhere in Australia. We then deduct the hypothetical scenario from a basecase scenario in which the base continues as is. The difference gives the base's economic contribution in terms of a range of indicators such as real value added and employment.

Inputs to the hypothetical scenario include 2002 estimates of base employment and consumer spending by base employees. These data are fed into the TERM model, which then traces out the implications of having these activities occur elsewhere in Australia (the hypothetical scenario). In doing so, the model imposes sensible economic assumptions on the behaviour of industries, consumers, exporters and the government. It also allows for the many input/output linkages between industries and between industries and final users (e.g. consumers) that transmit changes in spending in one area of the economy through to changes in all areas.

## Other modelling assumptions

*Labour markets*

At the national level, we assume that the deviation in the national real wage rate from its basecase forecast level is sufficient to eliminate any initial deviation in national employment. At the regional level, we assume that labour is mobile between economies. Labour is assumed to move between regions so as to maintain inter-regional wage and unemployment rate differentials at their basecase levels.

*Public expenditure, taxes and government budget balances*

We also assume no deviation in the paths of tax rates applying to commodity sales and applying to labour and capital income. Government budget balances are therefore allowed to vary.

*Consumption, investment, ownership of capital and measurement of welfare*

Aggregate real consumption in region r diverges from its basecase level by an amount reflecting the divergence in real income available to the residents of r. In other words we assume that the benefit or cost for a region arising from a base is absorbed entirely as extra real household consumption.

*Rates of return on capital*

Rates of return on capital are not allowed to deviate from basecase levels. Industry-specific capital is fully mobile.

*Production technologies*

TERM contains many types of technical change variables. In the hypothetical simulations we assume that all technology variables, other than those used in the implementation of shocks, have the same values as in the basecase simulation.