

# Economic and Social Regional Profile

**Final Report**

23 April 2004

NAND11





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# NANDEWAR BIOREGION

## ECONOMIC AND SOCIAL REGIONAL PROFILE

### FINAL REPORT

Hassall & Associates Pty Ltd

A project undertaken for the  
Department of Infrastructure Planning and Natural Resources

NAND11

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ISBN 1740292111

This project has been funded and managed by the Resource and Conservation Department of Planning, Infrastructure and Natural Resources NSW

Hassall & Associates would like to thank members of the RACAC NGO Technical Working Group in providing information used in the preparation of the report.

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## ABBREVIATIONS USED IN THIS STUDY

ABS	Australian Bureau of Statistics
ASGC	Australian Standard Geographical Classification
ARIA	Accessibility/Remoteness Index of Australia
BB	Brigalow Belt
BBSB	Brigalow Belt South Bioregion
CARE	Centre for Agricultural and Regional Economics
CCD	Collection Census Districts
CDEP	Community Development Employment Program
CRA	Comprehensive Regional Assessment
CSI	Community Sensitivity Indices
CTL	Crown Timber Land
DEC	Department of Environment and Conservation
DMR	Department of Mineral Resources
DSS	Department of Social Security
EBC	Environment and Behaviour Consulting
GIS	Geographical Information System
GISCA	National Centre for Social Applications of Geographic Information Systems
LALC	Local Aboriginal Land Council
LGA	Local Government Area
NGO	Non Governmental Organisation
NPWS	NSW National Parks and Wildlife Service
NRMA	National Roads and Motorists' Association Limited
RACC	Resource and Conservation Council
RACD	Resource and Conservation Division, Planning NSW
RFA	Regional Forestry Agreement
SCARM	Standing Committee on Agriculture and Resource Management
SEIFA	Social and Economic Indices for Areas
SF	State Forest
SFNSW	State Forests NSW
WRA	Western Regional Assessment

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# PROJECT SUMMARY AND KEY FINDINGS

The Resource Assessment and Conservation Division (RACD), within the NSW Department of Infrastructure Planning and Natural Resources, has been established to provide advice to the NSW Government for the development of its forestry and conservation policies and reforms.

The purpose of this project is to provide social and economic information to assist the planning process for the Nandewar Bioregion Assessment, which is part of the Western Regional Assessments (WRA) initiated by the NSW Government. The Brigalow Belt South Bioregion (BBSB) was the first area of western NSW to be assessed as part of the WRA process. The Nandewar Bioregion (Nandewar) is the second to be assessed.

Hassall & Associates Pty Ltd have prepared the Nandewar Bioregion Economic and Social Scoping and Regional Profile for RACD as part of this regional assessment (NAND11).

## Key Findings

The following provides a summary of statistics relevant to the Nandewar Bioregion's **main native forest based industries**. For more details refer to Section 2.4 and Chapter 5. There are approximately 36,000 ha of State Forest and 21,500 ha of NPWS managed land of the total 2,673,000 ha of the Nandewar Assessment Region (less the area of Mt Kaputar - 33,285 ha) and areas previously assessed under the North East CRA). State Forest and NPWS land accounts for less than 1 percent of land under public control for conservation purposes.

- Over 80 percent of the State Forests in the Nandewar are located in the Bingara and Inverell LGAs.
- There is less than 1 percent of land under public control for conservation by reservation.
- The native timber industry is reliant on a single species of native soft wood i.e. cypress. There is a small amount of plantation pine harvested in the Nandewar (~350 m<sup>3</sup> pa).
- The current sustainable yield of cypress is fully committed to existing customers under existing sales arrangements, although opportunities to enter this market do arise from time to time.
- In comparison to the BBSB, Nandewar is a minor timber resource. The public forest yields approximately 5,000 m<sup>3</sup> per annum of cypress as compared to 71,000

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m3 per annum from the BBSB. Approximately 2,300 m3 of cypress is yielded from private property.

- The Nandewar, however does provide 40 percent of resource for the mill at Bingara, 20 percent of the resource for the mill at Gunnedah and a small amount of resource for the mill at Quirindi (5 percent).
- Apiary is a relatively minor primary industry in the Nandewar. In 2001, the value of production was approximately \$1 million or 6 percent of the total value of apiary production of NSW. It accounted for approximately 8 percent of hives kept and 6 percent of the honey produced in NSW.
- There are 16 Occupational Permits for grazing in the State Forests of the Nandewar with a total area of 12,208 ha and an average area per Permit of 763 ha.
- Mt Kaputar National Park was officially included in the BBSB Assessment, and so is not included in the Nandewar Bioregion Assessment. It is however referenced in this report (sections 2.4.1 and 6.4) for completeness, as it is an important National Park and attraction located in close proximity to the Nandewar in Narrabri LGA.

The **other important industries** in the Nandewar include agricultural production, health and community services, and retail trade. The following provides key statistics for these industries for the six LGAs situated wholly, or mostly, within the Nandewar. These are Bingara, Barraba, Inverell, Manilla, Parry and Tamworth.

- Health and Community Services generated the greatest share of income (13 percent) in the Nandewar followed by Retail Trade (12 percent) and then Education and Agriculture, Forestry & Fishing (10 percent). This profile is dominated by Tamworth. In all other LGAs, including the regional centre of Inverell there is a dominance of earnings from agriculture (Refer to Section 3.4 for more detail regarding regional income).
- In the LGAs based in large regional centres (Tamworth, Inverell and Parry) the services sector is significant. However, these towns also rely on the business of agriculture being regional centres. Income earned from agriculture dominates the LGAs of Inverell and Parry.
- The sectoral distribution of employment varies considerably between LGAs in the Nandewar. For example, 'Grains, Sheep and Beef Cattle Farming' accounts for 34 percent of employment in Bingara, 29 percent of employment in Barraba, and 22 percent in Manilla. For each of these LGAs, employment in health and community services was also important ranging from 7 to 8 percent (Refer to Section 3.6 for more detail regarding industry employment).
- The Nandewar economy depends heavily on agricultural production, specifically broadacre agriculture (grains, sheep and beef cattle farming) (see Figure 3-8 and Figure 3-9). Broadacre agriculture is the most important employer for four of the smaller LGAs, Bingara, Barraba, and Manilla. However, the number of industries present is becoming more diverse.
- The agricultural sector in the Nandewar has experienced drought conditions for approximately two years and the boost to rural incomes experienced in the late

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1990s, due in part to the low Australian dollar, may taper off with the appreciation of the dollar (Refer to Chapter 9 for more detail regarding agriculture).

- There has been a general increase in cropping, with an overall increase in the area under cultivation.
- Tourism and recreation generated approximately \$148 million in 1996/1997 and attracted 712,000 visitors in the six key LGAs (latest available data) (Refer to Chapter 6 for more detail regarding tourism).
- Tamworth is the most popular visitor destination in the centre. There is a large influx of tourists to the centre each January for the annual Country Music Festival. The festival attracted approximately half a million people in 2003 injecting \$72 million into the local economy.
- SFNSW consider recreation, tourism and education activities as having potential to be developed in the State Forests of the Nandewar. The development of collaborative tours involving local community groups (bird watching), indigenous communities, National Parks and State Forests is considered to have a high level of potential and result in the generation of positive outcomes for all groups involved. Resources would have to be allocated to this task.
- Recent annual production from various minerals and construction materials in the Nandewar amounts to around \$15 million. There is high potential for a number of minerals and construction materials, including coal and magnesium (DMR, NAND07) (Refer to Chapter 8 for more detail regarding minerals and construction materials).

The **socio-economic** and demographic **profile** for the six key LGAs of the Nandewar suggests a level of health and prosperity. However, for some LGAs there are areas, which suggest sensitivity and decline. The following summarises the key economic and social statistics as presented in Chapter 3 and Chapter 4.

- On a regional scale, there has been growth in the population and employment and a decline in unemployment, throughout the Nandewar for six key LGAs, Barraba, Bingara, Inverell, Manilla, Parry and Tamworth.
- However, the information on population and employment trends show that the Nandewar has lagged behind the growth in NSW as a whole.
- For a number of LGAs there was a decline in population and employed persons throughout the nineties to 2001 (Barraba, Bingara, Murrundi, Gunnedah, Quirindi and Yallaroi).
- The total employment income for the Nandewar was \$842 million in 2001, which is equivalent to 1 percent of total NSW employment income.
- Approximately 54 percent of the income accrues to residents in Tamworth LGA.
- Average income across the Nandewar is 82 percent of the state average.
- Although unemployment has declined for the general population, there remains a high level of unemployment for the Indigenous population in the Nandewar.

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- The general population as a whole is aging, with a decline in the proportion 15 - 44 year olds make up of the overall population. For the Indigenous population the situation is reversed with a large proportion of the Indigenous population being below 14 years of age.

# 1. INTRODUCTION AND CONTEXT

On the back of Regional Forest Agreements (RFA), the New South Wales Government initiated a process of Regional Assessments of western NSW. The Western Regional Assessment (WRA) process is designed to guide future planning and encourage partnerships to protect the environment. More specifically the WRA process is facilitating the development of options for:

- Creating networks of formally and informally protected and managed conservation areas;
- Maintaining viable forest based and other industries; and
- Encouraging conservation efforts of private land.

Socioeconomic assessment as part of the WRA process will extend the work completed in other areas. The assessment addresses natural asset management on all land tenures<sup>1</sup>, and identification of important social values. Stakeholders involved in the assessments include State Government agencies, local government, farmers, conservation representatives, indigenous interests, forest industry representatives, the minerals industry, beekeepers and other community groups.

The Brigalow Belt South Bioregion (BBSB) was the first area of western NSW to be assessed as part of the WRA process. The Nandewar Bioregion (Nandewar) is the second to be assessed, with plans for the Riverina Bioregion being advanced. The series of socio-economic assessments to be completed as part of the WRA for the Nandewar will:

- provide information to guide forest and timber industry development options;
- provide information to guide a range of other industry development options; and
- provide information and identify potential mechanisms to achieve/enhance/encourage conservation management on both public and private land.

It also feeds into two other socio-economic assessments: the *Development of Forest Based and Conservation Opportunities and Forest-based Aboriginal Opportunities* study (NAND12) and *Regional Economic Impact Analysis* (NAND13).

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<sup>1</sup> Public land accounts for little more than 5% of the Nandewar. Engagement with private landholders is therefore paramount.

## 1.1 Aims of the Study

The aim of this study was to provide information and data to assist planning processes in the Nandewar. Primarily this also involves other studies, namely the *Development of Forest Based and Conservation Opportunities and Forest-based Aboriginal Opportunities* (NAND12) and the *Regional Economic Impact Assessment* (NAND13). This study draws on, and contributes to other processes in the region, including various natural resource management planning processes (eg regional vegetation management plans, water sharing plans, catchment blueprints).

The specific objectives of the study were to:

- scope existing data and information, identifying existing social and economic data that has, or is being generated as part of work already being undertaken in the region; and
- develop a Regional Profile from this and other available information to include:
  - an economic profile, including understanding of the land and resource use in the region;
  - a social profile, which together with the economic profile will provide a general understanding of the Region's dynamics and characteristics;
  - profile of the main industries of the region, including forest based, agricultural and other industries; and
  - projections of the likely future trajectories of key social/economic variables to provide the information for a 'base case' analysis in a dynamic framework.

## 1.2 Approach and Method

### 1.2.1 Approach

The approach taken in preparing the economic, social and regional profiles for the Nandewar draws on the theoretical literature, which guides impact assessment. The theory identifies the patterns of response to externally imposed changes as being related to certain social, economic and political characteristics (economic viability, social vitality and political efficacy) for which indicators can be derived (Lane, Ross and Dale 1997; Hassall & Associates Pty Ltd *et al.* 2003). Translating this theory into terms useful for this study, we can consider resilience as the ability to absorb changes or manage changes successfully, in terms of:

- **economic viability** – the versatility of an area's economy, avoiding reliance on any single crop, secondary industry or employer. In an agricultural region, the more viable economies would in theory be those with several primary products, and include primary, secondary and tertiary economic tiers (local value-adding). Thus, when a single primary product suffers a downturn or shock, the economy as a whole can be buffered by participation in multiple enterprises – some of which may be doing well;



- **social vitality** (similar to the now familiar term social capital in the literature) - this focuses on social bonds, reflecting people's ability to support one another and manage crises collectively. As this study is a desk top study, we consider the social resources to manage change, such as the capacity to innovate (partly related to age structures and educational profiles); and
- **environmental qualities** – is the land and water in healthy condition, suited to its uses, and does land capability allow alternatives.

While these concepts have not been developed intensively in this profiling report, they have informed the development of our approach and choice of descriptors for the social and economic profiling (Hassall & Associates Pty Ltd *et al.* 2003). The descriptors identified have largely been based on the literature and available data with specific relevance to the objectives of this study. Other studies taking place as part of the Nandewar Bioregion WRA including NAND13 - Regional Impact Analysis, draw on the descriptors presented. The profiles also provide an indication of the context into which changes will take place.

The purpose of profiling is to familiarise decision-makers and other readers with the social and economic context, and to provide a baseline of information against which future changes can be measured (Branch and Ross 2000). Ideally, a profile would provide descriptors from which indicators can be derived to assist in measuring change directly attributable to the intervention (project, policy or plan). In practice, it is difficult to find descriptors among widely available statistics (eg population census) that measure the particular changes attributable to the intervention under study, and that target the most important impacts. It is even more difficult to acquire qualitative information on an ongoing basis, yet qualitative impacts such as changes in the nature of community social interactions and quality of life may be highly important impacts. It is important that readers recognise the limitations of a profile, and particularly the relevance of particular descriptors within it (Hassall & Associates Pty Ltd *et al.* 2003).

### 1.2.2 Method

The principle method used in preparing this Economic and Social Regional Profile was a desk-based review of previous research and collection of secondary information<sup>2</sup>. Secondary information was sought from government agencies, industry and Local Aboriginal Land Councils (LALC), to build the economic and social profile for the Region. Important sources of information included:

- reports completed as part of Regional Vegetation Management Plans, Water Sharing Plans, Catchment Blue Prints;
- state and local government web sites;
- local government strategic plans, annual reports, and state of the environment reports; and

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<sup>2</sup> The collation of information was undertaken as part of the Scoping Study, which was conducted by Hassall & Associates as a precursor to this report. It identified the work already undertaken or in process, that would provide relevant social and economic information for the Nandewar Bioregion. A data catalogue was prepared and submitted to RACD.

- telephone interviews with local tourism operators, local governments, state government agencies, and visitor centres (Appendix A contains the list of persons contacted during the study).

The study involved ongoing liaison with RACD and communication with members of the Technical Working Group of Agency Representatives in order to collect and validate information. The Technical Working Group of Agency Representatives was selected by the Steering Committee. The representatives of the Steering Committee include the Department of Mineral Resources, State Forests of NSW, the Department of Environment and Conservation and the Department of Infrastructure Planning and Natural Resources.

### **1.3 Outputs**

This report provides:

- a comprehensive profile of the Nandewar Bioregion's main native forest based industries;
- an economic profile of other important industries in the Nandewar; and
- a socio-economic profile of both the general and Indigenous populations of the Region.

## 2. DEFINITION OF THE NANDEWAR ASSESSMENT REGION

### 2.1 Area

The Nandewar Bioregion straddles the NSW – Queensland border extending from Murrurundi in NSW, to Warwick in Queensland and from Inverell in NSW west to Mount Kaputar. The NSW portion of the Nandewar, addressed in this study, is the largest part. The area will be referred to as the Nandewar Assessment Region or the Nandewar.

The total area of Nandewar Assessment Region is 2,673,000 ha<sup>3</sup>. Of this area:

- 774,000 ha lies within the BBSB 15 km buffer, with 50,000 Ha of that being public lands already assessed under BBSB (eg Mt Kaputar NP); and
- 182,000 ha (or 7 percent) previously studied under the North East CRA.

The area, therefore, for which the Nandewar Regional Profile has been prepared, is the Nandewar Assessment Region less the area of Mt Kaputar and the area previously studied under the North East CRA (Nundle). Mt Kaputar National Park has been listed in this report for contextual purposes (section 2.4.1 and 6.4), as it is a key attraction located in the Narrabri LGA in close proximity to the assessment region.

The area has been extensively cleared. Native and modified pastures for grazing and cropping dominate the landscape. Eucalypt open forests, open woodlands and shrub lands are also prevalent, although more so in some LGAs. For example, in the Tamworth LGA in 2001, the NSW National Parks and Wildlife Service (NPWS) estimated that 86 percent of the LGA had less than 20 percent vegetation cover (Tamworth City Council 2001). Some minimal use, nature conservation and native forestry is undertaken.

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<sup>3</sup> DIPNR, email. comm. 16/01/04.

There are six LGAs situated wholly, or mostly, within the Nandewar. These are Bingara, Barraba, Inverell, Manilla, Parry and Tamworth. Parts of the Yallaroi, Moree Plains, Narrabri, Gunnedah, Quirindi, and Murrurundi LGAs, all of which were assessed as part of the Brigalow Belt South Bioregion Regional Assessment (BBSB), also fall within the boundaries of the Nandewar. A part of Nundle LGA and a small part of Tenterfield LGA, which were previously assessed in the North East and Lower North East Comprehensive Regional Assessment (CRA) (respectively), also fall within the boundaries of the Nandewar. Table 2-1 shows the total area of each of the key LGAs for which data is presented throughout the Regional Profile.

For the purposes of analysis the information for the six LGAs situated wholly, or mostly, within the Nandewar Assessment Region have been profiled and assessed. In some cases, therefore, the region assessed is broader or narrower than the Nandewar itself as the boundaries do not coincide. The government areas, State Forests and National Parks are illustrated in Figure 2-1. Inverell, at 8,606 sq kms is the largest LGA in the area.

**TABLE 2-1: AREA OF LGAS IN THE NANDEWAR (AS AT JUNE 2002)**

<b>Nandewar LGAs</b>	<b>Sq kms</b>	<b>Ha</b>
Barraba	3,065.50	306,550
Bingara	2,853.66	285,366
Inverell	8,605.89	860,589
Manilla	2,193.31	219,331
Parry	4,403.83	440,383
Tamworth	185.62	18,562
<b>Nandewar</b>	<b>21,307.81</b>	<b>2,130,781</b>

Source: Regional Statistics New South Wales 2003, ABS Catalogue 1362.1.

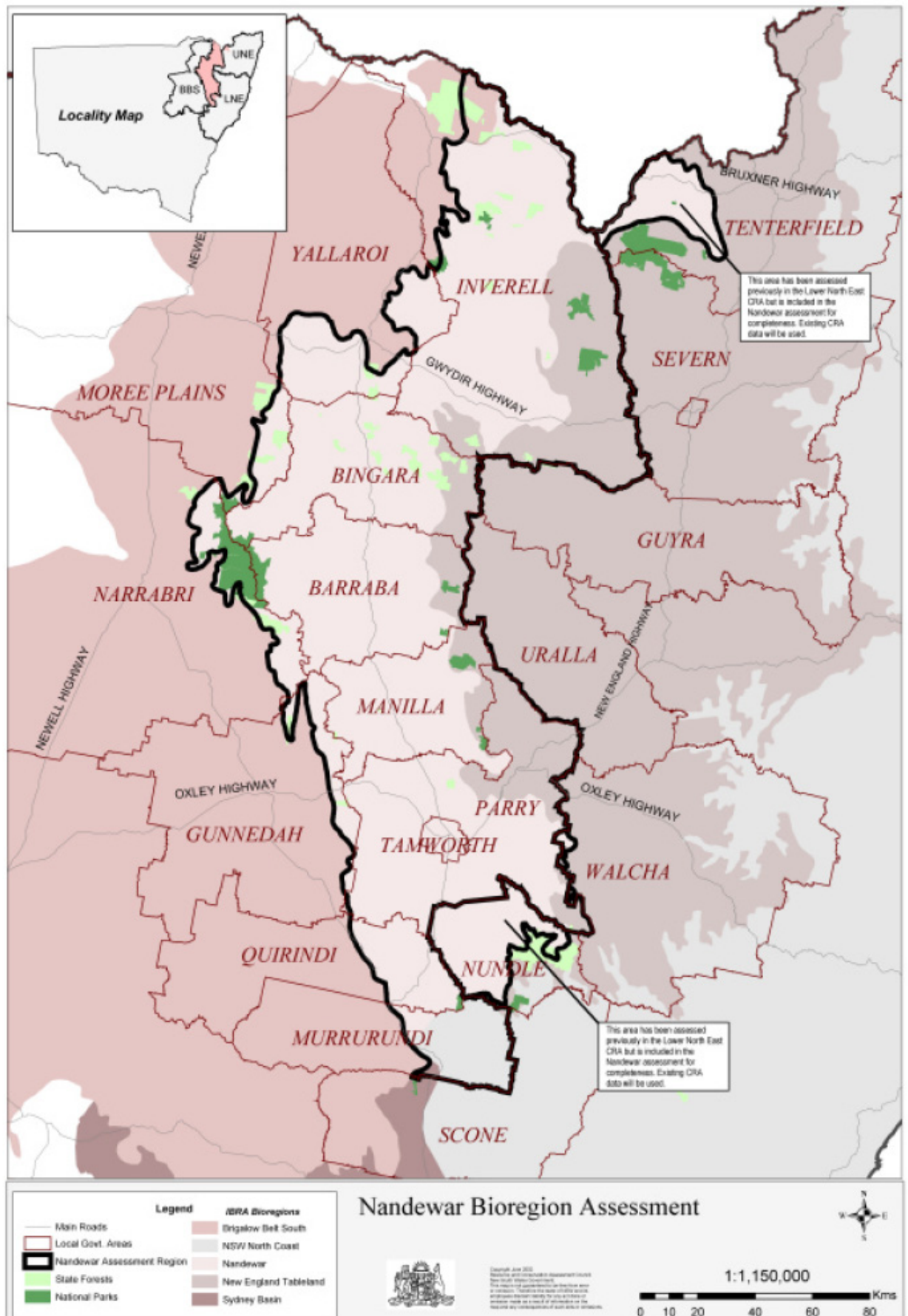
The two main centres in the Nandewar are Tamworth to the south and Inverell to the north. Key centres skirting the Nandewar include Armidale, Gunnedah, Moree, and Narrabri.

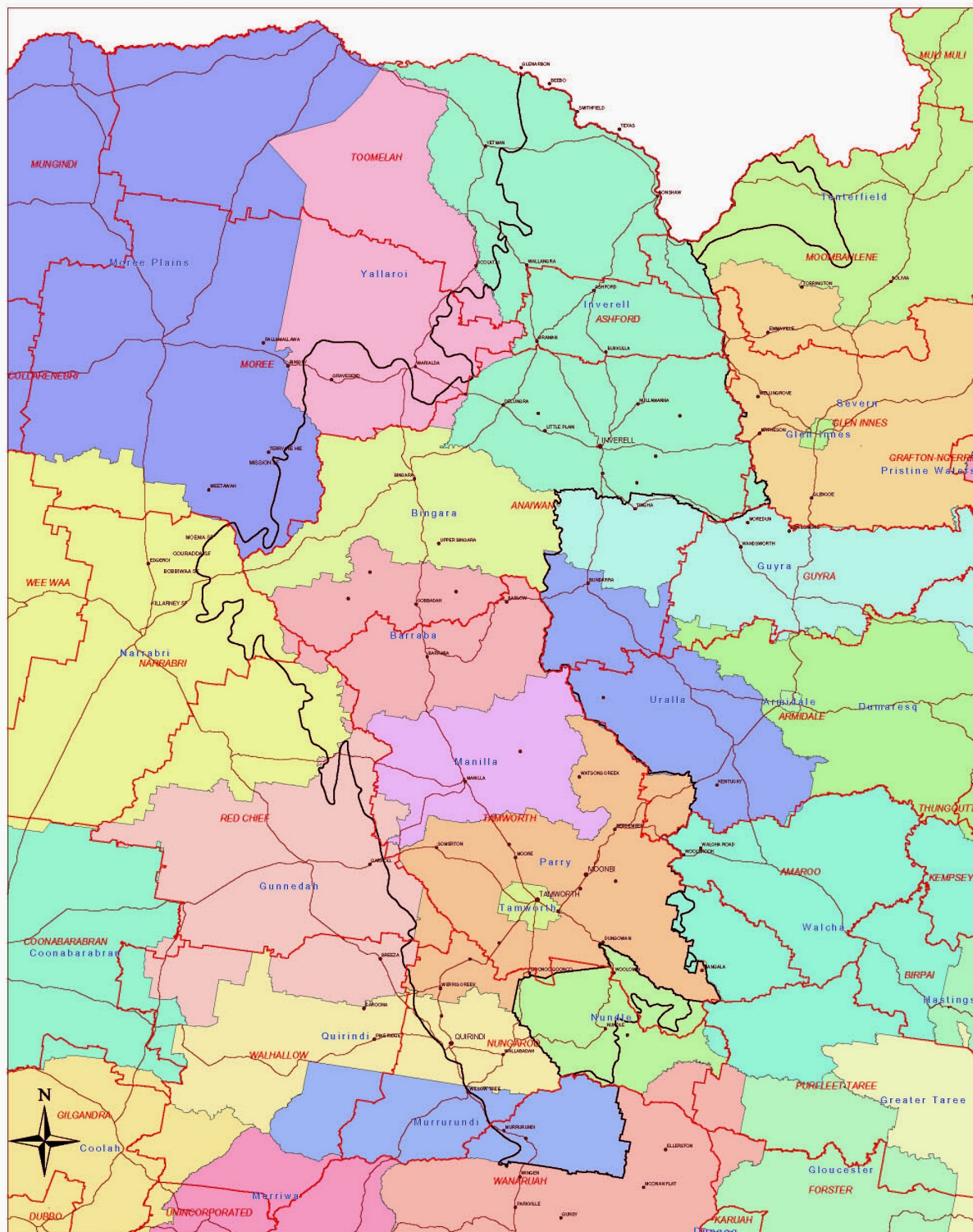
The border of the Nandewar overlays the LALCs of Toomelah, Anaiwan, Ashford, Tamworth, Nungaroo, Moree, Collarenebri, Narrabri, Red Chief, Wanaruah, Armidale, and Moombahlene.

Figure 2-2 shows the ALCs and LGAs in the Nandewar.

Table 2-2 provides a summary of the LALC and LGAs, National Parks and State Forests, which overlay the LALC boundaries. For Wanaruah and Moombahlene, there are neither State Forests nor National Parks within the LALC boundary. Each of Tamworth, Red Chief, Anaiwan, Ashford, Moree, and Toomelah areas have State Forests located within their boundaries.

FIGURE 2-1: NANDEWAR WRA BOUNDARY



**FIGURE 2-2: NANDEWAR WESTERN ALCs AND LGAS**

### Nandewar Western Regional Assessment - ALCs and LGAs

#### Legend

- Towns
- Small Towns
- Main Roads

□ Nandewar WRA Boundary

□ Local Government Areas

□ Aboriginal Land Councils

1:600,000



**TABLE 2-2: LALC AND CORRESPONDING LGAS, NATIONAL PARKS AND STATE FORESTS**

<b>Local Aboriginal Land Council</b>	<b>Local Government Areas</b>	<b>National Parks</b>	<b>State Forests</b>
Nungarod	Quirindi, Nundle, Parry	Wallabadah Nature Reserve	
Wanaruah	Murrurundi		
Tamworth	Tamworth, Parry, Manilla, Barraba	Melville Range Nature Reserve Watsons Creek Nature Reserve Warrabah National Park Linton Nature Reserve Ironbark Nature Reserve	Attunga Dinawirindi Dowe Somerton
Red Chief	Gunnedah, Parry, Narrabri		Dowe Somerton
Narrabri	Narrabri	Mount Kaputar	
Anaiwan	Barraba, Bingara, Inverell	Kings Plains National Park	Horseshoe Bend Warialda Benbraggie Daffey's Creek Sepoy Murchison Bingara Munro Mehi
Ashford	Inverell		Severn
Moree	Yallaro, Moree Plains		Courallie
Toomelah	Yallaro, Inverell	Kwiambal National Park Severn River Nature Reserve Arakoola Nature Reserve (Part)	Warialda Nullamanna Mount Topper Clive Arthurs Seat Copeton Bebo
Moombahlene	Inverell		

## 2.2 Planning Processes and Frameworks

Relevant planning processes and frameworks operating in the Nandewar Bioregion include both natural resources planning and those operating under the *Environmental Planning and Assessment Act* (1979).

Until recently the majority of **regional natural resource planning** was undertaken by:

- Regional Vegetation Management Committees;
- Water Management Committees; and
- Catchment Management Boards.

The passing of the *Catchment Management Authorities Act* (2003) and the *Native Vegetation Act* (2003) commenced a process of significant reform to natural resource management planning. Catchment Management Boards and Regional Vegetation Management and Water Management Committees were abolished and replaced with 13 Catchment Management Authorities (CMA's) across the State. The Natural Resources Commission was established to recommend state wide environmental standards and targets and accrediting the outputs of CMAs. The Natural Resources Advisory Council was established to provide advice to both the Commission and the Government.

These CMA's will be responsible for, among other things, the preparation of Catchment Action Plans, integrating and building upon the existing Catchment Blueprints and Regional Vegetation Management Plans. Water Management Committees will fall under the advisory structures of the CMA's and cease operation July 2004.

In addition, the CMA's will have capacity to exercise functions relating to natural resource management, including the management of water, native vegetation, soil, salinity, biodiversity and forestry.

These reforms are backed by an intention to increase the level of local involvement and reduction of the complexity of planning processes. A key element of the planning process will be a system to support Property Vegetation Plans.

To date, the Namoi and Gwydir/Border Rivers CMA's have been established in the Nandewar Bioregion. Chairs have been appointed (Jim McDonald and James Croft respectively) and the process for selecting Board Members and General Managers is continuing. It remains unclear as to the exact processes for natural resource planning under the CMA structure. The boundary of the Namoi and Gwydir/Border Rivers Catchments are presented in Figure 2-3 and Figure 2-4.



**Environmental Planning Instruments** prepared under the Environmental Planning and Assessment Act include:

- State Environmental Planning Policies; and
- Local Environmental Plans

The Minister for Infrastructure, Planning and Natural Resources and Local Councils are responsible for developing and implementing these plans.

Previously instruments such as Regional Vegetation Plans would override a land use plan administered by local council. These land use or environmental planning instruments will have to give regard to catchment action plans and contribute to meeting targets.

**FIGURE 2-3: BOUNDARY OF THE NAMOI CATCHMENT MANAGEMENT AUTHORITY**



Source: NSW DIPNR website.

**FIGURE 2-4: BOUNDARY OF THE GWYDIR/BORDER RIVERS CATCHMENT MANAGEMENT AUTHORITY**



Source: NSW DIPNR website.

## 2.3 Key Institutions

### 2.3.1 Local Government

The majority of the area of the following local governments is located within the boundary of the Nandewar Assessment Region.

- Barraba Shire Council;
- Bingara Shire Council;
- Inverell Shire Council;
- Manilla Shire Council.
- Parry Shire Council; and
- Tamworth City Council;

Tamworth City Council and Parry Shire Council, a “doughnut” council area that surrounds it, are in the process of voluntary amalgamation - Nundle Shire Council and Manilla Shire Council are being invited to form part of the newly constituted Area.

For the following LGAs, only a small area of the Shire overlaps the Nandewar Assessment Regional boundary. They have not been included in the Regional Profile.

- Quirindi Shire Council: The towns of Quirindi and Wallabadah and approximately one quarter the area are located inside the boundary.
- Murrundi Shire Council: The town of Murrurundi and one-third the area of the Shire are located inside the boundary.
- Gunnedah: The western edge of Gunnedah is located within the boundary. There are three forests within this section. They were assessed as part of the BBSB CRA (Centre for International Economics and Gillespie Economics, 2002).
- Narrabri Shire Council: The western edge of the Narrabri Shire is located within the Nandewar. Mount Kaputar National Park is located in this section (overlapping with Barraba) which was also included in the BBSB assessment;
- Nundle Shire Council: The Nundle LGA was included in the North East CRA and has been included as an LGA bordering the Nandewar LGAs;
- Moree Plains Shire Council: a very small part of the Moree Plains shire is located inside the Nandewar Assessment Region boundary; and
- Yallaro Shire Council: The south-eastern edge of Yallaro is located within the boundary. Warialda, where the Council is located, is outside the boundary.

### **2.3.2 Aboriginal Organisations**

The following lists a number of important Aboriginal organisations within the Nandewar Assessment Region.

#### **Local Aboriginal Land Councils**

The LALCs that cover the Nandewar Assessment Region include the following with the overlapping LGAs in brackets:

- Nungarod (Quirindi, Nundle, and Parry);
- Wanaruah (Murrurundi) based in Muswellbrook;
- Tamworth (Tamworth, Parry, Manilla, Barraba) based in Tamworth;
- Red Chief (Gunnedah, Parry, Narrabri) based in Gunnedah;
- Narrabri (Narrabri (based in Narrabri);
- Anaiwan (Barraba, Bingara, Inverell) based in Tingha;
- Ashford (Inverell);
- Moree (Yallaro, Moree Plains);
- Toomelah (Yallaro, Inverell); and
- Moombahlene (Inverell) based in Tenterfield.

### **ATSIC Regional Office - Kamilaroi Regional Council (Tamworth Office)**

In the ATSIC Tamworth region there is the Kamilaroi Regional Council. The Kamilaroi Regional Council covers an area of 105,534 sq kms in the Northern Inland Region of New South Wales. The Region generally covers the area from the lower Hunter Valley, north to Tabulam along the great-dividing range, west to Mungindi on the Queensland border and sweeps in an arc south and east to Muswellbrook. The 1996 Census revealed an Aboriginal population of 10,732 for this ATSIC Region as compared to the 1991 figure of 8,000<sup>4</sup>.

The region is administered from the Tamworth Regional Office, which is near the centre of the region and combined with the Many Rivers Regional Council (in the Lismore Region) forms the 'New South Wales East Zone'.

#### *Community Development Employment Program (CDEP)*

Kamilaroi Regional Council supports ten CDEPs. Each CDEP is moving to undertake enterprise activities that should provide the greater part of their revenue. The following are those located within the Nandewar assessment region.

- Gunnida Gunyah Aboriginal Corporation (Gunnedah);
- Quirindi Aboriginal Corporation (Quirindi);
- Toomelah Co-operative Limited (Boggabilla); and
- Nindethana Aboriginal Corp (Moree).

#### **Other Aboriginal Organisations**

- Min Min Corporation, Gunnedah: Manages a portfolio of houses for rent to Aboriginal people;
- Wahgunyah (Housing) Aboriginal Corporation, Narrabri;
- Home Care Service of NSW Aboriginal Branch, Tamworth;
- Kamilaroi Aboriginal Legal Service, Moree;
- Tamworth Aboriginal Respite Care, Tamworth; and
- Wirraway Aboriginal Women's Housing Scheme, Moree.

## **2.4 Public Lands**

### **2.4.1 National Parks and Nature Reserves**

Less than 1 percent of the Nandewar is protected by conservation reserves, with a total area of 21,500 ha. Table 2-3 lists the National Parks and Nature Reserves located within the Nandewar and the proportion of the park or reserve located within the Nandewar boundary. Although, Quirindi includes the Wallabadah Nature Reserve, the regional profile does not include social or economic information with the majority of the LGA lying outside of the Nandewar boundary.

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<sup>4</sup> (<http://www.atsic.gov.au/offices/>). 15/07/03 'Tamworth Office'.

**TABLE 2-3: NATIONAL PARKS AND NATURE RESERVES IN THE NANDEWAR BY LGA**

LGA	Name	Reserve Type	Gazettal Area (ha)	Percentage of Nandewar NP/NRs
Barraba	Ironbark Nature Reserve	Nature Reserve	1,603	7%
Barraba	Linton Nature Reserve <sup>a</sup>	Nature Reserve	640	3%
Inverell	Severn River Nature Reserve <sup>a</sup>	Nature Reserve	4,290	20%
Inverell	Kwiambal National Park	National Park	1,300	6%
Inverell	Kings Plains National Park	National Park	6,918	32%
Manilla	Warrabah National Park <sup>a</sup>	National Park	3,470	16%
Manilla	Watsons Creek Nature Reserve	Nature Reserve	1,260	6%
Quirindi	Wallabadah Nature Reserve	Nature Reserve	1,132	5%
Parry	Melville Range Nature Reserve	Nature Reserve	843	4%
<b>Total Area of National Parks in the Nandewar</b>			<b>21,456</b>	
Narrabri	Mt Kaputar	National Park	33,285	

Source: NPWS, supplied 10/03. <sup>a</sup> Linton Nature Reserve, Severn River Nature Reserve, and Warrabadah are registered on the Register of the National Estate (<http://www.ahc.gov.au/>).

Mt Kaputar National Park was officially included in the BBSB Assessment, and so is not included in the Nandewar Bioregion Assessment. It is however, included in this report for completeness, as it is an important National Park located in close proximity to the Nandewar in Narrabri LGA. Mount Kaputar attracts approximately 29,000 visitors a year (Perry Phelps Narrabri shire, pers.comm. 07/08/03). Access to Mt Kaputar is via a road from Narrabri making the park an important attraction the Narrabri region. Access to Mt Kaputar from the eastern shires of Barraba and Bingara is limited, making tourism associated with Mt Kaputar less important to these LGAs.

#### 2.4.2 State Forests and Crown Timber Reserves

There are a number of State Forests and Crown Land Timber Reserves in the Nandewar with a total area of 36,000 ha. The State Forests are listed in Table 2-4. They are spread across the LGAs with no State Forests listed for Tamworth and Barraba, or the neighbouring LGAs of Murrurundi and Quirindi. Over 80 percent of the State Forests are located in the Bingara (41 percent) and Inverell (42 percent) LGAs.

### 2.5 Biodiversity and Natural Features

Specific information related to biodiversity and natural features of the Nandewar are contained in a number of studies currently being progressed as part of the Nandewar Assessment. They include:

- NAND02 - Conservation Criteria;

- NAND05 - Biodiversity Surrogates (*Fauna Analysis*);
- NAND06 - Biodiversity Surrogates (*Veg Mapping*); and
- NAND10 - Local Consequences of Land Use for Biodiversity in the Nandewar WRA.

A full list of projects is contained in Appendix B.

## 2.6 Water Resources

Major water storages which supply water to towns and communities within the Nandewar, include Keepit, Split Rock, Chaffey, Copeton, Dungowan and Pindara Dams:

- Keepit Dam, is the largest storage facility on the Namoi River System above Gunnedah, and has a capacity of 423 GL<sup>5</sup>. Split Rock feeds water into Keepit. Keepit Dam is used for flood mitigation, irrigation, hydroelectricity, controlling flood levels and preventing any release coinciding with high levels in Peel River.
- Tamworth's town water supply is sourced from Dungowan Dam through a pipeline that runs directly from the dam to Tamworth City Council's water treatment plant at Calala, and from Chaffey Dam. Water from Chaffey Dam is released into the Peel River and is pumped out to the treatment plant at Calala.
- The Copeton and Pindari Dams are located outside the Nandewar Assessment Region, however within the Inverell Shire boundaries. During the summer months, water is released from Copeton Dam into the Gwydir River for the cotton crops out west<sup>6</sup>.
- The major rivers in the Nandewar include the Macintyre, Namoi, Severn, Horton, Gwydir, Peel and Macdonald.
- The town of Manilla is also located on the Namoi River, upstream of Lake Keepit. The Manilla River flows through Barraba to Manilla, joining the Namoi above Manilla. The Macdonald River enters the Namoi River at Manilla.
- Tamworth City is located on the Peel River, a major tributary joining the Namoi below Keepit. Tamworth has a reliable supply of fresh water from the Peel River, and its large tributaries, including the Cockburn River, Goonoo Goonoo Creek and Timbumburi Creek. The Peel starts in the hills near Nundle and flows North West, through Tamworth, continuing until it flows into the Namoi River. It supplies water for both irrigation and recreation in the area.
- Inverell is situated on the Macintyre River, in the centre of the New England Tablelands.
- Severn River flows through Ashford in the North of the Nandewar joining the Macintyre.
- Horton River, which starts from Mt Kaputar in the Narrabri LGA, flows through Bingara joining the Gwydir River downstream of Copeton Dam.

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<sup>5</sup> Barraba Shire Council (2001) State of the Environment Report.

<sup>6</sup> Accessed at <http://www.inverell-online.com.au/dir205/InvOnline.nsf>, 09/01/04.

**TABLE 2-4: STATE FORESTS IN THE NANDEWAR REGION BY LGA**

<b>LGA</b>	<b>State Forest Name</b>	<b>Ha</b>	<b>Percentage of Nandewar SF</b>
Bingara	Horseshoe Bend	103	0.3%
	Warialda	299	0.8%
	Benbraggie	840	2.4%
	Daffeys Creek	1,081	3.0%
	Sepoy	1,099	3.1%
	Murchison	1,485	4.2%
	Bingara	3,177	8.9%
	Munro	3,241	9.1%
	Mehi	3,278	9.2%
<b>Bingara Total</b>		<b>14,603</b>	<b>40.9%</b>
Gunnedah	Dowe	90	0.3%
	Somerton	698	2.0%
<b>Gunnedah Total</b>		<b>788</b>	<b>2.2%</b>
Inverell	Nullamanna	296	0.8%
	Mount Topper	299	0.8%
	Clive	616	1.7%
	Arthurs Seat	784	2.2%
	Copeton	1,397	3.9%
	Bebo	4,190	11.7%
	Severn	7,306	20.5%
<b>Inverell Total</b>		<b>14,888</b>	<b>41.7%</b>
Manilla	Dinawirindi	139	0.4%
	Dowe	290	0.8%
<b>Manilla Total</b>		<b>429</b>	<b>1.2%</b>
Moree Plains	Courallie	2,784	7.8%
<b>Moree Plains Total</b>		<b>2,784</b>	<b>7.8%</b>
Parry	Somerton	62	0.2%
	Attunga	859	2.4%
<b>Parry Total</b>		<b>921</b>	<b>2.6%</b>
Yallaroi	Warialda	1,304	3.7%
<b>Yallaroi Total</b>		<b>1,304</b>	<b>3.7%</b>
<b>Nandewar Total</b>		<b>35,719</b>	





## 3. ECONOMIC PROFILE AND TRENDS

### 3.1 Scope and Content

The economy of the Nandewar is described in this section. The descriptors chosen to profile the Nandewar provide an indication of the economic viability and diversity of the economies and the dependence of stakeholders and communities on various industries. Economic diversity describes a level of resilience to downturns or shocks and is a means for indicating the capacity of a community to absorb changes in the structure and operation of particular industries (Hassall & Associates Pty Ltd *et al.* 2003).

The information provided in this chapter has been prepared to assist the linked consultancy NAND12, *Development Opportunities in the Nandewar Bioregion: Forest Based Opportunities, and Conservation Opportunities*.

### 3.2 Regional Economic Structure

#### 3.2.1 Regional Centres

Generally, depending on their size, regional centres generate much of their own growth, offer services comparable to metropolitan areas and suggest a level of strength in a region in terms of employment opportunities. However, they are often dependent on agriculture and services to agriculture. A growing regional centre may also hide the decline in surrounding smaller towns as services shift to the main centre.

The two main centres in the Nandewar are Tamworth to the south and Inverell to the north. Key centres skirting the area include Moree, Narrabri, Gunnedah and Armidale. In 2001, the population of Tamworth was 36,788 or 49 percent of the total population for the six key LGAs and Inverell Shire was 15,754 or 21 percent.

#### 3.2.2 Employment by Tiers of the Economy

This section provides a description of the proportion of persons employed in the primary, secondary and tertiary sectors. It provides an understanding of the breadth and diversity of economic activity and thus an indicator of economic resilience to shocks (Hassall & Associates, *et al.* 2003).

The sectors include the following industries:

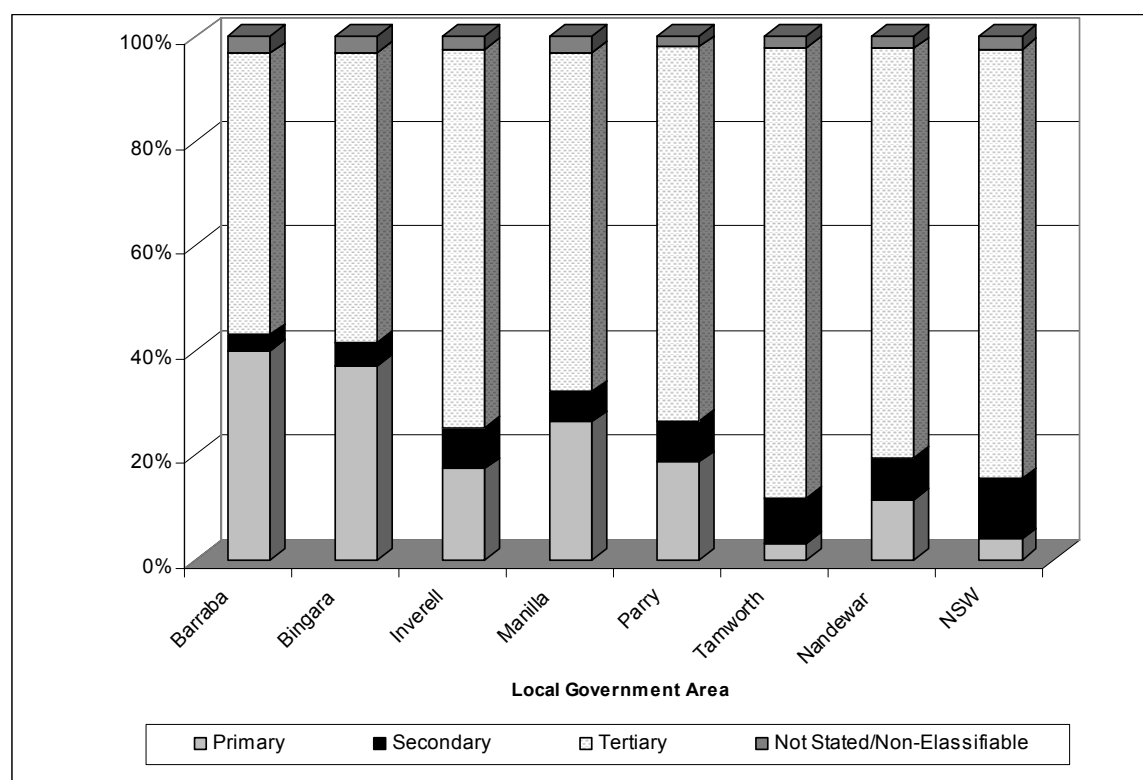
- primary (number of persons employed in agriculture/fishing/ forestry, and mining as a percentage of the total number of persons employed);
- secondary (number of persons employed in manufacturing as a percentage of the total number of persons employed); and
- tertiary sectors (number of persons employed in construction, wholesale trade, retail trade, accommodation/cafes/restaurants, transport and storage, communication services, finance and insurance, property and business services, government, administration and defence, education, health and community services, cultural and recreational services, personal and other services as a percentage of the total number of persons employed) (SCARM, 1998, p.132).

Figure 3-1 shows the proportion of employment in each of primary, secondary and tertiary sectors for the LGAs of the Nandewar and NSW. The importance of the different sectors differs across the LGAs, with:

- the tertiary sector, for the economies of Tamworth, Parry and Inverell, providing a significant proportion of employment activity; and
- the primary sector for Barraba, Bingara, and to a lesser extent Manilla, accounting for a significant proportion of the employment activity, followed by the tertiary sector and then the secondary sector.

The Tamworth economy reflects the structure of NSW and dominates the profile of sector employment for the Nandewar. Tamworth, and Parry and Inverell are more diverse than those of Barraba, Bingara, and Manilla, and as such have a level of economic resilience to change however, as regional centres they depend on the prosperity of the primary sector in these surrounding LGAs.

**FIGURE 3-1: PROPORTION OF EMPLOYMENT BY PRIMARY, SECONDARY AND TERTIARY INDUSTRY (2001)**



Source: ABS Census 2001, published data.

### 3.3 Trends in the Regional Economy

This section provides an overview of the trends in population growth within a context of employment growth and unemployment trends in the labour force.

#### 3.3.1 Regional Population and Employment

The analysis of regional population and employment, which follows, is based on detailed data of employment by industry obtained from the ABS Population Census. These data are the best available for the analysis of trends on a consistent basis for LGAs within and bordering the Nandewar.

Data on population and employment levels from the 1991, 1996 and 2001 censuses are shown in Table 3-1 with rates of change shown in Table 3-2.

Population is concentrated in Tamworth, followed by Inverell and Parry LGAs.

**TABLE 3-1: POPULATION AND EMPLOYMENT 1991 – 2001**

Nandewar LGAs	Estimated Resident Population			Employment		
	1991	1996	2001	1991	1996	2001
Barraba	2,646	2,374	2,262	901	821	788
Bingara	2,242	2,128	2,082	777	707	704
Inverell	16,223	15,444	15,754	5,828	5,465	5,778
Manilla	3,430	3,329	3,316	1,134	1,041	1,034
Parry	12,290	12,192	12,811	4,957	5,066	5,340
Tamworth	35,542	35,592	36,788	14,256	14,091	14,650
<b>Nandewar</b>	<b>72,373</b>	<b>71,509</b>	<b>73,013</b>	<b>27,853</b>	<b>27,191</b>	<b>28,294</b>
<b>Bordering LGAs</b>						
Nundle	1,384	1,392	1,330	553	517	530
Murrurundi	2,420	2,256	2,092	998	923	874
Gunnedah	13,540	13,085	12,089	5,279	5,051	4,704
Moree Plains	16,750	15,364	15,458	7,187	6,579	6,902
Narrabri	14,950	14,328	13,930	6,026	5,907	6,144
Quirindi	5,470	5,068	4,816	2,174	2,079	2,035
Yallaroi	3,670	3,343	3,193	1,521	1,330	1,300

Source: ABS Census 1991, 1996, and 2001 (unpublished data supplied by ABS).

Table 3-2 shows that employment has grown at a greater rate between 1996 and 2001 than population growth. However, population and employment trends show that the Nandewar has lagged behind the growth in NSW as a whole. The growth has been uneven among the LGAs within the Nandewar and varied over the decade.

- In the first half of the 1990s Tamworth was the only LGA to maintain its population and the number of employed persons declined in each LGA except Parry, particularly the smaller LGAs.
- In the late 1990s, following recovery from the recession and drought conditions of the early 1990s, the number of employed persons increased in all LGAs except Barraba and Manilla. Employment in Barraba, Bingara, and Manilla did not recover to the levels of the beginning of the decade.
- Inverell, Parry and Tamworth all experienced growth in population and Manilla maintained its population size in the late 1990s.

**TABLE 3-2: AVERAGE ANNUAL RATES OF CHANGE BETWEEN CENSUS YEARS**

<b>Nandewar LGAs</b>	<b>Estimated Resident Population (% Change)</b>		<b>Employment (% Change)</b>	
	<b>1991 to 1996</b>	<b>1996 to 2001</b>	<b>1991 to 1996</b>	<b>1996 to 2001</b>
Barraba	-10%	-4%	-9%	-4%
Bingara	-5%	-2%	-9%	0%
Inverell	-5%	2%	-6%	6%
Manilla	-3%	0%	-8%	-1%
Parry	-1%	5%	2%	5%
Tamworth	0%	3%	-1%	4%
<b>Nandewar</b>	<b>-2%</b>	<b>3%</b>	<b>-2%</b>	<b>4%</b>
<b>NSW</b>				
<b>Bordering LGAs</b>				
Nundle	1%	-4%	-7%	3%
Murrurundi	-7%	-7%	-8%	-5%
Gunnedah	-3%	-7%	-4%	-7%
Moree Plains	-8%	1%	-8%	5%
Narrabri	-4%	-3%	-2%	4%
Quirindi	-7%	-5%	-4%	-2%
Yallaro	-9%	-4%	-13%	-2%
NSW	5%	6%	NA	7%

Source: ABS Census 1991, 1996, 2001 (unpublished data supplied by ABS) provided base data for the calculations.

The changes in employment are indicated in Table 3-3. Key points that should be noted include:

- Over the last 20 years, there has been little change in total employment with periods of growth and decline alternating each five years (census period);
- There has been an absolute reduction in employed persons for the Nandewar between 1981 and 2001, however Tamworth, Parry and Inverell showing employment growth;
- Parry was the only LGA to grow over the whole period;
- Barraba and Bingara, declined throughout the period, however, both have shown signs of a declining rate of employment loss;
- Tamworth and Inverell, the major regional centres, have mirrored each other in terms of alternative periods of growth and decline;
- Parry has also mirrored this pattern, benefiting from the growth taking place in Tamworth;

- Gunnedah has experienced a significant loss of employment over the 20 years, as has Narrabri, however the trend for Narrabri reversed in the late 1990s; and
- Employment for the majority of the smallest rural LGAs declined over the 20 years.

**TABLE 3-3: TOTAL CHANGE IN EMPLOYMENT OVER LAST 20 YEARS**

<b>Nandewar LGAs</b>	<b>1981 to 1986</b>	<b>1986 to 1991</b>	<b>1991 to 1996</b>	<b>1996 to 2001</b>	<b>1981 to 2001</b>
Barraba	-179	-41	-80	-33	-333
Bingara	-50	-52	-70	-3	-175
Inverell	-678	142	-363	313	-586
Manilla	-114	70	-93	-7	-144
Parry	108	333	109	274	824
Tamworth	-205	1,128	-165	559	1,317
<b>Nandewar</b>	<b>-1,118</b>	<b>1,580</b>	<b>-662</b>	<b>1,103</b>	<b>-903</b>
<b>Bordering LGAs</b>					
Nundle	20	35	-36	13	32
Murrurundi	-14	-29	-57	-49	-149
Gunnedah	-50	-169	-202	-347	-768
Moree Plains	-361	177	-582	323	-443
Narrabri	-386	-498	-100	237	-747
Quirindi	-164	-53	-78	-44	-339
Yallaroi	-129	-169	-179	-30	-507

Source: ABS Census (unpublished data supplied by ABS) provided base data for the calculations.

### 3.3.2 Indigenous Population and Employment

Data on indigenous population and employment levels and growth from the 1996 and 2001 censuses are shown in Table 3-4<sup>7</sup>. It is important to preface the following analysis, by highlighting that due to a small sample size for some LGAs, the trend analysis and percentages may be misleading. The population data are based on total population count for Aboriginal and Torres Strait Islander persons, and employment data is based on total employed persons by LGA. In summary:

- the indigenous population is concentrated in Tamworth, followed by Inverell and Parry;
- the number of employed indigenous persons is highest in Tamworth LGA, followed by Parry and then Inverell;

<sup>7</sup> In 1991, Aboriginal and/or Torres Strait Islander persons were given only two options: to identify themselves either as Aboriginals or as Torres Strait Islanders. In 1996 and 2001, they were given three options. 1) Aboriginal. 2) Torres Strait Islander 3) Both 1. and 2. In 1991 therefore, if people were both Aboriginal and Torres Strait Islander they may not have answered either or at all. The data in 1991 however, does provide an indication of the number of persons who were Aboriginal or Torres Strait Islander and as such has not been included in the report.

- in the late 1990s all LGAs experienced growth in population, and all LGAs, except Manilla experienced growth in employment. The growth in population for the Nandewar was 34 percent as compared to 18 percent for NSW;
- the number of employed indigenous persons grew for all LGAs including neighbouring LGAs from 1996 to 2001, except for Manilla and Murrundi. The growth in employed persons of 41 percent for the Nandewar compares to 26 percent for NSW; and
- employment growth for most LGAs has been in excess of population growth (except Manilla, Murrundi and Quirindi where population grew between 1996 and 2001, whilst the number of employed persons declined).

**TABLE 3-4: INDIGENOUS POPULATION AND EMPLOYMENT 1996 – 2001**

Nandewar LGA	Total Population			Employment		
	1996	2001	Change #	1996	2001	Change #
Barraba	57	67	10	5	17	12
Bingara	3	34	31	0	6	6
Inverell	561	734	173	58	86	28
Manilla	145	184	39	26	18	-8
Parry	383	476	93	91	120	29
Tamworth	1,626	2,225	599	283	406	123
<b>Nandewar</b>	<b>2,775</b>	<b>3,720</b>	<b>945</b>	<b>463</b>	<b>653</b>	<b>190</b>
<b>Growth (%)</b>		<b>34</b>			<b>41</b>	
<b>NSW</b>	<b>101,485</b>	<b>119,865</b>	<b>18,380</b>	<b>22,583</b>	<b>28,391</b>	<b>5,808</b>
<b>Bordering LGAs</b>						
Nundle	48	49	1	9	10	1
Murrurundi	39	45	6	11	8	-3
Gunnedah	999	1204	205	188	240	52
Moree Plains	2,615	2,807	192	400	539	139
Narrabri	1,003	1,084	81	176	211	35
Quirindi	306	365	59	83	86	3
Yallaroi	43	49	6	8	10	2

Source: ABS Census 1996, and 2001 (unpublished data supplied by ABS) provided base data for the calculations.

### 3.3.3 Unemployment

The level and trend of unemployment is important in understanding the robustness of an economy and its community to change. Unemployment as a descriptor needs to be considered cautiously. Other data such as trends in population, employment and labour force over time can assist with interpretation. For example, a low unemployment rate does not necessarily indicate a healthy economy. Rather it may indicate that unemployed persons looking for work have

needed to leave the area to seek employment (Hassall & Associates *et al.* 2003). Unemployment data from the ABS population census is analysed for 1996 and 2001.

### General Population Unemployment

An analysis of the general population unemployment data for 1996 and 2001, as presented in Table 3-5, revealed that:

- LGAs in the Nandewar had higher rates of unemployment than for NSW as a whole in 2001, with the exception of Parry and Bingara;
- declines in the unemployment rate for the majority of LGAs in the Nandewar were in line with declines throughout NSW;
- Manilla recorded the highest level of unemployment at 14 percent in 2001; and
- while Bingara experienced a significant drop in unemployment with the rate falling from 13 to 8 percent, the decline in unemployed persons was approximately the same as the decline in population. Further, there was relatively no change in the number of persons employed, suggesting out migration rather than a strengthening of fundamentals for the LGA.

**TABLE 3-5: TOTAL UNEMPLOYED PERSONS, LABOUR FORCE AND THE UNEMPLOYMENT RATE FOR THE NANDEWAR (1996 AND 2001)**

Nandewar LGAs	Total Unemployed		Labour Force		Unemployment Rate	
	1996	2001	1996	2001	1996	2001
Barraba	122	95	943	883	13%	11%
Bingara	103	60	810	764	13%	8%
Inverell	728	622	6,193	6,400	12%	10%
Manilla	176	171	1,217	1,205	14%	14%
Parry	487	387	5,553	5,727	9%	7%
Tamworth	1,654	1,467	15,745	16,117	11%	9%
<b>Nandewar</b>	<b>3,270</b>	<b>2,802</b>	<b>30,461</b>	<b>30,096</b>	<b>11%</b>	<b>9%</b>
<b>NSW</b>	<b>213,196</b>	<b>247,669</b>	<b>2,772,071</b>	<b>2,996,065</b>	<b>8%</b>	<b>8%</b>
<b>Bordering LGAs</b>						
Nundle	65	61	582	591	11%	10%
Murrurundi	84	67	1,007	941	8%	7%
Gunnedah	521	481	5,572	5,185	9%	9%
Moree Plains	736	713	7,315	7,615	10%	9%
Narrabri	593	537	6,500	6,681	9%	8%
Quirindi	174	164	2,253	2,199	8%	7%
Yallaro	111	96	1,441	1,396	8%	7%

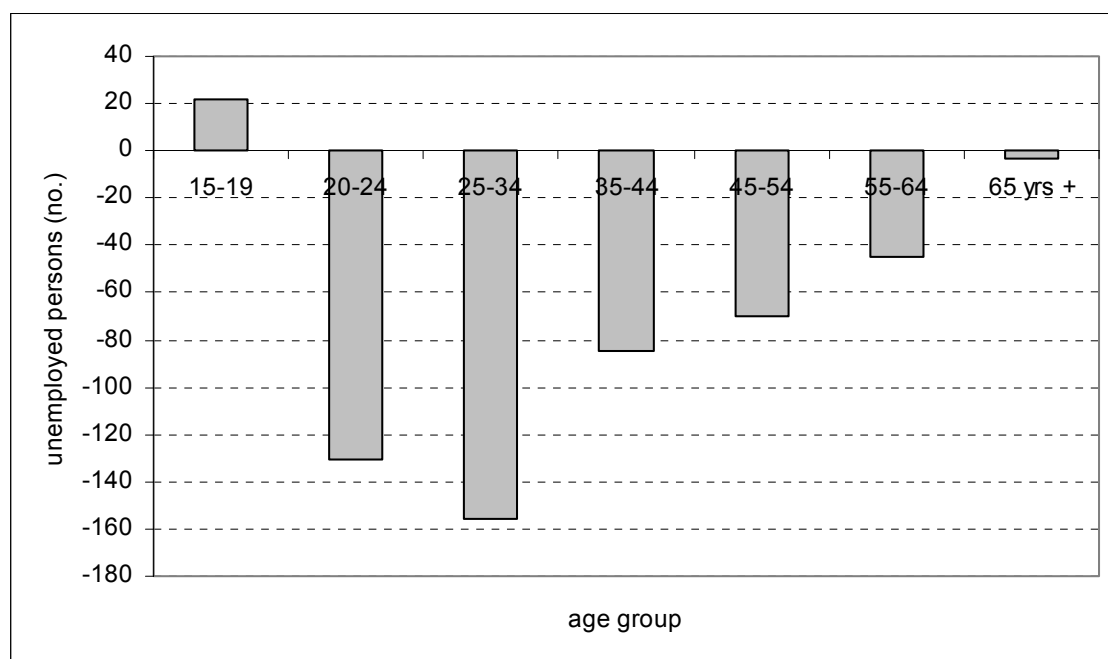
Source: ABS Census 1996 and 2001 (unpublished data supplied by ABS) provided the base data for calculations.



An analysis of unemployed persons by age groups revealed the following:

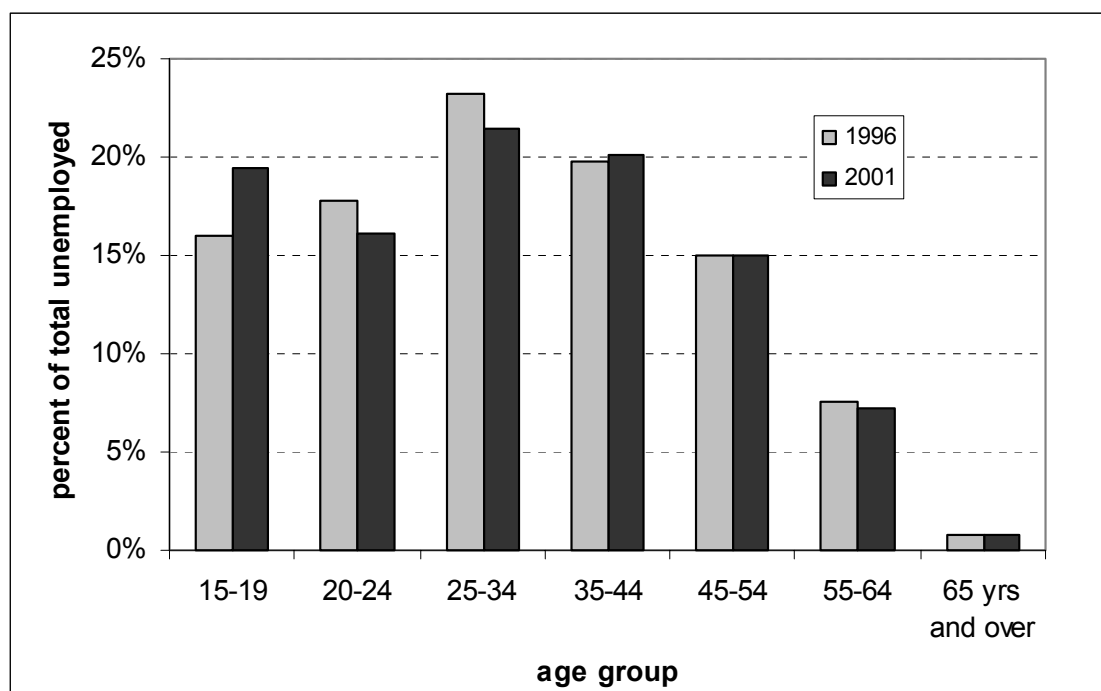
- the proportion of total unemployed persons (refer Figure 3-2):
  - increased for the 15-19 year olds from 16 to 19 percent from 1996 to 2001;
  - declined for all other age groups in the late 1990s; and
- the age group with the largest number of unemployed persons as a percentage of the total number unemployed was the 25-34 year olds (refer Figure 3-3). The proportion of the older age groups remained much the same.

**FIGURE 3-2: CHANGE IN UNEMPLOYED PERSONS IN THE NANDEWAR BY AGE GROUP BETWEEN 1996 AND 2001**



Source: ABS Census 1996 and 2001 (unpublished data supplied by ABS) provided the base data for calculations.

**FIGURE 3-3: UNEMPLOYED PERSONS BY AGE GROUP AS A PERCENTAGE OF TOTAL UNEMPLOYED PERSONS 1996 TO 2001**



Source: ABS Census 1996 and 2001 (unpublished data supplied by ABS) provided the base data for calculations.

### Indigenous Population Unemployment

It is important to preface the following analysis, by highlighting that due to a small sample size for some LGAs, the trend analysis and percentages may be misleading.

The unemployment data for indigenous peoples in the Nandewar were analysed for 1996 and 2001 for the Nandewar LGAs. The results show that:

- LGAs in the Nandewar had significantly higher rates of unemployment than for the general population of the Nandewar and NSW as a whole, in both 1996 and 2001;
- the highest unemployment rate was recorded for Manilla with 60 percent indigenous unemployment in 2001 (the highest rate for the general population was also recorded for Manilla, at 14 percent);
- the lowest unemployment rate was recorded for Parry Shire with 25 percent indigenous unemployment;
- the indigenous unemployment rate for the Nandewar declined in line with reductions in unemployment throughout NSW. The decline in unemployment rate reflected an increase in the number of indigenous employed persons; and

- declines in the indigenous unemployment rate were experienced by a number of LGAs for the following reasons:
  - Barraba: experienced a decline in unemployment with an increase in employed persons and a decline in persons seeking employment; and
  - Inverell, Tamworth and Parry LGAs experienced a decline in the unemployment rate, due to a greater increase in employed persons than the increase in persons looking for work; and
  - increases in the indigenous unemployment rate were experienced by Manilla LGA with an increase in the number of persons seeking work and a corresponding decline in the number of employed persons.

**TABLE 3-6: TOTAL UNEMPLOYED INDIGENOUS PERSONS, LABOUR FORCE AND THE INDIGENOUS UNEMPLOYMENT RATE FOR THE NANDEWAR (1996 AND 2001)**

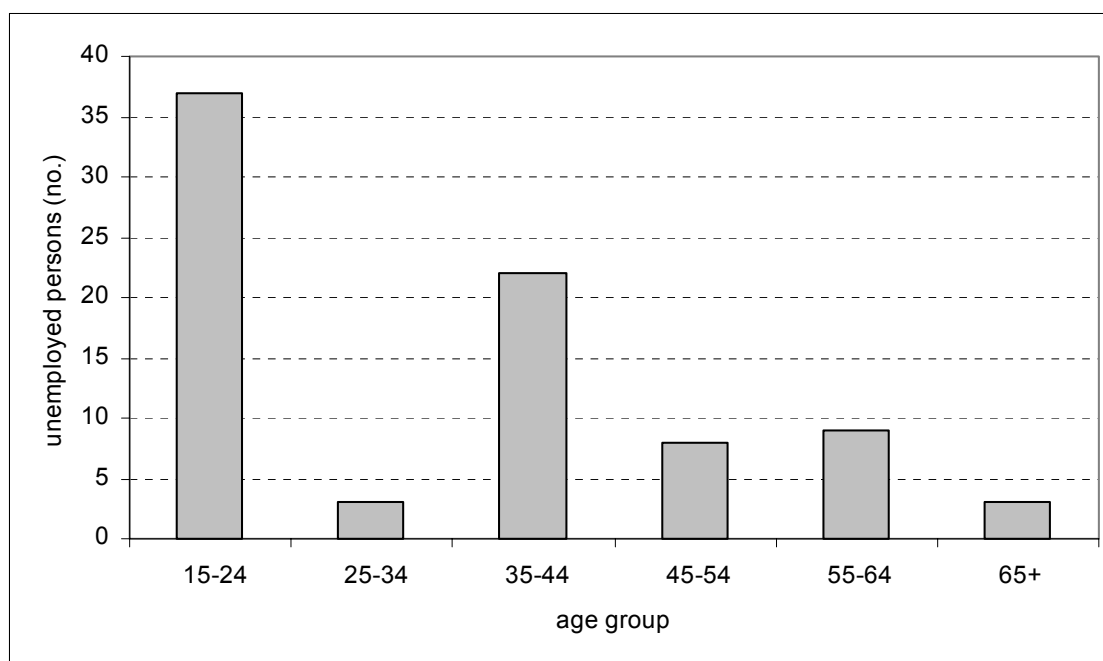
Nandewar LGAs	Total Unemployed		Labour Force		Unemployment Rate	
	1996	2001	1996	2001	1996	2001
Barraba	10	6	15	23	67%	26%
Bingara	0	0	0	6	NA	0%
Inverell	59	68	117	154	50%	44%
Manilla	11	27	37	45	30%	60%
Parry	32	39	123	159	26%	25%
Tamworth	159	213	442	619	36%	34%
<b>Nandewar</b>	<b>271</b>	<b>353</b>	<b>734</b>	<b>1006</b>	<b>37%</b>	<b>35%</b>
<b>NSW</b>	<b>8,365</b>	<b>8,517</b>	<b>30,948</b>	<b>36,908</b>	<b>27%</b>	<b>23%</b>
<b>Border LGAs</b>						
Nundle	3	6	12	16	25%	38%
Murrurundi	0	3	11	11	0%	27%
Gunnedah	75	83	263	323	29%	26%
Moree Plains	300	284	700	823	43%	35%
Narrabri	78	68	254	279	31%	24%
Quirindi	12	30	95	116	13%	26%
Yallaroi	0	0	8	10	0%	0%

Source: ABS Census 1991, 1996, 2001 (unpublished data supplied by ABS) provided the base data for calculations.

Figure 3-4 and Figure 3-5 show the change in unemployed persons by age group. The data shows that:

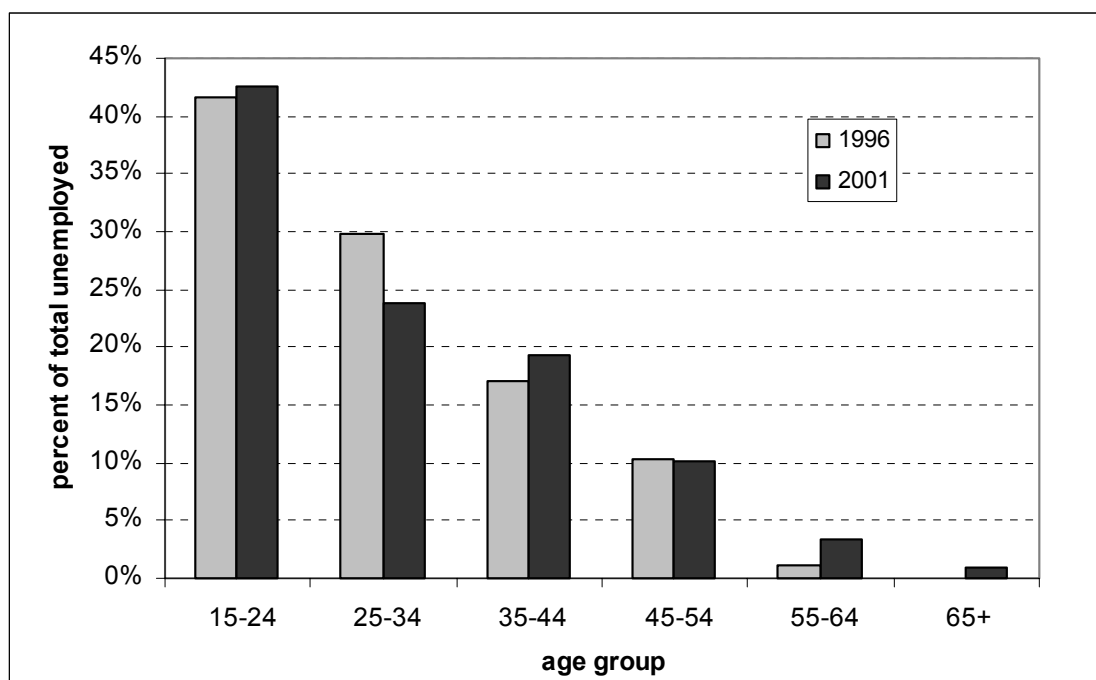
- the number of unemployed indigenous persons increased for each age group in the late 1990s; and
- the 15-24 yr age group experienced the largest increase in unemployment and had the largest number of unemployed persons, as a percentage of the total number unemployed, in both 1996 and 2001.

**FIGURE 3-4: CHANGE IN INDIGENOUS UNEMPLOYED PERSONS BY AGE GROUP BETWEEN 1996 AND 2001**



Source: ABS Census 1991, 1996, 2001 (unpublished data supplied by ABS) provided the base data for calculations.

**FIGURE 3-5: UNEMPLOYED INDIGENOUS PERSONS BY AGE GROUP AS A PERCENTAGE OF TOTAL UNEMPLOYED INDIGENOUS PERSONS 1996 TO 2001**



Source: ABS Census 1996 and 2001 (unpublished data supplied by ABS) provided the base data for calculations.

### 3.3.4 Labour Force

The trends in the labour force for both the general population and Indigenous population presented in Table 3-5 and Table 3-6 reflect a combination of macro-economic factors affecting Australia generally and local factors (Centre for Agricultural and Regional Economics and Gillespie Economics, 2002).

The labour force in the Nandewar has increased in the late 1990s, which compares to a steady decline for the BBSB. In the early part of the decade, poor seasons, the recession in 1991, and low commodity prices resulted in a decline in the number of employed persons and a rise in unemployed persons. The situation recovered in 1996.

The current situation is one of employment growth, decline in unemployed persons and slight population growth. This situation varies across the Nandewar, with declines in the labour force, taking place in the smaller LGAs of Barraba, Bingara, and Manilla. These LGAs are also experiencing declines in population from 1991 to 2001.

### 3.3.5 Summary of Nandewar Regional Population and Employment

The employment information from population censuses is summarised in Table 3-7. This indicates there has been no growth in employment for the period 1981 to 2001, while population has increased over most of the 1980s and 1990s.

Also, over the period there has been a slight decline in the share of the population in employment from 40 percent in 1981 to 39 percent in 2001. In 2001, that ratio is below the 43 percent level observed for NSW. Thus, the Nandewar is a region where the most recent five years has seen population increase, and employment increase, however, with a lower proportion of the population in employment.

**TABLE 3-7: NANDEWAR POPULATION AND EMPLOYMENT SUMMARY**

Census Year	Total Employment	Total Population	Employment Share of Population	Average Annual Change Between Census Years	
				Employment	Population
1981	27,391	67,650	40%		
1986	26,273	69,730	38%	-4%	3%
1991	27,853	72,373	38%	6%	4%
1996	27,191	71,059	38%	-2%	-2%
2001	28,294	73,013	39%	4%	3%

Source: ABS Census (unpublished data supplied by ABS) provided the base data for calculations.

### 3.4 Regional Income

Household income data are relatively difficult to obtain. It is an important variable as it plays a role in the movement of population toward areas of relatively high incomes and influences shifts between industries.

To provide the basis for comparing incomes across industries and between the LGAs, ABS Census of Population and Housing data on **average weekly individual incomes** by ANZSIC Industry were extrapolated to **annual income** by multiplying the weekly income by 52 weeks. The Centre for International Economics and Gillespie Economics (2002) reported this variable in the BBSB Regional Profile. The results for the Nandewar are presented in Table 3-8 and Table 3-9.

Important points to note include:

- income levels are highest in Tamworth, Parry and Inverell LGAs;
- the highest incomes occur in industries with statewide-determined employment conditions such as utilities, government administration and defence, and education. A similar profile exists for the BBSB (Centre for International Economics and Gillespie Economics, 2002); and
- average annual incomes in the Nandewar average 82 percent of the NSW level.

**TABLE 3-8: AVERAGE INCOMES BY INDUSTRY BY LGA 2001**

ANZSIC Industry	Barraba	Bingara	Inverell	Manilla	Parry	Tamworth	Nandewar Wghtd Avg. Ann. Income	NSW
Agriculture, Forestry & Fishing	22,568	21,008	23,972	23,556	23,400	27,768	23,942	27,508
Mining	30,316	-	25,662	39,000	38,220	62,400	33,204	60,528
Manufacturing	18,824	23,400	30,186	30,784	31,486	32,500	31,503	38,688
Electricity, Gas & Water Supply	39,000	45,032	41,366	40,300	47,606	47,944	45,989	50,752
Construction	24,700	30,576	28,392	31,928	29,640	33,956	31,702	37,804
Wholesale Trade	33,384	36,400	30,992	25,012	30,134	31,148	30,841	38,480
Retail Trade	14,664	19,708	20,436	20,020	20,982	21,788	21,177	23,920
Accom, Cafes & Restaurants	15,860	22,724	20,124	21,424	18,954	20,852	20,369	24,336
Transport and Storage	32,344	35,048	29,250	24,284	40,170	37,336	36,785	40,820
Communication Services	28,600	20,800	32,318	29,900	33,228	39,780	36,446	45,760
Finance and Insurance	21,632	20,800	35,334	41,600	37,102	39,624	38,108	47,216
Property and Business Services	21,424	36,660	29,536	24,232	31,902	34,996	33,192	43,784
Government Admin & Defence	30,784	30,212	32,630	31,512	34,944	41,964	38,056	42,952
Education	43,160	38,844	41,288	36,088	39,104	41,964	41,060	41,548
Health and Community Services	29,744	31,252	28,288	33,540	32,188	35,776	33,404	34,736
Cultural & Recreational Services	18,200	18,200	21,970	11,960	20,150	28,704	25,675	34,788
Personal and Other Services	23,660	25,636	30,524	38,636	30,966	31,356	31,162	33,696
Non-classifiable economic units	-	-	19,396	23,400	21,060	30,004	23,914	30,784
Not Stated	10,920	17,940	16,744	15,236	14,638	22,464	18,986	23,868
<b>Total</b>	<b>24,024</b>	<b>25,428</b>	<b>26,884</b>	<b>26,624</b>	<b>29,146</b>	<b>31,824</b>	<b>29,743</b>	<b>36,348</b>

Source: ABS unpublished census data, 2001 provided the base data for calculations.

**TABLE 3-9: INCOMES RELATIVE TO NSW BY INDUSTRY (2001)**

ANZSIC Industry	Barraba	Bingara	Inverell	Manilla	Parry	Tamworth	Nandewar Income Relative to NSW
	%	%	%	%	%	%	%
Agriculture, Forestry & Fishing	82	76	87	86	85	101	87
Mining	50	-	42	64	63	103	55
Manufacturing	49	60	78	80	81	84	81
Electricity, Gas & Water Supply	77	89	82	79	94	94	91
Construction	65	81	75	84	78	90	84
Wholesale Trade	87	95	81	65	78	81	80
Retail Trade	61	82	85	84	88	91	89
Accom, Cafes & Restaurants	65	93	83	88	78	86	84
Transport and Storage	79	86	72	59	98	91	90
Communication Services	63	45	71	65	73	87	80
Finance and Insurance	46	44	75	88	79	84	81
Property and Business Services	49	84	67	55	73	80	76
Government Admin & Defence	72	70	76	73	81	98	89
Education	104	93	99	87	94	101	99
Health and Community Services	86	90	81	97	93	103	96
Cultural & Recreational Services	52	52	63	34	58	83	74
Personal and Other Services	70	76	91	115	92	93	92
Non-classifiable economic units	-	-	63	76	68	97	78
Not Stated	46	75	70	64	61	94	80
<b>Total</b>	<b>66</b>	<b>70</b>	<b>74</b>	<b>73</b>	<b>80</b>	<b>88</b>	<b>82</b>

Source: ABS unpublished census data, 2001 provided the base data for calculations. Average Annual Individual Income by LGA by Industry as a percentage of Average Annual Individual Income by NSW by Industry. Nandewar Weighted Average Annual Income was calculated based on:

$$\sum (LGA_i \text{EmpInd}_j \times LGA_i \text{IncInd}_j / LGA_i \text{EmpInd}_j).$$

The average income data combined with employment data allows estimates of the earnings of each industry for each LGA. These are shown in Table 3-10 and Figure 3-6. Figure 3-6 is generated from data in Table 3-10 and equivalent information from the 1996 Census (adjusted by the Consumer Price Index). Summary points include:

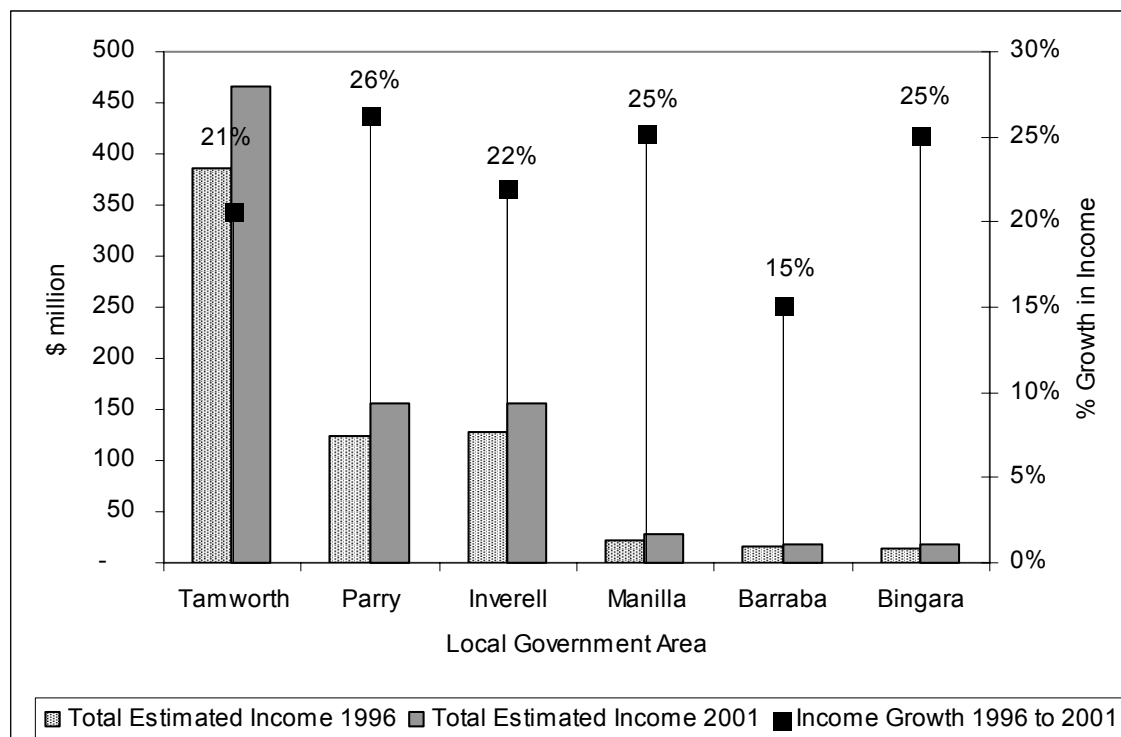
- the Nandewar generated a total income of \$842 million in 2001, equivalent to 1 percent of the regional income for NSW;
- approximately 55 percent accrues to residents in Tamworth where the earnings are widely spread over many industries with earnings highest in health and community services and retail trade;
- between 1996 and 2001 real income grew in each LGA with the greatest increase in income experienced in Parry LGA; and
- Health and Community Services generated the greatest share of income (13 percent) in the Nandewar followed by Retail Trade (12 percent) and then Education and Agriculture, Forestry & Fishing (10 percent). This profile is dominated by Tamworth. In all other LGAs, including the regional centre of Inverell there is a dominance of earnings from agriculture.



**TABLE 3-10: TOTAL ESTIMATED INCOME BY INDUSTRY AND LGA (2001)**

ANZSIC Industry	Barraba	Bingara	Inverell	Manilla	Parry	Tamworth	Nandewar	NSW
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture, Forestry & Fishing	7.1	5.8	24.9	6.7	25.0	13.9	83.5	2,541
Mining	0.1	-	1.4	0.1	0.5	0.9	3.0	897
Manufacturing	0.6	0.9	15.3	2.3	15.0	46.0	80.0	12,230
Electricity, Gas & Water Supply	0.1	0.3	2.0	0.3	1.2	6.0	9.9	1,035
Construction	0.6	1.1	9.9	1.9	8.4	29.1	51.0	7,173
Wholesale Trade	0.6	0.5	13.0	1.2	8.7	29.1	53.0	5,879
Retail Trade	1.2	1.5	20.1	2.7	14.5	58.8	98.9	9,351
Accom, Cafes & Restaurants	0.6	0.8	4.7	0.9	3.8	17.2	28.0	3,454
Transport and Storage	0.6	0.7	3.7	0.8	13.0	27.2	46.1	5,133
Communication Services	0.3	0.1	1.5	0.3	2.1	7.9	12.3	2,515
Finance and Insurance	0.2	0.1	3.7	0.7	4.2	17.0	25.9	6,230
Property and Business Services	0.5	0.9	9.1	1.2	9.0	40.8	61.5	14,637
Government Admin & Defence	1.2	0.9	5.9	1.8	6.6	26.5	42.9	4,526
Education	1.7	1.5	16.8	2.6	15.1	47.5	85.2	7,776
Health and Community Services	2.5	1.8	16.9	2.4	19.3	63.5	106.4	8,980
Cultural & Recreational Services	0.1	0.1	1.1	0.1	1.5	8.0	10.9	2,351
Personal and Other Services	0.4	0.2	5.0	0.9	4.6	18.8	29.9	3,313
Non-classifiable economic units	-	-	0.5	0.1	0.4	1.6	2.7	458
Not-stated	0.3	0.4	2.2	0.4	1.3	6.5	11.0	1,206
<b>Total</b>	<b>18.9</b>	<b>17.9</b>	<b>155.3</b>	<b>27.5</b>	<b>155.6</b>	<b>466.2</b>	<b>841.6</b>	<b>99,686</b>

Source: ABS unpublished census data, 2001 provided the base data for calculations; Total Estimated Income by Industry and LGA calculated using: Average Annual Individual Income by Industry by LGA multiplied by the Employment by Industry by LGA.

**FIGURE 3-6: TOTAL ESTIMATED INCOME AND GROWTH (\$M) BY LGA 1996 AND 2001 (2000/01 DOLLARS)**

Source: ABS unpublished census data, 2001 provided the base data for calculations.

Additional information compiled by the Department of Social Security (DSS) is indicative of the relative position of household income in the region. Bray and Mudd (1998) compiled estimates of household income from tax statistics and related those to the levels of income tax paid and (Federal government) social welfare benefits received in each LGA. For the Nandewar the estimates were:

Gross Income	\$859m
Income Tax Paid	\$148m
Social Welfare Benefits	\$163m

The gross income estimates of Bray and Mudd (1998) are higher than those shown in Table 3-10, the differences are relatively small given the nature and quality of the data used for the estimates.

Some additional estimates relating to household income are shown in Table 3-11 to show the various sources of income and estimate household disposable income (post-tax income).

- Welfare payments amounted to 19 percent of gross income compared with the NSW level of 12 percent.
- The ratio of tax paid to benefits received in the Nandewar was 0.9 and is well below the ratio for NSW of 1.6.
- Total income tax paid is offset by the total of federal government welfare benefits received.

Thus, this region is one where the household income situation appears to be below the average for NSW. Only in Tamworth and Parry Shire does the tax paid figure exceed the DSS benefits received. The overall results would reflect the poor seasonal and commodity market situation that applied in the mid 1990s. In any case, the household income situation in the Nandewar is weak relative to NSW, particularly in those areas other than Tamworth and Parry.

In the last few years, the situation in the late 1990s may have improved due to higher earnings in agriculture. Income tax payments may have risen and welfare benefits receipts are likely to have declined along with lower levels of unemployment. The figures will be affected by ongoing drought conditions and the appreciation of the Australian dollar, income tax payments may again decline, welfare benefits receipts increase and unemployment levels begin to rise.

**TABLE 3-11: TOTAL ESTIMATED REGIONAL INCOME: SOURCES AND BALANCES (1996)**

Nandewar LGAs	Employed Persons Income	Non-employed Persons		Gross Income	Income Tax	Post Tax Income	Calculated Tax : Benefit Ratio
		Government Transfers (DSS Benefits)	Investment Income				
	\$m	\$m	\$m	\$m	\$m	\$m	
Barraba	15	8	0	23	3	20	0.5
Bingara	13	7	1	22	3	18	0.4
Inverell	120	40	11	171	28	143	0.7
Manilla	21	10	2	32	5	27	0.5
Parry	116	25	3	144	25	119	1.0
Tamworth	364	74	29	467	84	383	1.1
<b>Nandewar</b>	<b>650</b>	<b>163</b>	<b>46</b>	<b>859</b>	<b>148</b>	<b>710</b>	<b>0.9</b>
NSW	81,177	11,486	1,574	94,236	18,602	75,634	1.6

Note: Employed Persons Income is based on Average Annual Individual Income for 1996 by Total Persons Employed by Industry for 1996). Bray and Mudd (1998) report Government Transfers and Gross Income. Investment income is a balancing figure.

### 3.5 Individual, Household and Family Income

The proportion of households earning less than \$299 per week and the median household income is reported (Hassall & Associates *et al.* 2003). This profile is included in the community sensitivity indices prepared by RACD, CARE and EBC (2000).

#### 3.5.1 Household Income

Table 3-12 presents the proportion of Indigenous families earning less than \$299 per week as compared to the proportion of all families in the population that earn less than \$299 per week. As the numbers for the Indigenous population are low, randomisation carried out by ABS to maintain confidentiality of data may be the reason for 0 percent figures for Bingara, Nundle, Murrurundi and Yallaroi.

For the Nandewar, the proportion of One Family Households earning less than <\$299 per week was 4 percent, and for Indigenous Households it was 8 percent, both being lower than that recorded for NSW as a whole (12 percent).

**TABLE 3-12: PROPORTION OF ONE FAMILY HOUSEHOLDS EARNING LESS THAN \$299 PER WEEK (2001)**

Nandewar LGAs	One Family Households		Proportion Households <\$299	
	General Population	Indigenous	General Population	Indigenous
Barraba	604	21	6%	14%
Bingara	585	6	5%	0%
Inverell	4,025	152	5%	11%
Manilla	875	50	5%	6%
Parry	3,417	142	4%	7%
Tamworth	9,067	524	3%	7%
<b>Nandewar</b>	<b>18,537</b>	<b>895</b>	<b>4%</b>	<b>8%</b>
<b>Bordering LGAs</b>				
Nundle	359	18	5%	0%
Murrurundi	558	10	5%	0%
Gunnedah	3,185	316	5%	10%
Moree Plains	3,766	582	4%	8%
Narrabri	3,664	281	5%	7%
Quirindi	1,299	102	4%	5%
Yallaro	881	11	6%	0%

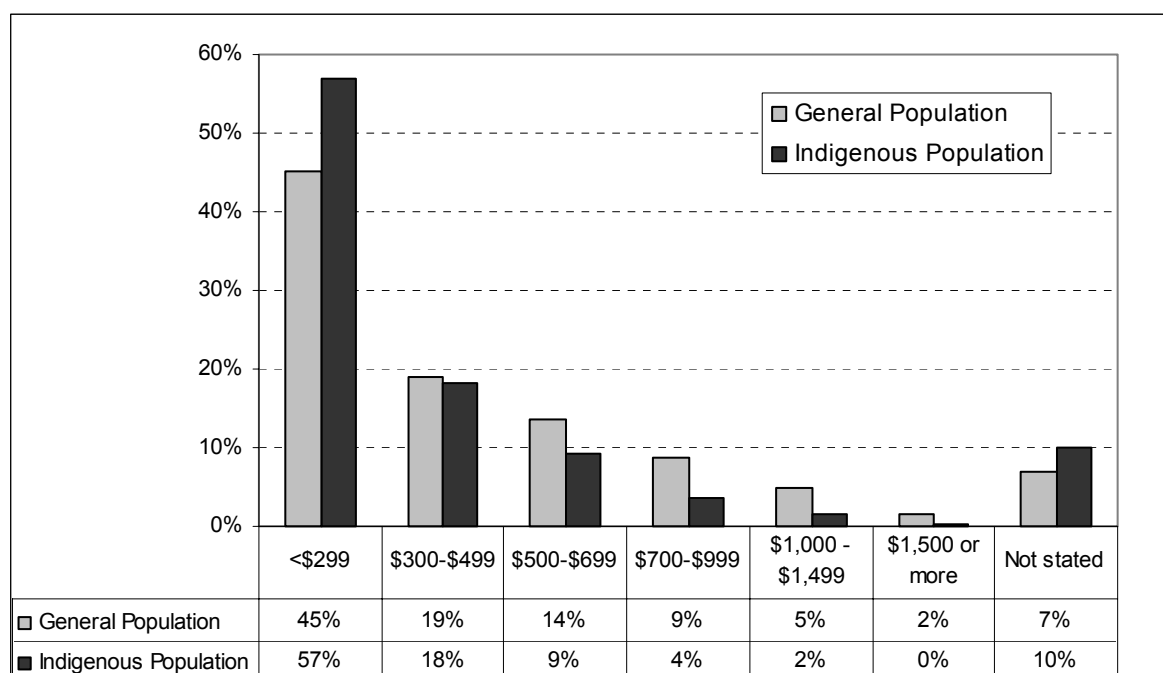
Source: ABS Census, unpublished data, 2001 supplied by the Department of Infrastructure Planning and Natural Resources for the purposes of this study.

### 3.5.2 Individual Income

Figure 3-7 shows the number of persons earning a level of weekly income for the General Population and Indigenous Population.

In 2001, the largest proportion of individuals earned less than \$299 per week, with 45 percent of the general population and 57 percent of the Indigenous Population. Individuals in the Indigenous Population generally earned less on average than individuals in the General Population.

**FIGURE 3-7: PROPORTION OF INDIVIDUALS EARNING A LEVEL OF WEEKLY INCOME FOR THE GENERAL AND INDIGENOUS POPULATION (2001)**



Source: Calculations based on ABS 2001 census, unpublished data.

### 3.6 Analysis of Industry Employment

The proportion of people employed in different industries and the change over time is important in understanding the diversity of the economy, and whether opportunities exist for movement within an area.

This section provides details of the industry or sectoral structure of the economy, by an analysis of the detailed employment by industry data obtained from the ABS Population Census. The sectoral or industry classification used in this analysis is based on the Australia and New Zealand Standard Industry Classification (ANZSIC).

### 3.6.1 Sectoral Distribution of Employment – General Population

Total employment in 2001 for the Nandewar was 27,270 persons and the main employing industries were (in terms of the share of regional employment) as follows:

- Retail trade: generated 17 percent of employment (14 percent in NSW) and wholesale trade 6 percent (6 percent in NSW);
- Broadacre agriculture (sheep/beef cattle/grains) sectors: generated 9 percent of employment (Agriculture, Fisheries and Forestry sectors generated a total of 12 percent including broadacre agriculture in the Nandewar as compared to 3 percent in NSW);
- Manufacturing generated 9 percent of employment (12 percent in NSW). Wood and Paper Manufacturing generated 1 percent of total employment;
- Health services accounted for 8 percent of total employment and community services 3 percent of employment (7 and 2 percent respectively in NSW);
- Education sectors generated 7 percent of total employed persons (7 percent in NSW);
- Business services generated 6 percent of employment (11 percent in NSW);
- Accommodation/restaurants/cafes/pubs/clubs sector employed 5 percent (5 percent in NSW);
- Forestry and Logging sector generated less than 1 percent of employment (less than 1 percent in NSW); and
- the remaining sectors employed 53 percent.

This presents a different profile than that for regional income, which placed Health and Community Services as the largest sector in terms of earnings.

Figure 3-8 shows the distribution of employment by sector for 1996 and 2001.

The proportion of people employed within various industries varies considerably by LGA:

- for the small shires such as Barraba, Bingara and Manilla agriculture is the most important source of employment;
- for Tamworth and Inverell, which are large urban centres, agriculture accounts for a smaller proportion of employment.

Employment growth occurred in the following Shires and the associated driving industries:

- Inverell: Grain, Beef and Sheep Farming; Wholesale Trade and Retail Trade;
- Parry: Grain, Beef and Sheep Farming; Retail Trade; Wholesale Trade; and Health and Community Services; and
- Tamworth: Retail Trade; Wholesale Trade, Construction; and Property and Business Services.

It should be noted from Figure 3-8 that Forestry and Logging of the industries presented employs the smallest number of persons.

Interviews with local government representatives identified some significant changes have taken place in some of the LGAs over the last 10 years:

- Barraba: Rail infrastructure and a mine closed and livestock production has come to dominate agricultural production.
- Inverell: There has been growth in abattoir operations, pet food production, growth in small engineering businesses, growth in local professional services, and the agriculture and apiary industries maintaining. At the same time there was the demise of North Power<sup>8</sup>.
- Parry: There has been a boom in the housing industry with a greater demand for rural residential lifestyle living, intensive agriculture has increased, and a change from traditional to more boutique farming practices<sup>9</sup>.

For the other LGAs, either they did not offer an interview or did not state specific areas of major change.

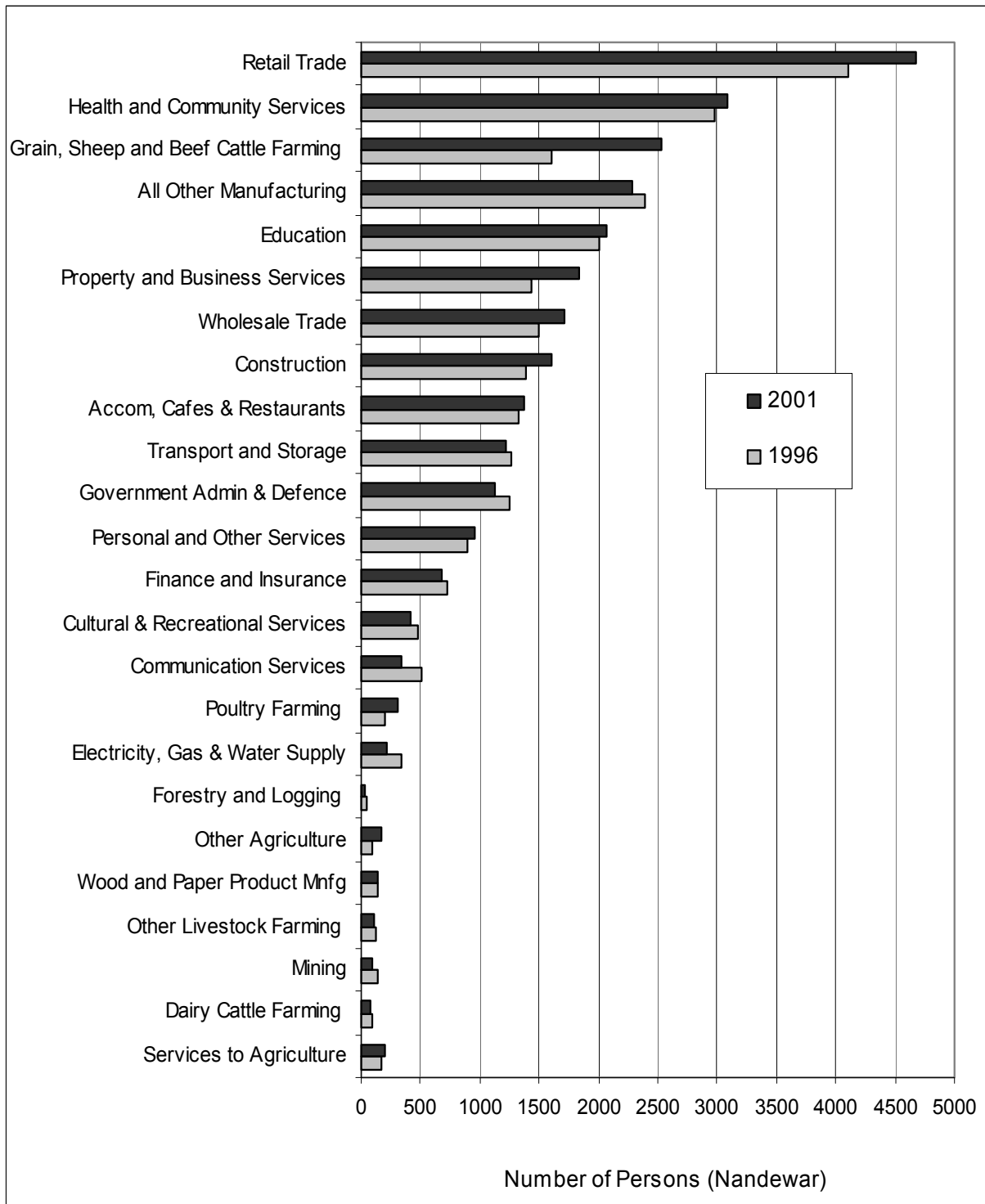
Figure 3-9 shows the percent change in persons employed between 1996 and 2001 for the Nandewar. A comparison with NSW employment figures is also provided.

In the Nandewar, the number of persons employed increased in the Retail Trade sector, the most important sector for employment, increasing by 14 percent between 1996 and 2001. Grain, Sheep and Beef Cattle Farming, accounting for 9 percent of employment increased by 57 percent over the same period. Other Agriculture and Poultry Farming, although small industries in terms of employment, also showed significant growth. Employment declined for the Forestry and Logging industry from 39 to 31 employed persons (or 21 percent) over the period.

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<sup>8</sup> Les Moulds, Inverell Shire Council, pers. comm. 27/08/03.

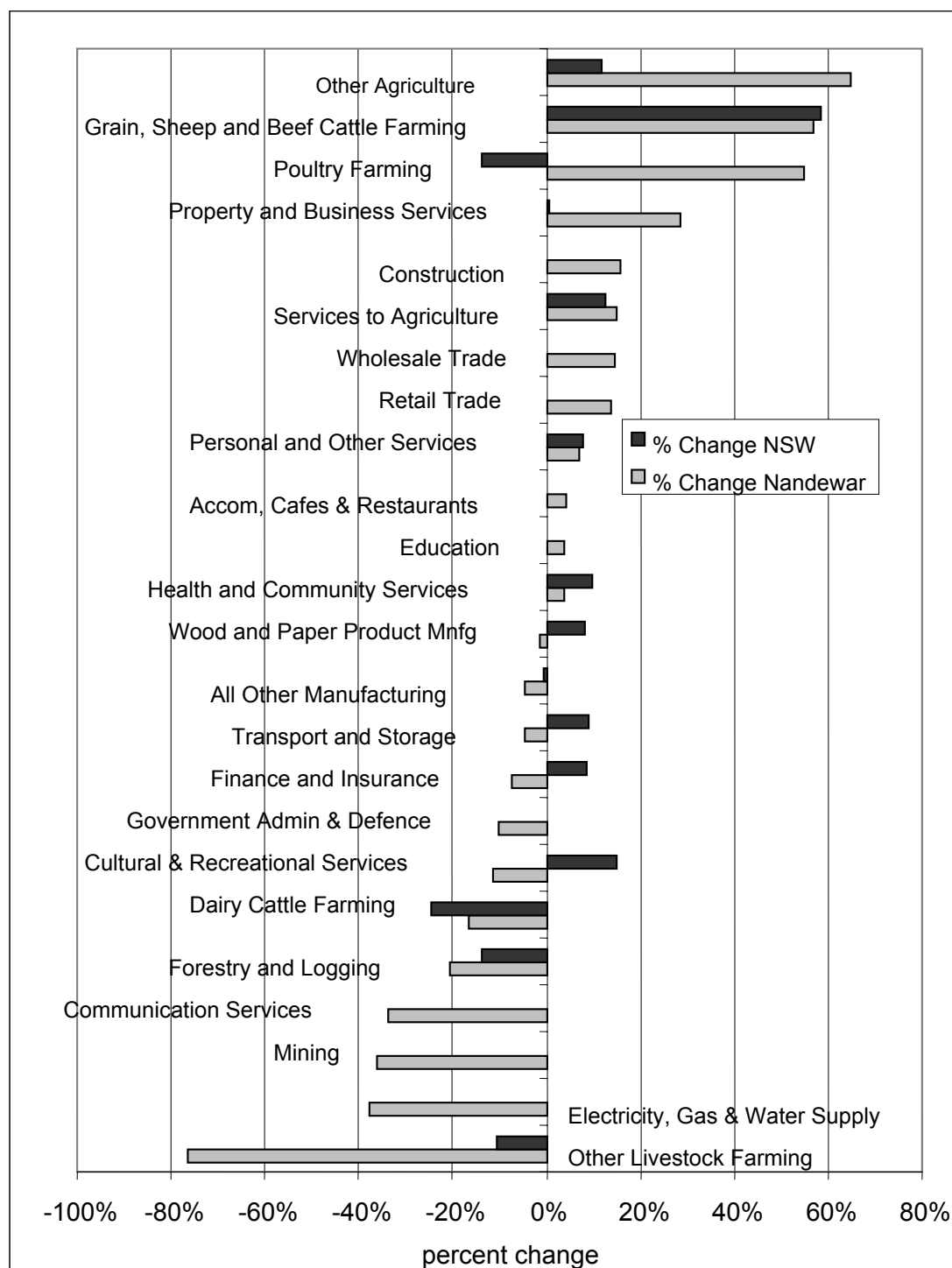
<sup>9</sup> Donna Auslingm Parry Shire Council, pers. comm. 08/03.

**FIGURE 3-8: INDUSTRY DISTRIBUTION OF EMPLOYMENT FOR 1996 AND 2001**

Source: Calculated from ABS Census 2001, unpublished data for number of employed persons by ANZSIC.



**FIGURE 3-9: PERCENT CHANGE IN EMPLOYED PERSONS BY INDUSTRY FOR 1996 AND 2001 - NANDEWAR AND NSW**



Source: Calculated from ABS Census 2001, unpublished data for number of employed persons by ANZSIC.

### 3.6.2 Sectoral Distribution of Employment – Indigenous Population

There are five ATSI areas for which ABS reports statistics by industry on its website. The five areas, which most closely approximate the Nandewar, are:

- Manilla / Warialda;
- Nundle (A) / Parry (A);
- Inverell (A);
- Tamworth (C); and
- Murrurundi (A) / Quirindi (A).

In Table 3-13, the number of Indigenous persons employed by industry is presented as a proportion of the total number of Indigenous persons employed. The selected industries presented are those for which the proportion was highest. The data are from the ABS 2001 Census.

For the five ATSI regions, in total, Indigenous employment is highest in the industries of Health and Community Services, and Retail Trade. Government, Administration and Defence employment is important in the Manilla / Warialda Region, Health and Community Services is important in the Nundle/Parry Region and Retail Trade is important in Tamworth. Indigenous employment is spread more evenly across the range of industries in Inverell.

Agriculture, Forestry and Fishing is an important industry, although not as significant, in terms of employment, as for the general population.

**TABLE 3-13: PROPORTION OF INDIGENOUS PERSONS EMPLOYED BY SELECTED INDUSTRY (2001)**

ATSI Region	Agriculture, Forestry and Fishing	Government Administration and Defence	Health and Community Services	Retail Trade	Manufacturing
Manilla/Warialda	11.1%	40.7%	13.0%	8.3%	2.8%
Nundle (A)/ Parry (A)	12.6%	7.4%	15.6%	5.9%	8.1%
Inverell (A)	11.4%	10.2%	12.5%	9.1%	11.4%
Tamworth (C)	5.0%	6.2%	13.1%	18.8%	8.9%
Murrurundi (A) / Quirindi (A)	7.7%	14.3%	14.3%	7.7%	9.9%
Total	8.0%	12.2%	13.6%	13.1%	8.4%

Source: ABS Census 2001, published data.

### 3.6.3 Location Quotient Analysis

A location quotient (LQ) is a ratio that shows the relative importance of sectors to the region, compared to that in Australia as a whole, ie:

$$\frac{\% \text{ of local employment in sector } x}{\% \text{ of state employment in sector } x}$$

Where the local share is larger than the state share, the LQ is greater than 1 and where the local share is smaller, the value is less than 1. Where the value is greater than two (2) it indicates that those industries are likely to be key strengths in the region and tend to be industries that are important to the regional economy.

LQs are presented in Table 3-14 for those industries that have a 2001 value greater than 1.0 and a selection of some of the essential service sectors. The industries with an LQ of greater than two identifying them as key strengths in the regional economy include:

- Poultry Farming;
- Grain, Sheep and Beef Cattle Farming;
- Other Livestock Farming;
- Services to Agriculture; Hunting and Trapping; and
- Food, Beverage and Tobacco Manufacturing.

The LQs confirm that agricultural industries are important to the regional economy however have declined in strength between 1996 and 2001. The forestry and timber processing industry is small in employment terms, however more significant to the Nandewar than it was to NSW. It declined in importance from 1996 to 2001.

The LQs for most of the service sectors are about 1.0 or lower indicating the region is about average for those services. The significance of the road transport sector in 2001 is a reflection of the freight needs of industries in the region and is growing while rail transport has declined significantly in regional importance. The LQs for many of the services that support business were less than 1.0, eg, business services, property services, and services to finance and insurance. However, in the most recent period there has been further employment that may represent a catch-up relative to business needs. The accommodation, cafes and restaurants sector, rail transport, other services, and residential/house construction at 0.9 is indicative of the fact that the sector is as important in this region as it is in Australia as a whole.

**TABLE 3-14: LOCATION QUOTIENTS, 1996 TO 2001 FOR THE NANDEWAR**

Ranked Sectors by 2001	LQ		Employment
	1996	2001	2001
Poultry Farming	6.3	11.2	310
Grain, Sheep and Beef Cattle Farming	5.2	4.7	2,530
Other Livestock Farming	4.3	3.8	109
Services to Agriculture; Hunting and Trapping	3.1	2.9	194
Food, Beverage and Tobacco Manufacturing	2.5	2.2	1,017
Dairy Cattle Farming	1.6	1.9	75
Road Transport	1.5	1.4	804
Forestry and Logging	1.3	1.3	31
Health Services	1.3	1.2	2,329
Community Services	1.3	1.2	764
Retail Trade	1.1	1.2	4,670
Wholesale Trade	1.0	1.1	1,719
Education	1.1	1.1	2,075
Government Admin & Defence	1.2	1.0	1,127
Electricity, Gas & Water Supply	1.8	1.0	216
Personal Services	1.1	1.0	521
Rail Transport	1.7	1.0	120
Accom, Cafes & Restaurants	1.0	0.9	1,377
Other Personal Services	1.0	0.9	431
Residential and House Construction	1.2	0.9	296
Air and Space Transport	1.0	0.8	157
Wood and Paper Product Manufacturing	0.8	0.7	144
Insurance	0.7	0.7	1,581
Property Services	0.8	0.6	222
Mining	1.0	0.6	90
Business Services	0.5	0.5	1,568
Finance	0.6	0.5	347
Services to Finance and Insurance	0.4	0.4	108
Other Transport and Storage	0.5	0.1	131

Source: Based on ABS unpublished census data, 1996 and 2001.

### 3.6.4 Summary of Industry Employment

There is a diversity of industry in the Nandewar with 17 percent of employed persons engaged in Retail Trade, 12 percent in Agriculture, Fisheries and Forestry, 9 percent in Manufacturing and 8 percent in Health and Community Services. The remaining 53 percent of employed persons are engaged in a variety of other industries.

Reviewing the Nandewar more closely however, shows a level of dependence on agriculture. For the smaller LGAs of Bingara, Barraba and Manilla, agricultural industries are the major employers. Earnings from agricultural production dominate these smaller areas as well as the larger LGAs of Parry and Inverell. Further, significant growth in employed persons was experienced by agricultural industries in the late 1990s in the Nandewar including poultry farming, and grazing, sheep, beef and cattle farming. A number of agricultural industries are shown to be important to the regional economy based on an analysis of the location quotient. However, at the same time as agriculture is experiencing employment growth, so too are the services, retail and wholesale trade sectors, pointing to a level of economic diversity in the region's economy.

## 3.7 Occupation

A brief analysis was conducted of the occupation of 'Labourers and Related Workers'. The proportion of persons employed in this occupation is included in the Community Sensitivity Indices (RACD, CARE and EBC 2000) reported in Chapter 4 as a measure of the proportion of persons with potentially few qualifications. The results are presented in Table 3-15. The proportion of persons employed as Labourers and Related workers increased by 1 between 1996 and 2001 for all six LGAs in the Nandewar. The proportion was higher for all LGAs than for NSW (8 percent).

**TABLE 3-15: 'LABOURERS AND RELATED WORKERS' AS A PROPORTION OF THE WORKFORCE (2001)**

<b>Nandewar LGAs</b>	<b>Labourers and Other Related Workers</b>		<b>Proportion of Employed Persons</b>	
	1996	2001	1996	2001
Barraba	125	129	15%	16%
Bingara	100	109	14%	15%
Inverell	695	852	13%	15%
Manilla	117	135	11%	13%
Parry	561	628	11%	12%
Tamworth	1,480	1,630	11%	11%
<b>Nandewar</b>	<b>3,078</b>	<b>3,483</b>	<b>11%</b>	<b>12%</b>
<b>NSW</b>	<b>210,223</b>	<b>218,795</b>	<b>8%</b>	<b>8%</b>
<b>Bordering LGAs</b>				
Nundle	75	85	15%	16%
Murrurundi	162	159	18%	18%
Gunnedah	669	541	13%	12%
Moree Plains	853	911	13%	13%
Narrabri	670	699	11%	11%
Quirindi	261	283	13%	14%
Yallaroi	157	183	12%	14%

Source: ABS Census 1996 and 2001, published data.

The same analysis was conducted for the five ATSI regions. The occupation of 'Labourers and Related Workers' represents a significant occupation for the Indigenous workforce in all areas, in particular Manilla / Warialda. The proportion for the Nandewar, 25 percent, is higher than for NSW, 17 percent. The results are presented in Table 3-16. Data is only available for the 2001 census for these regions.

**TABLE 3-16: INDIGENOUS 'LABOURERS AND RELATED WORKERS' AS A PROPORTION OF THE WORKFORCE (2001)**

ATSIC Region	Indigenous Labourers and Related Workers (%)
Manilla/Warialda	42
Nundle (A)/Parry (A)	18
Inverell (A)	26
Tamworth	23
Murrurundi (A)/Quirindi (A)	23
<b>Total</b>	<b>25</b>
<b>NSW</b>	<b>17</b>

Source: ABS Census 2001, published data (unpublished for NSW).

### 3.8 Infrastructure

A good transport and utility infrastructure network including roads, rail, air, electricity, and water, provides for increased mobility, transport of goods and attraction of investment and visitors. Where infrastructure is inadequate it can limit expansion and development.

The Nandewar is well serviced by road, rail and air with an extensive highway system linking major towns and freight systems linking the region to major domestic markets and export ports.

Employment in infrastructure related industries accounts for 6 percent of total employment in the Nandewar with:

- 1,212 persons employed in Transport and Storage;
- 338 persons employed in Communication Services sector; and
- 216 persons employed in Electricity, Gas and Water Supply sector.

The majority of positions are based in the Tamworth, Parry and Inverell Shires.

#### 3.8.1 Road

An extensive road network covers the region, with the major highways and freeways (New England and Oxley Highways) ensuring direct links to major population centres.

- Both regional centres, Tamworth and Inverell, are well connected by road to other towns with six main roads spreading out from each centre;
- Manilla is linked by road to Gunnedah and Narrabri;
- Bingara to Inverell, Narrabri, and Tamworth; and

- The main road north west of Tamworth, traverses Parry, Manilla, through Barraba to Bingara.

Coach companies service the area. The Oxley Highway, New England and Newell Highways are the main highways used by these companies. The Oxley Highway passes through Mullaley, Gunnedah and Carroll linking with the New England at Tamworth and continues on to meet the Pacific Highway at Port Macquarie. It also joins the Newell Highway at Coonabarabran.

McCafferties Express Coaches and Greyhound Pioneer, link Tamworth through Armidale to Tenterfield or through Gunnedah and Narrabri to Moree and Tamworth to Newcastle, to the South, and Lismore to the north. There are also a number of local bus services.

### 3.8.2 Air

- Tamworth is linked by air services to major centres and cities. The Bae Systems Flying College, Australasian Pacific Aeronautical College and the major maintenance base for the QantasLink Dash 8 aircraft are based at Tamworth Airport. Parry and Manilla Shires are closest to Tamworth Airport in terms of access to air travel.
- Inverell is linked by air services to major centres and cities.
- Gunnedah is linked to major city centres by daily air services.
- Bingara Council controls and maintains a light plane airstrip suitable for Air Ambulance. The closest air service is Inverell (70kms away).

### 3.8.3 Rail

The North-West rail line runs through the Gunnedah Shire, passing through Breeza, Curlewis and Gunnedah. There are daily passenger services by 'Explorer' trains to and from Sydney in six hours. There are also major services for all types of freight. Rail sidings are located along the line in Gunnedah servicing various manufacturing firms and bulk handling and a rail loop line has been built at the Gunnedah coal loader enabling a fast and efficient turn around. Bulk grain handling facilities are located along the rail line at Breeza, Nea Siding, Curlewis, Gunnedah and Emerald Hill.

## 3.9 Trends and Outlook

In the period since the mid 1990s the Nandewar has enjoyed employment and population growth, suggesting a level of economic and social robustness and prosperity. However, between 1981 and 2001 there was no absolute growth in employment for the Nandewar.

Growth in real<sup>10</sup> individual income took place in each LGA between 1996 and 2001 with the greatest increase in income earned received in Parry LGA. Strong growth in the Tamworth and

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<sup>10</sup> Nominal average annual individual incomes for 1996 were adjusted using the CPI to 2001 figures.



Parry LGAs has driven economic growth in the Nandewar. The labour force situation looks healthy for these LGAs. Further, employment increased for the majority of the most important employment generating industries, including Grain, Sheep and Beef Cattle Farming; Retail Trade; Property and Business Services; Wholesale Trade; and Construction. Key sectors experiencing some decline in employment included Manufacturing and Government Administration and Defence.

However, for a number of Nandewar LGAs there has been a decline in both population and persons employed. These include Barraba and Bingara, and the bordering LGAs of Murrurundi, Gunnedah, Quirindi and Yallaro. There is likely to be a trend of workers leaving the smaller LGAs unless employment opportunities increase. As outlined by the Centre for Agricultural and Regional Economics and Gillespie Economics (2002) in their report for the BBSB, with strong growth nationally and in NSW, there is an increase in the demand for employees in the major cities such as Sydney.

For some LGAs in the region, the cumulative effects of declining employment levels and limited potential job growth, reduces the economic viability of these economies. The current drought adds further pressure to these economies. Lower interest rates relative to the early 1990s may assist the economies to rebound more quickly, however the appreciation of the Australian dollar may limit recovery.

The outlook for Tamworth, Parry, and Inverell looks healthy, with the economies of the areas demonstrating the ability to rebound from economic shocks and drought and demonstrating a level of resilience due to the range of industries. The regional centres of Tamworth, Inverell and Parry, are likely to grow as they draw population from smaller centres and continue to generate their own growth. Parry also benefits from close proximity to the growing regional centre of Tamworth.



## 4. SOCIAL PROFILE AND TRENDS

### 4.1 Scope and Content

It is important to present the picture of the Nandewar from a socioeconomic and socio-demographic standpoint. This provides an indication of the ability of the communities to absorb change and / or make use of new opportunities. It also contributes to an understanding of context of the economic profile presented in Chapter 3.

The information provided in this chapter has been prepared to assist the linked consultancy NAND12, *Development of Forest Based and Conservation Opportunities and Forest-based Aboriginal Opportunities*.

### 4.2 Socio-Demographic Profiles

#### 4.2.1 Introduction

Socio-demographic profiles for the LGAs within the Nandewar have been prepared using census data (1996 and 2001). Based on the methodology applied in RACD, CARE, EBC (2000), 27 parameters have been selected for analysis, five of which provide descriptive information about the LGA. The remaining profiles were selected on the basis that they are indicators of community vulnerability and sensitivity to change. Such profiles include unemployment, family income, education levels, age dependency and family structure. Table 4-1 presents the definitions of the profiles.

**TABLE 4-1: DEFINITION OF SOCIO-DEMOGRAPHIC PROFILES**

<b>Socio Demographic Profile</b>	<b>Definition</b>
Number of Occupied Private Dwellings	
Resident Population	
Occupancy Rate	Resident population/number of occupied private dwellings
Percent Rental Accommodation	As a percentage of all private dwellings
Percent Public Housing	As a percentage of all private dwellings
Percent Aged 14 and Below	As a percentage of the total resident population
Percent Aged 15 to 64	As a percentage of the total resident population
Percent Aged 65 and Above	As a percentage of the total resident population
Dependency Ratio	Ratio of the percentage of the population below 14 years of age and above 65 years of age to the percentage aged between 15 and 64 years. Scores in excess of 100 indicate more people in the dependency age groups (below 14 and over 65) than people in the non-dependency age group (15-64 years). Scores below 100 indicate more people in the dependency age groups.
Unemployment Rate	The number of all unemployed persons expressed as a percentage of the workforce (employed and unemployed).
Unemployment Rate (15-19 year olds)	The number of unemployed persons between 15 and 19 years of age expressed as a percentage of the workforce aged between 15 and 19 years of age.
Unemployment Rate (males 25-44 years)	The number of unemployed persons between 25 and 44 years of age expressed as a percentage of the male workforce aged between 25-44 years of age.
Workforce Participation Rate	The number of persons in the labour force expressed as a percentage of the total number of persons aged 15 years and over.
Weekly Family Income Less than \$299	All one family households with a weekly income of less than \$299 as a percentage of all one family households.
Percent Separated or Divorced	The number of all separated and divorced persons expressed as a percentage of all persons over 15 years of age.
Percent Speaking English Not at All or Poorly	The number of persons indicating they do not speak English or speak English poorly as a percentage of all persons born overseas and aged over 5 years.
Percent Left School Aged Less than 15 or Never Attended	The number of persons who left school less than 15 years of age or never attended as a percentage of all persons over 15 years of age.
Percent Aged 15 years and Over with No Qualifications	The number of persons aged 15 years and over with no qualification as a percentage of the number of people aged 15 years and over.
Percent One Parent Families	The number of one-parent families in occupied private dwellings as a percentage of all families in occupied private dwellings.
Percent of One Family Households with No Motor Vehicle	The number of one family households with no vehicles as a percentage of all occupied private dwellings.
Percent of Labourers and Related Workers	The number of labourers and related workers as a percentage of all employed persons.
Percent Employed in Agriculture, Forestry and Fishing	The number of persons employed in industries defined as agriculture, forestry or fishing as a percentage of all employed persons.

Source: ABS (1996), Extracted from RACD, CARE, EBC (2000), prepared by EBC (2000), adjusted.

### 4.2.2 Population

The total estimated resident population for the Nandewar was 73,013 in 2001, increasing by 1 percent between 1991 and 2001. The Aboriginal and Torres Strait Island population was 3,720 or 5 percent of the total population, as compared to 3.7 percent for Rural NSW. The Indigenous population grew by 34 percent between 1996 and 2001, with growth in all LGAs.

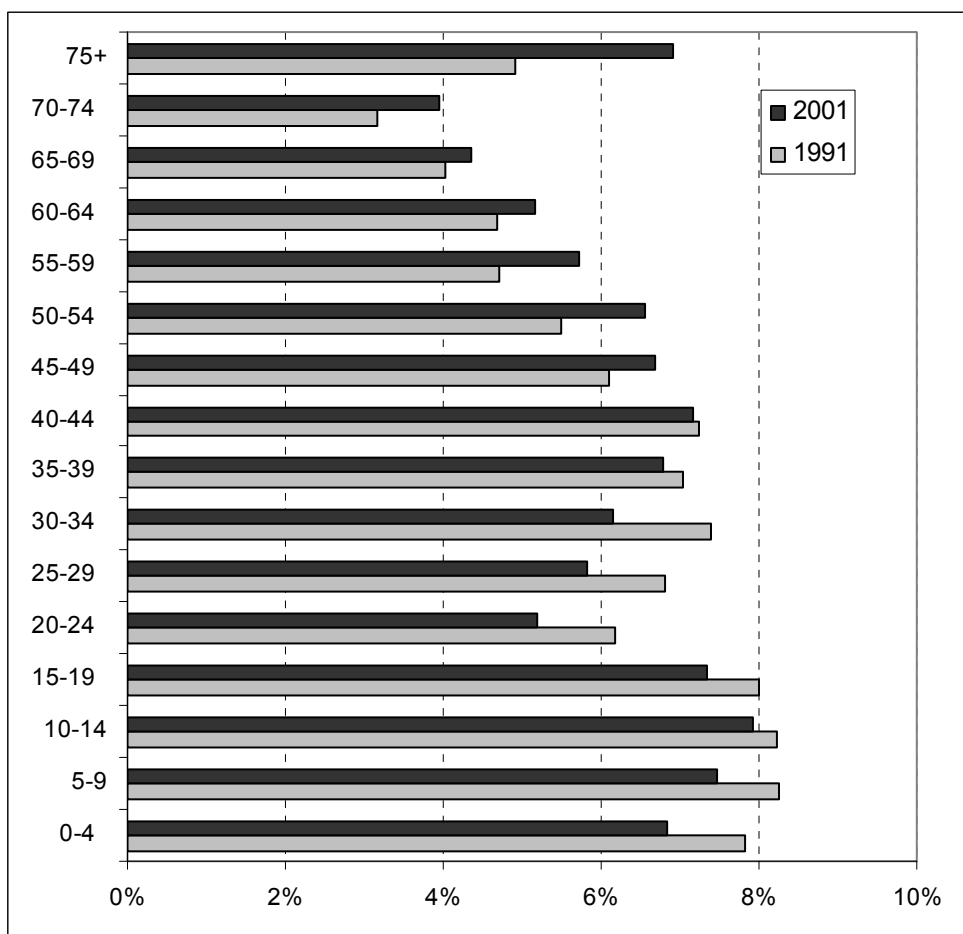
### 4.2.3 Age Distribution

The age breakdown of the population is important to provide an understanding of likely changes in generational transfer, skill availability, community vitality, dependency and attitude. The total population count was used for 1996 and 2001, adjusted for overseas visitors (Hassall & Associates *et al.* 2003).

Figure 4-1 depicts the proportion of each group of the total population for the Nandewar (combining the populations for the six key shires). The data show:

- the number of persons below 45 years as a proportion of the total population declined between 1991 and 2001. The data indicates the trend of a population that is ageing; and
- the number of persons greater than 45 years of age as a proportion of the total population increased over the same period.

The low population in the 15 to 25 year groups indicates an ageing population (who tend to be relatively less mobile) and a reduced potential for the younger groups to move into the main employment age groups (Centre for Agricultural and Regional Economics and Gillespie Economics, 2002). For smaller LGAs, with fewer employment opportunities, out migration of the most mobile may continue, contributing further to the ageing population. Many in this group move to seek further education and training while others seek work and travel opportunities. The higher incomes and growth-based employment opportunities in state capitals and to a lesser extent Tamworth provide incentives to move (Centre for Agricultural and Regional Economics and Gillespie Economics, 2002).

**FIGURE 4-1: PROPORTION OF THE AGE GROUP OF THE POPULATION FOR 1991 AND 2001**

Source: Calculations based on unpublished ABS data, 1991 and 2001 census.

#### 4.2.4 Age Dependency

The age dependency ratio is calculated as the percentage of the estimated resident population below 14 years of age and above 65 years of age to the percentage aged between 15 and 64 years. If the result is greater than 100, there are more people in the dependency age groups (below 14 and over 65) than people in the non-dependency age group (15-64 years).

Table 4-2 presents the results of the age dependency rate for the general and Indigenous population. The data show that:

- the age dependency rate for the general population in the Nandewar increased from 57 percent in 1991 to 59 percent in 2001, which is slightly less than the dependency rate recorded for rural NSW in 2001 of 60 percent;
- the rate for the Indigenous population decreased from 85 percent to 81 percent from 1996 to 2001;
- the general population rate increased for each of the LGAs over the decade, except for Nundle and Parry, which decreased. The Indigenous rate increased for the Parry LGA;

- the highest general population rate in 2001 was recorded for Bingara (67 percent). A correlated piece of information is that in 1998, Bingara recorded the lowest tax: benefit ratio for the Nandewar with a higher level of benefits for taxable income paid; and
- the general population in Barraba, Manilla, and Inverell, also recorded higher than average age dependency rates.

**TABLE 4-2: TOTAL AGE DEPENDENCY RATE FOR 1991, 1996 AND 2001**

	1991	1996		2001	
<b>Nandewar LGAs</b>	<b>General Population</b>	<b>General Population</b>	<b>Indigenous Population</b>	<b>General Population</b>	<b>Indigenous Population</b>
Barraba	59	66	84	64	63
Bingara	60	59	0	<b>67</b>	127
Inverell	60	63	<b>98</b>	62	<b>93</b>
Manilla	58	60	75	63	57
Parry	54	54	76	53	82
Tamworth	57	59	84	58	81
<b>Nandewar</b>	<b>57</b>	<b>59</b>	<b>85</b>	<b>59</b>	<b>82</b>

Source: Calculated from ABS unpublished data, 1991, 1996 and 2001 Census.

#### **4.2.5 Family Types and Marital Status**

Two profiles are reported including the proportion of one-parent families in occupied dwellings and the number of persons separated or divorced. The first is calculated as the number of one-parent families in occupied dwellings as a proportion of all families in occupied dwellings and the second as the number of persons separated or divorced as a proportion of the total number of persons over the age of 15 years.

RACD, CARE and EBC (2000) included these two profiles when calculating the community sensitivity indices (see Fenton, 1998a; 1998b; 1998c) for communities affected by changes in forest management.

In 2001, the proportion of one-parent families in the Nandewar:

- accounted for 17 percent of all families, increasing from the 1996 level of 12 percent, reflecting the increase that also occurred for rural NSW; and
- was highest in Tamworth with 19 percent of families with one parent, followed by Inverell with 16 percent of families with one parent. Based on an analysis of LGAs throughout Victoria, NSW and South Australia, there tends to be a higher proportion of one parent families concentrated in regional centres (Hassall & Associates *et al.* 2003), possibly because of a greater supply of facilities and opportunity for part-time employment.

For the Indigenous population, the proportion of one-parent families for the Nandewar:

- increased from 31 to 33 percent from 1996 to 2001; and
- was highest in Inverell with 44 percent, followed by Tamworth with 37 percent. The lowest proportion was in Barraba.

The number of persons separated or divorced as a proportion of the total general population increased over the decade from 1991 to 2001, recording 7 percent in 1991, 9 percent in 1996 and 8 percent in 2001. Tamworth recorded the highest proportion at 11 percent, equalling the average for rural NSW.

The proportion of separated and divorced persons in the Indigenous population did not change between 1996 and 2001 and was slightly lower than the average for rural NSW.

#### **4.2.6 Education Levels**

The proportion of the general population who never attended school or left under 15 years of age declined from 13 to 12 percent for the Nandewar between 1996 and 2001. The proportion for Rural NSW also declined. The proportion increased for Barraba, Manilla and declined for all other LGAs. The proportion increased for the indigenous population for the same period, from 15 to 17 percent in the Nandewar and for Rural NSW.

Table 4-3 summarises the proportion of the population never attending or leaving school at less than 15 years of age for both the General and Indigenous population.



**TABLE 4-3: PROPORTION OF THE POPULATION NEVER ATTENDED OR LEFT SCHOOL UNDER 15 YEARS OF AGE (1996 AND 2001)**

Nandewar LGAs	General Population		Indigenous Population	
	1996	2001	1996	2001
Barraba	17%	18%	16%	27%
Bingara	17%	17%	0%	20%
Inverell	15%	15%	19%	19%
Manilla	15%	16%	15%	18%
Parry	12%	10%	18%	18%
Tamworth	12%	11%	12%	15%
<b>Nandewar</b>	<b>13%</b>	<b>12%</b>	15%	17%
<b>Rural NSW</b>	<b>14%</b>	<b>12%</b>	15%	18%

Table 4-4 summarises the proportion of persons with various non-school qualifications and Table 4-5 shows the trend in non-school qualifications from 1991 to 2001<sup>11</sup>.

In the Nandewar for the general population:

- there are very few persons with postgraduate qualifications (4 percent with a Bachelor Degree as compared to 8 percent in NSW, 3 percent with an Advanced Diploma and Diploma as compared to 5 percent in NSW, and 13 percent with a Certificate qualification as compared to 12 percent for NSW);
- the proportion gaining non-school qualifications from Certificate level to Postgraduate level increased evenly over the period from 17 percent in 1991 to 21 percent in 2001. This compares to an increase for NSW of 21 to 28 percent for the same period;
- the growth in the Nandewar was for Bachelor Degree qualifications increasing steadily over the decade for all LGAs; and
- growth also occurred for Certificate Level III/IV qualifications although declining in Barraba, Bingara, and Tamworth in the first half of the decade. Although increasing in the early nineties, there was a decline in the proportion of the population with Graduate Diploma/Certificate qualifications and Advanced Diplomas and Diplomas, and Certificate Level I and II.

<sup>11</sup> The qualification categories changed between Census years, however the data has been concorded to 2001 categories.

**TABLE 4-4: PROPORTION (%) PERSONS WITH VARIOUS NON-SCHOOL QUALIFICATIONS IN 2001**

	Postgraduate	Graduate Diploma and Graduate Certificate	Bachelor Degree	Advanced Diploma and Diploma	Certificate	Total with qualifications	Total Persons with no qualifications
<b>Nandewar LGAs</b>							
Barraba (A)	0	1	3	2	11	17	83
Bingara (A)	0	1	4	2	10	17	83
Inverell (A)	0	1	3	3	11	18	82
Manilla (A)	0	0	3	4	11	18	82
Parry (A)	1	1	4	4	14	23	77
Tamworth (C)	1	1	5	4	13	23	77
<b>Nandewar</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>13</b>	<b>21</b>	<b>79</b>
<b>NSW</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>5</b>	<b>12</b>	<b>28</b>	<b>72</b>

**TABLE 4-5: PROPORTION (%) OF ALL PERSONS WITH NON-SCHOOL QUALIFICATIONS 1991 TO 2001**

Nandewar LGA	Total with qualifications 1991	Total with qualifications 1996	Total with qualifications 2001
Barraba (A)	13	15	17
Bingara (A)	12	15	17
Inverell (A)	15	16	18
Manilla (A)	15	15	18
Parry (A)	18	20	23
Tamworth (C)	18	20	23
<b>Nandewar</b>	<b>17</b>	<b>19</b>	<b>21</b>
<b>NSW</b>	<b>21</b>	<b>24</b>	<b>28</b>

Source: Calculations based on ABS unpublished census information, 1991, 1996 and 2001.

A significant proportion of Indigenous people in the five regions have education levels below Year 10 as summarised in Table 4-6.

**TABLE 4-6: PROPORTION (%) OF THE INDIGENOUS PERSONS AT VARIOUS LEVELS OF EDUCATION (2001)**

ATSI Region	Year 8 or below	Year 9 or equiv.	Year 10 or equiv.	Year 11 or equiv.	Year 12 or equiv.	Still at school	Did not go to school
Manilla / Warialda	28	18	29	6	10	6	1
Nundle (A)/ Parry (A)	17	16	35	6	14	4	2
Inverell (A)	17	22	27	5	9	6	2
Tamworth	14	17	32	7	12	7	1
Murrurundi (A)/ Quirindi (A)	13	17	34	9	11	6	1
Total	17	18	31	7	11	6	1
NSW	15	17	30	7	16	5	1

Source: ABS Census 2001, published data and unpublished data (NSW)

#### 4.2.7 Rented Accommodation

The proportion of occupied *rented* dwellings in the Nandewar remained constant from 1991 to 2001 at 25 percent. This rate is slightly higher than that for rural NSW of 22 percent in 2001. The number of occupied public housing dwellings as a proportion of the total number of occupied dwellings also remained constant from 4 to 5 percent over the period, which was the same for NSW.

Tamworth recorded the highest proportion with 32 percent of rented dwellings and 6 percent of dwellings rented from the State. Inverell followed this, with 23 percent rented housing and 4 percent public housing.

**TABLE 4-7: PROPORTION (%) OF RENTED AND PUBLIC HOUSING DWELLINGS**

	Proportion Rented Dwellings			Proportion Rented Public Housing Dwellings		
	1991	1996	2001	1991	1996	2001
<b>Nandewar LGAs</b>						
Barraba	24	20	17	3	3	2
Bingara	19	16	19	0	0	0
Inverell	23	25	23	5	5	4
Manilla	19	22	21	1	0	0
Parry	15	15	14	1	1	1
Tamworth	30	32	32	8	8	6
<b>Nandewar</b>	<b>25</b>	<b>26</b>	<b>25</b>	<b>5</b>	<b>5</b>	<b>4</b>
<b>Rural NSW</b>	<b>NA</b>	<b>23</b>	<b>22</b>	<b>NA</b>	<b>4</b>	<b>4</b>
<b>Bordering LGAs</b>						
Nundle	18	17	15	1	0	0
Murrurundi	23	20	20	1	0	0
Gunnedah	27	27	25	6	6	5
Moree Plains	35	37	35	8	7	6
Narrabri	32	30	28	7	6	5
Quirindi	24	23	21	3	2	2
Yallaro	19	18	16	0	0	0

Source: Calculations based on ABS unpublished census information, 1991, 1996 and 2001.

Table 4-8 presents a summary of proportion of households with lone indigenous persons or families who rented their accommodation in 2001. In all the regions, except Nundle/Parry over 50 percent rented their accommodation in 2001.

**TABLE 4-8: PROPORTION (%) OF HOUSEHOLDS WITH AN INDIGENOUS LONE PERSON OR INDIGENOUS FAMILY RENTING ACCOMMODATION (2001)**

ATSIC Region	Proportion of lone person or family renting (%)
Manilla/Warialda	55
Nundle (A)/Parry (A)	33
Inverell (A)	66
Tamworth	67
Murrurundi (A)/Quirindi (A)	50
<b>Proportion for ATSIC Regions Listed</b>	<b>59</b>
<b>Rural NSW</b>	<b>60</b>

Source: ABS Census 2001, published data.

#### **4.2.8 Summary of Socio-demographic Profiles**

The key points that should be noted from the general Nandewar population profile presented include:

- the majority of the population live in Tamworth;
- growth is taking place in LGAs with regional centres, however declining in the smaller LGAs;
- the population is aging, with the proportion of the younger age groups declining;
- approximately 25 percent of the population live in rented accommodation, however this proportion is larger in regional centres. It is similar to the average for rural NSW;
- the percentage of the population that was separated or divorced is increasing and was highest in Tamworth, followed by Inverell; and
- the proportion of persons who left school at less than 15 years or never attended declined from 13 to 12 percent for the Nandewar between 1996 and 2001. The proportion increased for Barraba and Manilla.

The key points that should be noted from the Indigenous population data presented include:

- the majority of the Indigenous population (50 percent) live in the Tamworth area;
- the Indigenous population is growing throughout the Nandewar;
- high age dependency ratios exist in all areas;
- in contrast to the general population, young people below the age of 14 represent significant proportions of the Indigenous population of the area, accounting for 39-46 percent of the population;
- a large proportion of Indigenous persons and families live in rented accommodation;
- the percentage of the Indigenous population that was separated or divorced was highest in Inverell followed by Tamworth; and
- the proportion of persons who left school under 15 years or never attended increased for the Indigenous population from 15 to 17 percent from 1996 to 2001.

### **4.3 Aboriginal Cultural Heritage**

#### **4.3.1 Culture and Heritage**

The inhabitants of the Tamworth area were the Kamilaroi people. The Kamilaroi was a grouping of tribes which all used a common language. Present information indicates that Aboriginal occupation of the Tamworth area dates back from at least 3,600 years to 20,000 years (Tamworth City Council 2001).

In the Gunnedah area, there is a memorial to Cumbo Gunnerah, the legendary great warrior and wise leader of the Gunn-E-Darr people of the Kamilaroi Tribe. He was buried in a carved tree in the late 1700's. The Red Chief LALC includes Gunnedah.

In the north of the Nandewar, in the Northern Tablelands area, there were several known Aboriginal Tribes. The Anaiwan tribe, occupied the central area of the tablelands (Byrne 1983). Howell (1982) surmised the Extent of the Kwiambal tribe, which occupied from just north of Nullamanna and Bukkulla, north to the line of the hills Bowman's Sugarloaf and Heatherington's Sugarloaf, from east of the Macintyre River near Graman and the junction of Macintyre and Severn Rivers eastward to the line of the Hills marked by the Sugarloaf and Paddy's Sugarloaf. It was noted in the Environmental Impact Statement for Transgrid (QLD Interconnection) 1998, that there are 50 Aboriginal archaeological sites within several kilometres of the corridor for the power lines (Inverell Shire Council 2002).

There are a number of projects taking place throughout the Nandewar to protect and educate the community about Aboriginal culture and heritage. For example, there is a museum located in the office of the Red Chief Local Aboriginal Land Council. Also, in the Moree and Tinga regions, Aboriginal people are working to develop educational materials for schools.

#### **4.3.2 Registered Sites**

Historic, natural and heritage places of national significance are registered with the Australian Heritage Commission on the Register of the National Estate. There are also places recognised with the NSW Heritage Office and the National Parks and Wildlife Service (NPWS) that are significant to the state of NSW.

The Register of the National Estate of the Australian Heritage Commission (as at 4 December 2003) lists the Indigenous Places presented in Table 4-9, some of which are registered or are an indicative place (ie has entered assessment). The location, description, status and key words are drawn from the site. The key words are those used to describe photos associated with the Indigenous Place and do not necessarily describe the heritage registered.

Aboriginal sites of culture and heritage, including known sites on SFNSW land, are listed with the NPWS Heritage Register. It is understood that this information will be collected during the Aboriginal Culture and Consultation study, NAND09.

**TABLE 4-9: INDIGENOUS PLACES LISTED ON THE REGISTER OF THE NATIONAL ESTATE**

Location (LGA)	Description	Status	Key Words
Cobbadah (Barraba)	Barraba Area Romani	Registered	Barraba Axe Grinding Grooves Romani Grinding Grooves Site
Glendee via Bingara (Bingara)	NA	Indicative Place	NA
Myall Creek via Bingara (Bingara)	Myall Creek Massacre Area	Registered	Site consisted of stockman's hut, Aboriginal campsite, stockyard fence, and the massacre site itself. No remains exist any longer. An Aboriginal burial ground has been ploughed over (1960s-1970s), also on the property
Bonshaw (Inverell)	NA	Indicative Place	NA
Graman (Inverell)	Graman Area	Registered	Aboriginal campsites, Pastoral landscapes, Rock shelters, Aboriginal engravings, Rock art
Inverell (Inverell)	Goonoowigall	Registered	Aboriginal art, Aboriginal campsites, Rock art, Rocks
Stannifer (Inverell)	Red Hill Ochre Quarry	Registered	Aboriginal quarries, Aboriginal sites
Glendon via Bendemeer (Parry)	Never Never Mountain Area	Registered	Aboriginal art, Aboriginal rock shelters
Moonbi (Parry)	Moonbi Area	Registered	Aboriginal campsites, Ceremonial sites, Rock shelters, Rocks
Moore Creek (Parry)	Moore Creek Area	Registered	Aboriginal art, Aboriginal campsites, Rock art, Rock shelters, Rocks
Tamworth (Parry)	Daruka Area	Registered	Aboriginal campsites, Natural landscapes, Quarries, Stone artefact scatters

Source: Australian Heritage Commission, website, <http://www.ahc.gov.au/register/index.html>, extracted 04/12/03.

## **4.4 Community Sensitivity Indices**

### **4.4.1 Method**

Changes to resource management in the Nandewar Assessment Region resulting from the WRA may have an impact on the communities. The impact may extend to communities in surrounding regions as a result of social, economic and environmental interconnections. The level of impact that will be experienced by the communities living in the Nandewar and other areas, whether positive or negative, is influenced to some extent by the speed of change. Barr (2002) writes that there is a direct trade off between social cost and speed of change. In his paper he raises the questions 'At what rate of implementation will the benefits of our proposed changes justify the difficulty they may cause some sectors of the community?' and 'can we

agree on a fair way to alleviate the negative impacts?'. These questions are important to consider when changing natural resource management frameworks, given the change does not exist on its own, but within the context of rural social change and the cumulative impacts of a range of policies and regulations.

Depending on the ability of communities to absorb or make use of changes, the result of the Nandewar Assessment may have a greater impact on some communities than others. Any changes made to the management of forested lands may have a positive impact on some industries and a negative impact on others. Where a community relies heavily on a particular industry and that industry is impacted, consideration must be given to the social, economic and environmental consequences.

This chapter provides an assessment of the sensitivity or vulnerability of the LGA communities in the Nandewar to change by analysing core indicators of sensitivity and thereby developing community sensitivity indices (CSIs). CSIs essentially are a reflection of whether the LGA is more or less sensitive to change than a defined grouping, such as the average for the Region or rural NSW. Fenton (1998a; 1998b; 1998c) has shown that socio-demographic profiles for social catchments cluster around four core groups of indicators, which include:

- Unemployment and Income;
- Education and Occupation;
- Family and Housing; and
- Age Dependency.

CSIs for these four groups of socio-demographic profiles are analysed for each LGA in the Region. The core indicator profiles are presented in Table 4-10 by the groupings.

CSIs provide one way of assessing the community's sensitivity to any proposed change in the Nandewar. The indices highlight important social and economic characteristics or indicators of advantage or disadvantage (or community sensitivity).



**TABLE 4-10: INDICATOR GROUPS AND THE SOCIO-DEMOGRAPHIC PROFILES THAT HAVE BEEN INCLUDED WITHIN EACH LGA IN THIS STUDY**

<b>Cluster</b>	<b>Socio-demographic Profiles</b>
<b>Unemployment and Low Income</b>	Total unemployment rate Unemployment rate 15-19 years Unemployment rate males 25-44 years Percentage families with weekly income <\$299
<b>Education and Occupation</b>	Percentage left school before 15 years or never attended Percentage over 15 years with no qualifications Percent labourer or related workers Percent speaking English only poorly or not at all
<b>Family and Housing</b>	Percentage dwellings rented Percentage dwellings with no vehicle Percentage population separated or divorced Percentage dwellings public housing Percentage of one parent families
<b>Age Dependency</b>	Percent aged 14 years or below Percent aged 65 years or above Dependency ratio

Source: Adapted from RACC (2000).

Community Sensitivity Indices are constructed from standard Z-score transformations of the demographic profile ratios presented in Table 4-10. Z-scores were calculated for each of the six key LGAs.

The Z-score is calculated using the following formula (RACD, CARE, EBC 2000):

$$Z_{DR} = \frac{\text{Tamworth}_{DR} - \text{MeanNAR}_{DR}}{\text{Standard Deviation NAR}_{DR}}$$

Where:

$Z_{DR}$  = Standard Z-Score Transformation;

DR = Dependency Ratio; and

NAR = Nandewar Assessment Region.

The Z-score for a cluster was calculated by averaging the scores for the profiles that are listed in Table 4-10. This provides a single standard score for each of the four community sensitivity indices with a mean of zero and standard deviation of 1.00. The CSIs are calculated relative to the Nandewar, to provide for comparison of LGAs within the region, and Rural NSW. An index, which is within plus or minus 1.00 standard deviation of the mean, is considered 'average' when compared to the Region, however, indices that lie outside 1.00 are considered above average and sensitive to change (RACD, CARE, and EBC 2000).

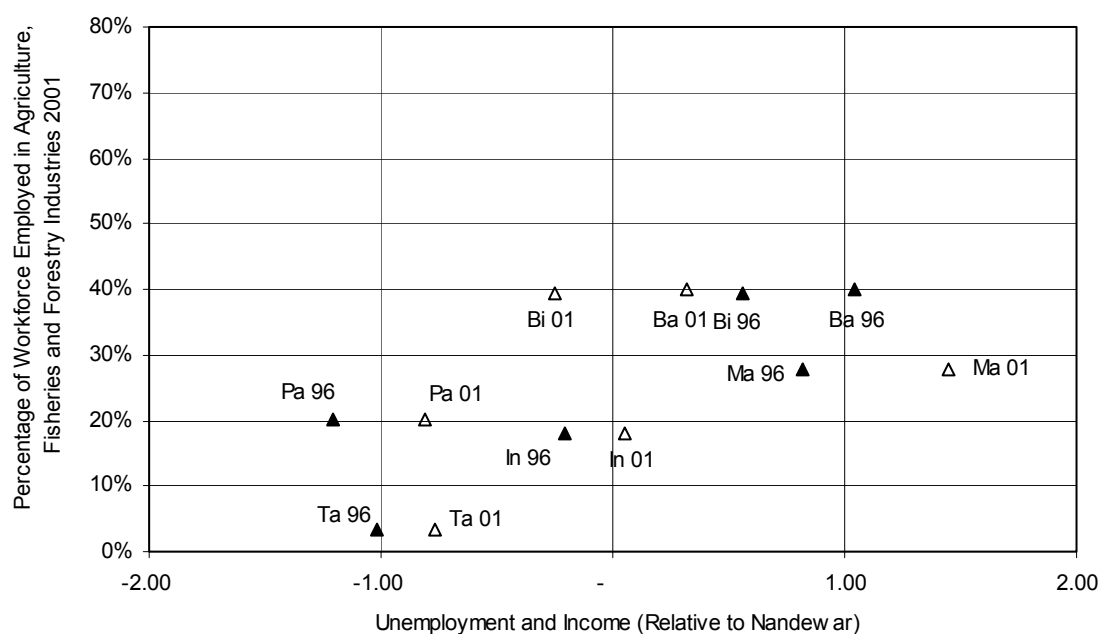
#### 4.4.2 Results

Figure 4-2 to Figure 4-9 show each of the four community sensitivity indices for each LGA plotted against the percentage of the workforce employed in the Agricultural, Fisheries and Forestry industries for 2001 (ABS 2001 Census Data). The scatter graphs for each LGA shows, which of the four indices are within or above 1.00 standard deviation of the mean and therefore relatively more sensitive to change.

Figure 4-2 shows that Barraba (Ba) and Bingara (Bi) have the highest percentages of people employed in the Agricultural, Fisheries and Forestry industries and Tamworth (Ta), as an urban centre, has the lowest. Changes that affect this industry are likely to have an impact on Barraba and Bingara. It is unlikely that the Nandewar Assessment will have a significant affect on this industry with the forestry industry representing a small proportion of employment and income for the area, and forests are not used extensively for grazing during droughts.

Figure 4-2 shows the community sensitivity indices for **unemployment and family income** for each of the LGAs as compared to the average for the Nandewar. Figure 4-3 provides values for each LGA as compared to rural NSW as a whole for the same socio-demographic group. The figure indicates that unemployment and the proportion of families with an income of less than \$299 per week was higher for **Manilla** LGA in 2001 than the average for rural NSW. The indices for Bingara and Barraba fell to within the average between 1996 and 2001. Therefore, the LGAs of Nandewar, excepting Manilla, have a similar level of unemployment and income as the rest of the rural NSW and are no more sensitive to change than other LGAs.

**FIGURE 4-2: UNEMPLOYMENT AND INCOME AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996 (RELATIVE TO THE NANDEWAR)**



**FIGURE 4-3: UNEMPLOYMENT AND INCOME AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996 (RELATIVE TO RURAL NSW)**

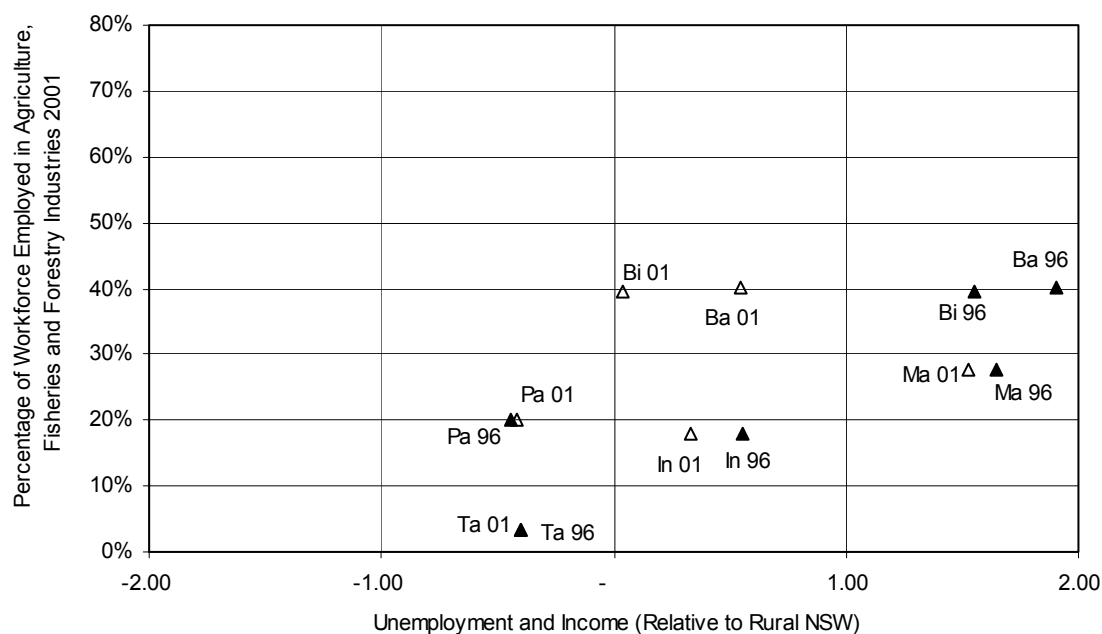
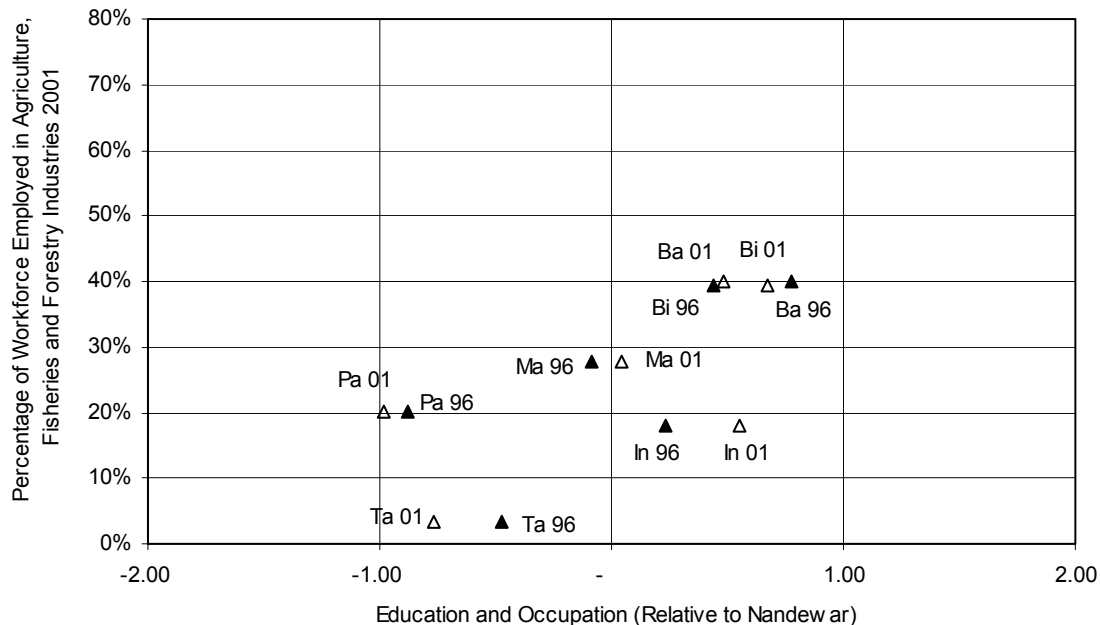


Figure 4-4 shows the values for the **education and occupation** index for each LGA as compared to the average for the Nandewar. All LGAs are within 1 standard deviation of the average when compared to both the Nandewar and rural NSW (refer Figure 4-5). Therefore, the

LGAs in the Nandewar have a similar level of education and occupation as the rest of the state and are no more sensitive to change than other LGAs.

**FIGURE 4-4: EDUCATION AND OCCUPATION AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996 (RELATIVE TO THE NANDEWAR REGION)**



**FIGURE 4-5: EDUCATION AND OCCUPATION AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996 (RELATIVE TO RURAL NSW)**

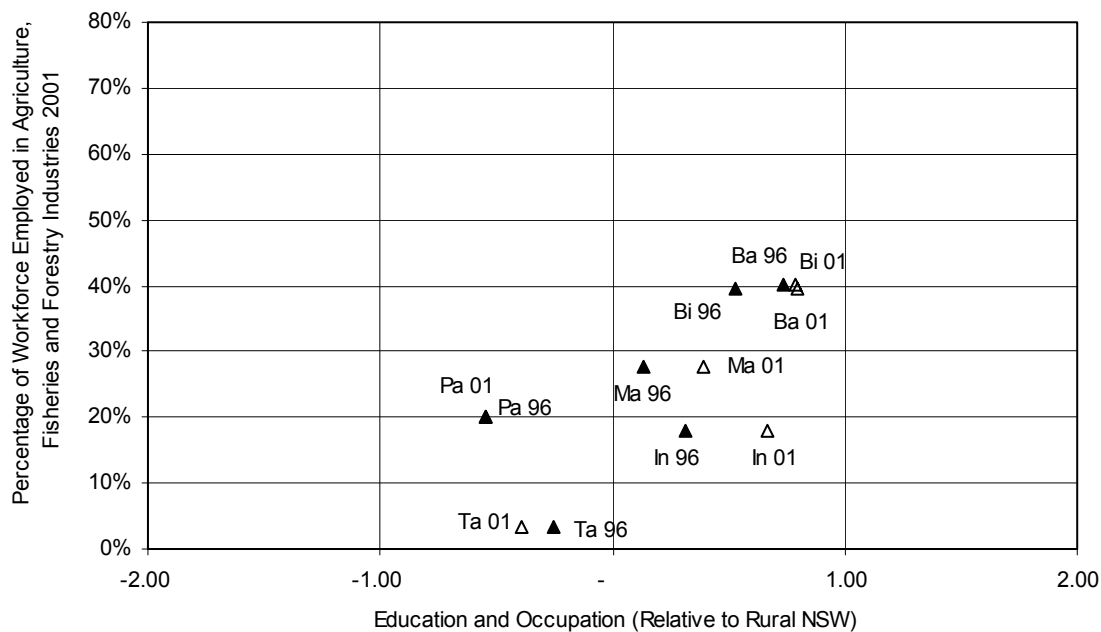


Figure 4-6 and Figure 4-7 present the results for the socio-demographic CSIs for **family and housing**.

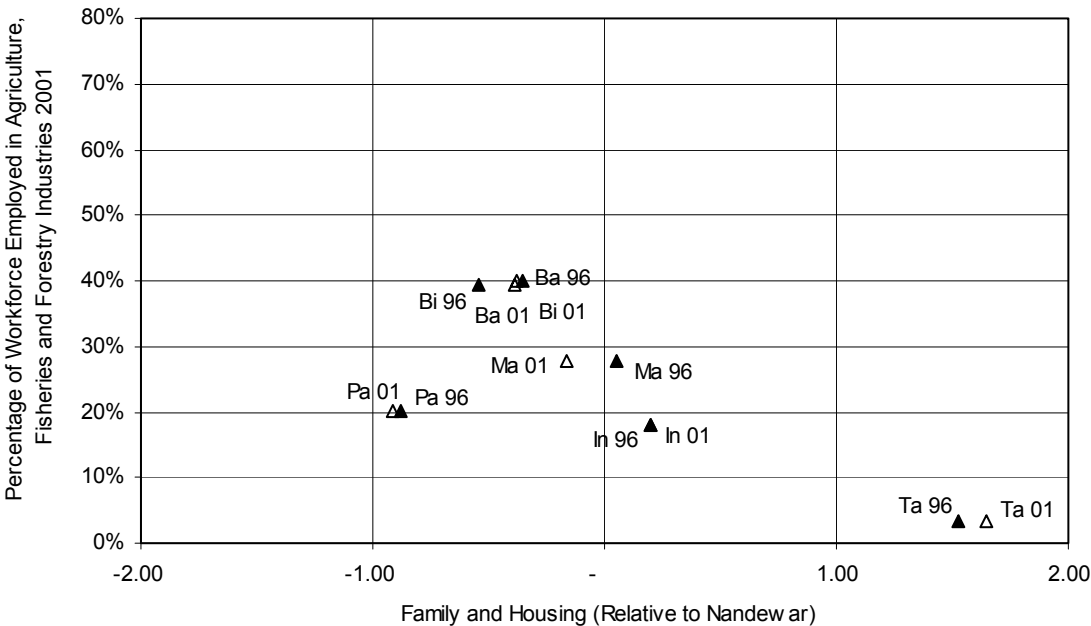
Figure 4-6 and Figure 4-7 shows that the majority of LGAs are average in both 1996 and 2001 when compared to the Nandewar and rural NSW averages. **Tamworth** LGA, however, was above the average as compared to the Nandewar and rural NSW in both 1996 and 2001.

The result for Tamworth is a result of a high percentage of rental accommodation (29 percent in 2001) as compared to a Nandewar average of 23 percent and a rural NSW average of 19 percent, and one parent families (19 percent in 2001) as compared to a Nandewar average of 17 percent and a NSW average of 14 percent.

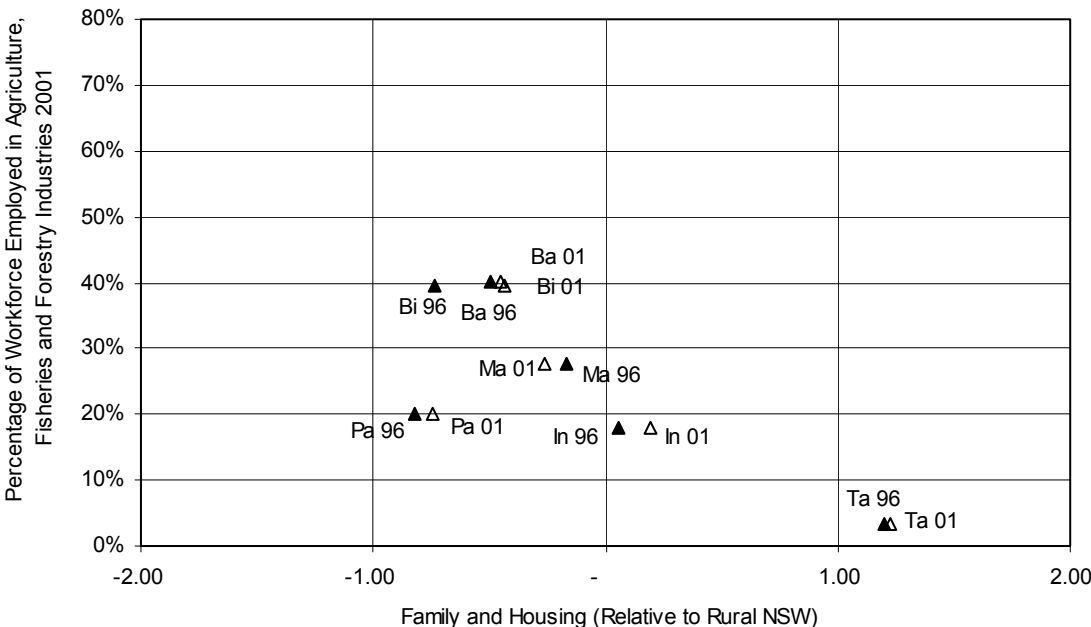
In relation to **age dependency**, as indicated in Figure 4-8 and Figure 4-9 all LGAs are around the average for the Nandewar in both 1996 and 2001.

Figure 4-9 indicates that although the **Manilla** LGA is within the average as compared to the Nandewar and rural NSW, the population **is aging in comparison**.

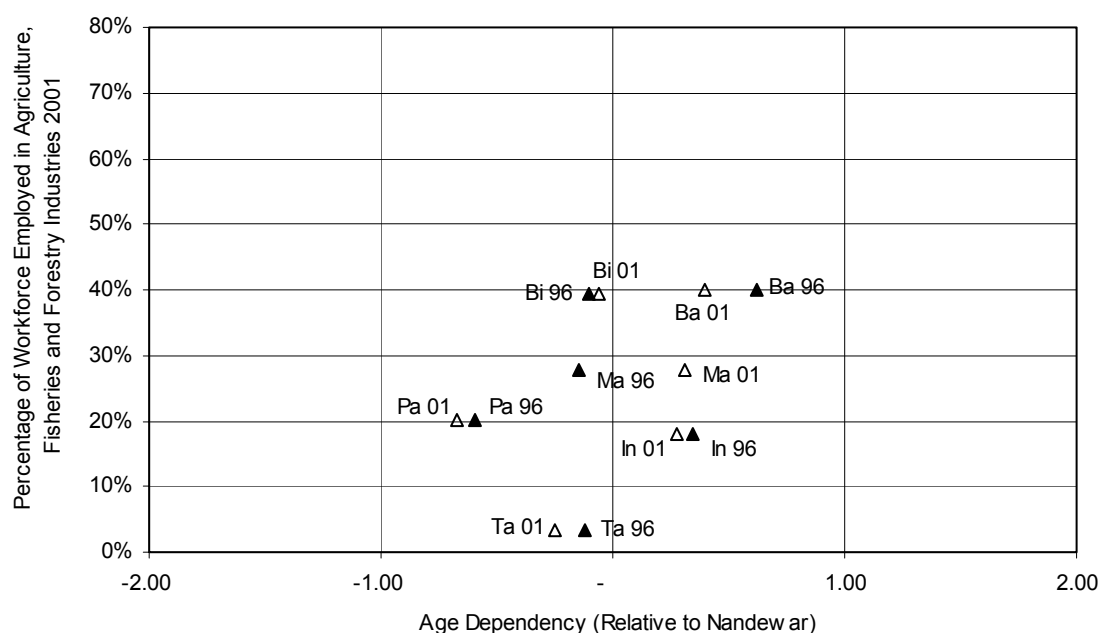
**FIGURE 4-6: FAMILY AND HOUSING AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996/2001 (RELATIVE TO THE NANDEWAR REGION)**



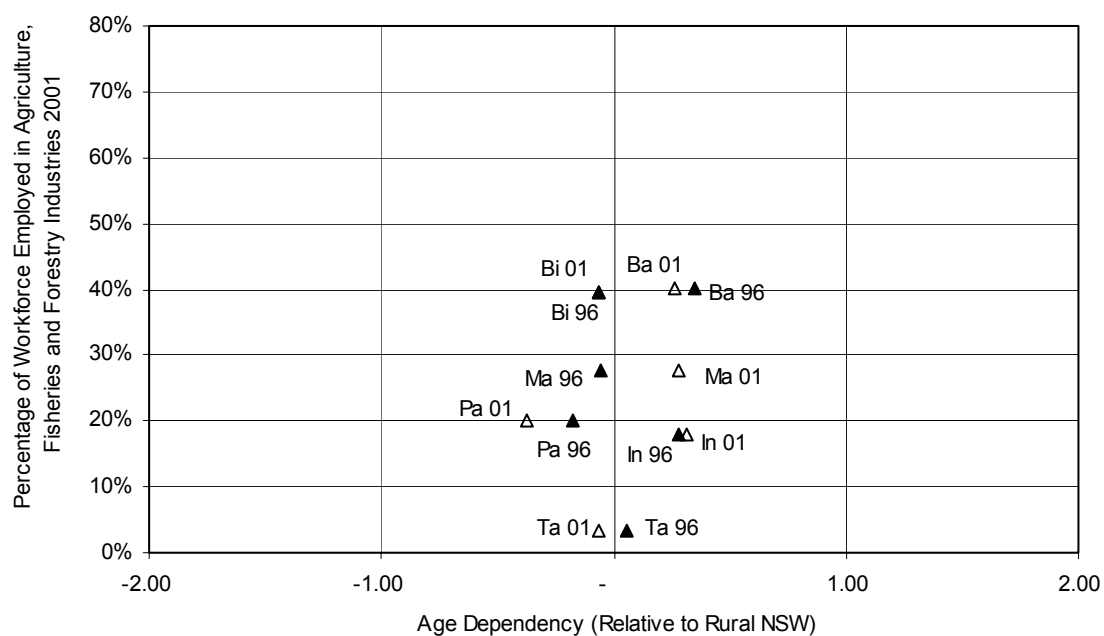
**FIGURE 4-7: FAMILY AND HOUSING AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996/2001 (RELATIVE TO RURAL NSW)**



**FIGURE 4-8: AGE DEPENDENCY AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996/2001 (RELATIVE TO THE NANDEWAR REGION)**



**FIGURE 4-9: AGE DEPENDENCY AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN AGRICULTURE, FISHERIES AND FORESTRY INDUSTRIES 1996/2001 (RELATIVE TO RURAL NSW)**



#### 4.4.3 Summary Community Sensitivity Indices

The area showing sensitivity to change was Tamworth in the **Family and Housing** dimension. Overall, community sensitivity analysis reveals that the majority of LGAs in the Nandewar show a level of resilience to change. Further, the LGAs are unlikely to be affected by changes in forest use, given the low level of employment in the forestry industry. For Tamworth, where there is population and employment growth, the economic fundamentals may provide opportunities that may cushion any impact on this dimension occurring from changes in forest use.

#### 4.5 Accessibility/Remoteness Index of Australia

The **Accessibility/Remoteness Index of Australia (ARIA) Score (1999)** describes access to goods, services and opportunities for social interaction and was developed by the National Centre for Social Applications of Geographic Information Systems (GISCA) for the (then) Commonwealth Department of Health and Aging and a number of other Commonwealth departments. The approach uses distances to population centres as the basis for quantifying service access and hence remoteness.

It uses GIS technology to combine road distance to population centres of various sizes, as a measure of service access, to develop a standard measure of remoteness that is suitable for a broad range of applications (Department of Health and Aging, 2001).

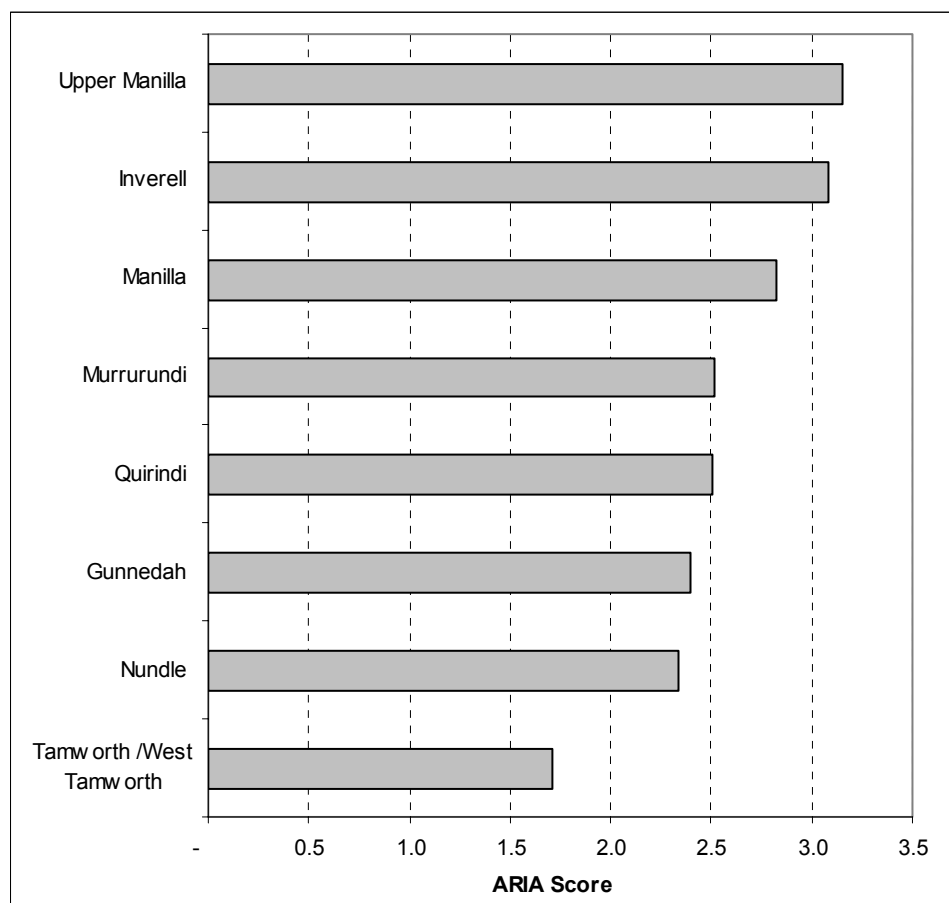
The score converts to the following categories:

- *Highly Accessible* (ARIA score 0 - 1.84) - relatively unrestricted accessibility to a wide range of goods and services and opportunities for social interaction;
- *Accessible* (ARIA score >1.84 - 3.51) - some restrictions to accessibility of some goods, services and opportunities for social interaction;
- *Moderately Accessible* (ARIA score >3.51 - 5.80) - significantly restricted accessibility of goods, services and opportunities for social interaction;
- *Remote* (ARIA score >5.80 - 9.08) - very restricted accessibility of goods, services and opportunities for social interaction; and
- *Very Remote* (ARIA score >9.08 - 12) - locationally disadvantaged - very little accessibility of goods, services and opportunities for social interaction.

The data is generated for Statistical Local Areas (SLAs), which are smaller than LGAs and nest within LGA boundaries. For the Nandewar Assessment Region scores range from highly accessible (1.71, Tamworth) to accessible (3.15, Manilla), identifying the area as having relatively good access to a wide range of goods and services. Figure 4-10 shows the ARIA Score for all SLAs in the catchment.



**FIGURE 4-10: NANDEWAR ASSESSMENT REGION ACCESSIBILITY/REMOTENESS INDEX OF AUSTRALIA (ARIA SCORE) 1999**



Source: Department of Health and Aging, 2001

## **4.6 Trends and Outlook**

The population in the Nandewar is likely to continue to age, with a decline in the proportion of younger people, particularly 15-29 year olds. Family structures will also continue to change with the percentage of the population who are separated or divorced and one-parent families increasing as a proportion. This increase is in line with rural NSW. Economically, this may become an issue with the income of an increasing section of the population being derived from welfare benefits as compared to earning a wage through employment. Further, the population of regional centres will increase at the expense of smaller towns as people move to gain employment.

The socio-demographic and socio-economic profiles of the Indigenous population lag behind that of the general population. A large proportion of the population is young and dependent, the majority live in rented accommodation, unemployment rates are high and income levels lower than the general population. There are areas of growth, with the number of employed persons and population growing in most LGAs.

Overall, community sensitivity analysis reveals that the majority of LGAs in the Nandewar show a level of resilience to change and are unlikely to be affected by changes in forest use. For Tamworth, where there is population and employment growth, the economic fundamentals may provide opportunities that may cushion any impact on this dimension occurring from changes in natural resource management.

## 5. FOREST PRODUCTS

### 5.1 Introduction

This chapter presents an overview of forest products within the Nandewar drawing on information provided by SFNSW and Shire Councils. There is a long historical linkage to timber production in the Nandewar. The Nandewar supports commercial native soft wood timber harvesting. The native soft wood is harvested for sawlogs. There are small quantities of native hardwood for sawlogs, fencing and firewood. There are some plantation timbers in the Nandewar.

### 5.2 Native Timber Industry Profile

#### 5.2.1 State Forest Timber and Other Forest Products

The State Forests of the Nandewar are primarily managed for timber production from native softwood trees.

Public forests and related industries comprise less than 1 percent of the assessment region's economic activity. The industry accounts for approximately 1 percent of persons employed in the Nandewar LGAs. Timber harvested from the crown resource is approximately 5,000 m<sup>3</sup> per annum of Cypress, as compared to 71,000 m<sup>3</sup> from the BBSB<sup>12</sup>. The delivery log price for the Nandewar yield was \$370,000 in 2003 with an average mill gate value of \$480 m<sup>3</sup> i.e. a total Nandewar industry gross value of \$2.4 million.

In 2003, there was no hardwood harvested from the Nandewar, which compares to 10,000m<sup>3</sup> from the BBSB.

SFNSW estimates that there are 897 ha of soft wood and 5 ha of eucalyptus state plantations in the Nandewar. There is a small amount of plantation pine harvested in the Nandewar.

SFNSW indicated that there was currently no commercial firewood, essential oils, wildflower, broombush or mallee collection occurring in the Nandewar. Some non-commercial firewood harvesting occurs, with between 75 and 100 private firewood collection licenses issued annually<sup>13</sup>. The majority are issued from Inverell and a small number from Gunnedah. On average 2 tonnes of firewood is removed per licence<sup>14</sup>. Gunidah Gunya CDEP advised that

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<sup>12</sup> Barbara Sanders, SFNSW, email. comm. 02/04/04.

<sup>13</sup> As Provided by SFNSW 1/12/03

<sup>14</sup> As Provided by SFNSW 1/12/03

firewood collection and subsequent sale is one of the main economic activities of the CDEP. However, there is currently no firewood harvesting taking place in the forests in the Red Chief area. There are restrictions in collecting dry firewood and therefore, harvesting green timber from State Forests in the Red Chief area of the Nandewar may provide an alternative. Currently Gunidah Gunya CDEP has 100 acres of land leased under agreement 5 kms outside of Gunnedah where firewood is stored for sale. Brigalow Timber is the main source of timber for their firewood stores.

It was estimated by State Forests that approximately 500 m<sup>3</sup> of firewood was harvested from the Nandewar in 2003<sup>15</sup> as compared to 10,000 m<sup>3</sup> from the BBSB.

In addition to designated State Forests, there is a substantial area of land classed as Crown Timber Land (CTL). State Forests has harvesting rights over Crown Timber Land in New South Wales. The timber resources in these areas are evaluated individually and harvested occasionally<sup>16</sup>. There was no CTL harvested in 2002/03<sup>17</sup>.

### 5.2.2 Private Forestry and Crown Timber Land Reserve

It has been estimated that there are approximately 1,150 ha of private softwood plantations in the Nandewar<sup>18</sup>. In particular, there are a number of softwood private plantations operating in the Parry Shire<sup>19</sup>, however most private native forestry takes place in the area north of Bingara to Inverell. In 2003, approximately 3,575 m<sup>3</sup> of cypress and hardwood was harvested from the Nandewar<sup>20</sup>. With an average mill gate value of \$480 m<sup>3</sup> i.e. an industry gross value of \$1.7 million. This figure assumes all private forestry that takes place in the region is known to SFNSW (therefore potentially an underestimate).

### 5.2.3 Operations and Forest Industry Employment

State Forests NSW (SFNSW) advises that in 2002 and 2003 there were three State Forest mills and 11 mills on private property in operation drawing on the Nandewar resource<sup>21</sup>. Only one cypress sawmill is physically located in the Nandewar Bioregion (Bingara Cypress Pine).

There are strong linkages between Nandewar operations and those in the BBSB. Businesses providing saw milling, harvesting and haulage services operate in both areas. Although, the Nandewar is a minor resource in comparison to the BBSB, it does provide 40 percent of resource for the mill at Bingara, 20 percent of the resource for the mill at Gunnedah and a small amount of resource for the mill at Quirindi. The private property sawmills operating in the Nandewar are at a small-scale level (notes provided by RACD 7 August 2003).

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<sup>15</sup> Tom Newby, SFNSW, pers. comm. 29/09/03.

<sup>16</sup> As Provided by SFNSW 11/11/03.

<sup>17</sup> As Provided by SFNSW 10/03/04.

<sup>18</sup> As Provided by SFNSW 1/12/03.

<sup>19</sup> Donna Ausling, Parry Shire pers. comm.

<sup>20</sup> Barbara Sanders, SFNSW, email. comm. 02/04/04.

<sup>21</sup> As Provided by SFNSW 11/11/03

According to SFNSW, there are approximately 25-80 people employed in the harvesting, cartage and processing of timber in the Nandewar<sup>22</sup>. The data from the ABS Population and Housing Census indicates that the number of persons employed in Forestry and Logging in the six LGAs declined from 50 persons to 39 persons between 1996 and 2001. The number of persons employed in the Wood and Paper Manufacturing Industry remained unchanged at 151, however with some movement amongst LGAs. In 2001, the majority of people employed in manufacturing were based in Tamworth (66), followed by Parry (39) and then Bingara (20).

SFNSW advise that the Bingara mill directly employs 14 people with a further 7 employed in harvesting and haulage<sup>23</sup>.

#### 5.2.4 Public and Private Forest Yield

Table 5-1 presents harvest data for State Forests, private property, and leasehold land in the Nandewar for three years, 2001-2003. The data shows that the majority of timber harvested is cypress.

**TABLE 5-1: FOREST YIELD IN THE NANDEWAR 2001-2003**

Year	Cypress				Hardwood		
	State Forest m <sup>3</sup>	Delivered Log Price \$	Private Property m <sup>3</sup>	Leasehold m <sup>3</sup>	State Forest m <sup>3</sup>	Private Property m <sup>3</sup>	Leasehold m <sup>3</sup>
2001	5,900	531,000	5,510	nil	138	1,600	nil
2002	4,950	443,000	1,976	nil	nil	1,565	nil
2003	5,200	370,000	2,395		nil	1,180	nil

### 5.3 Products, Markets and Trends

Historically sales have included Sydney (46 percent), country NSW (37 percent), Melbourne (14 percent), Brisbane (1 percent) and export (2 percent) markets. Product is popular for framing and weatherboards west of the Great Dividing Range (SFNSW 1996) and flooring in Sydney and surrounds (SFNSW 2003). Recently the industry has achieved export success in Japan and the USA where the products unique termite resisting qualities and visual appearance are highly valued. Wholesale prices in 2002/03 ranged from \$509 to \$692 per cubic meter for framing, flooring and panelling<sup>24</sup>.

The upward price trend since the mid 1990s has been driven by the shift of cypress from a commodity, competing with alternative sources of building materials on price, to a value added

<sup>22</sup> Ross Irvine SFNSW pers. comm. Email 17/11/03

<sup>23</sup> As provided by SFNSW 10/03/04

<sup>24</sup> As Provided by SFNSW 11/11/03

product with unique attributes. Strong recent building industry performance and the low Australian dollar has also assisted the favourable price trend.

However, the positive short-term outlook may be adversely affected by cyclical downturn in the building industry and a rising dollar. Further, although significant further exporting opportunities exist, wood supply certainty and quality limit industry growth. The current yield of cypress is fully committed to existing customers under existing sales arrangements, although opportunities to enter this market do arise from time to time (SFNSW).

There are limited opportunities for hardwood production with the Nandewar resource considered to be minor with limited opportunities for additional harvest.

There may be future opportunities for *Pinus radiata*. The eastern fringe of the Nandewar is acceptable for *Pinus radiata* plantations. A new mill is being built in Quirindi, which is expected to employ up to 50 people<sup>25</sup>. *Pinus radiata* plantations to the east of the Nandewar (Walcha) will serve this mill.

NAND12, *Development Opportunities in the Nandewar Bioregion: Forest based opportunities*, presents a detailed examination of opportunities and the outlook of forest based opportunities for the Nandewar.

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<sup>25</sup> Donna Ausling, Parry Shire pers. comm.

## ■ 6. TOURISM AND RECREATION

### 6.1 Introduction

This chapter presents an overview of tourism and recreational activities in the Nandewar, emphasising the use of State Forests, Crown Land, and the National Parks Estate. The assessment is based on information sourced from Tourism New South Wales, National Parks and Wildlife Service (NPWS), State Forests NSW (SFNSW) and interviews of local tourism officers.

### 6.2 Visitors to the Nandewar

Table 6-1 summarises visitor information, for each LGA in the Nandewar for the period 1994/95 to 1996/97. Tourism New South Wales no longer collects data at the LGA level hence more recent figures could not be obtained. In summary for the six key shires in 1996/97:

- there were a total of 712,000 visitors contributing a total of 2.1 million visitor nights;
- the total expenditure by visitors was \$148 million;
- there has generally been an increase in the number of visitors, visitor nights and expenditure over time;
- the Nandewar accounted for less than 1 percent of visitors and expenditure for NSW; and
- the most popular visitor destination was Tamworth followed by Inverell.

Consultation with staff from Shire and City Councils indicates that tourism remains significant in the region and visitor numbers continue to grow<sup>26</sup>.

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<sup>26</sup> Steve Wilton, Barraba Shire Council, pers. comm. 25/08/03; Jim Lane, Bingara Shire Council, pers. comm. 27/08/02; Ken Beddy, Inverell Shire Council, pers. comm. 27/08/03; Donna Ausling, Parry Shire Council, pers. comm. 08/03.

**TABLE 6-1: VISITATION TO THE NANDEWAR FOR 1994/95 TO 1996/97**

New England	Visits (\$'000)			Nights ('000)			Expenditure (\$ m)		
	94/95	95/96	96/97	94/95	95/96	96/97	94/95	95/96	96/97
<b>Nandewar LGAs</b>									
Inverell (A)	100	109	123	328	319	404	22	22	28
Bingara (A)	23	23	28	78	76	91	5	5	6
Barraba (A)	24	24	29	83	81	95	5	5	6
Manilla (A)	28	29	34	98	96	117	6	6	8
Tamworth (C)	362	394	416	900	904	1 095	61	64	79
Parry (A)	62	71	82	238	236	304	16	16	21
<b>Nandewar</b>	<b>599</b>	<b>650</b>	<b>712</b>	<b>1,725</b>	<b>1,712</b>	<b>2,106</b>	<b>115</b>	<b>118</b>	<b>148</b>
<b>Bordering LGAs</b>									
Nundle (A)	18	17	21	60	58	67	4	4	5
Murrurundi (A)	32	41	47	81	107	130	5	7	9
Gunnedah (A)	109	122	131	323	321	391	21	22	27
Narrabri (A)	134	142	170	359	355	441	24	25	31
Quirindi (A)	37	39	46	130	127	159	8	9	11
Moree Plains (A)	185	219	235	473	498	599	32	34	42
Yallaroi (A)	28	29	34	99	97	118	6	7	8
<b>Bordering LGAs</b>	<b>543</b>	<b>609</b>	<b>684</b>	<b>1,525</b>	<b>1,563</b>	<b>1,905</b>	<b>100</b>	<b>108</b>	<b>133</b>
<b>Total All LGAs</b>	<b>1,142</b>	<b>1,259</b>	<b>1,396</b>	<b>3,250</b>	<b>3,275</b>	<b>4,011</b>	<b>215</b>	<b>226</b>	<b>281</b>

Source: Tourism NSW, <http://corporate.tourism.nsw.gov.au/>, 11/03.

### 6.3 Nandewar Attractions

Table 6-2 summarises the range of tourism activities and attractions throughout the Nandewar for the six LGAs as identified in consultation with local Tourism Development Officers. Appendix C includes a list of attractions from the NRMA website by town and attraction type.



**TABLE 6-2: TOURISM ATTRACTIONS IN THE NANDEWAR BY LGA (AUGUST 2003)**

<b>Bingara Shire Council</b>	<b>Barraba Shire Council</b>
<ul style="list-style-type: none"> <li>• Bird Watching</li> <li>• Fossicking</li> <li>• Horse riding</li> <li>• Fishing</li> <li>• Canoeing</li> <li>• Historical Buildings</li> <li>• Mile Creek Reconciliation Memorial</li> <li>• Walking along Gwydir River</li> </ul>	<ul style="list-style-type: none"> <li>• Fossicking</li> <li>• Bird Watching</li> <li>• Geological tours</li> <li>• Woods Reef Mine</li> <li>• Mt Kaputar</li> </ul>
<b>Inverell Shire Council</b>	<b>Manilla Shire Council</b>
<ul style="list-style-type: none"> <li>• Motor bike events</li> <li>• Fossicking</li> <li>• King Plains NP</li> <li>• Kwiambal NP</li> <li>• Wineries</li> <li>• Caves</li> <li>• Museums</li> <li>• Aboriginal culture (stone woman)</li> <li>• Pindari Dam</li> <li>• Pioneer Village</li> <li>• Lake Inverell</li> </ul>	<ul style="list-style-type: none"> <li>• Horse riding</li> <li>• Paragliding and hang gliding</li> <li>• Bird Watching</li> <li>• River walks</li> <li>• Farm stays</li> <li>• Museums</li> <li>• Heritage buildings</li> <li>• Lake Keepit Dam</li> <li>• Split rock Dam</li> <li>• Junction of Namoi and Peel Rivers</li> </ul>
<b>Tamworth Shire Council</b>	<b>Parry Shire Council</b>
<ul style="list-style-type: none"> <li>• Tamworth Music Festival</li> <li>• Museums</li> <li>• Walking trials</li> <li>• Parks</li> <li>• Galleries</li> </ul>	<ul style="list-style-type: none"> <li>• Horse events</li> <li>• Vintage cars</li> <li>• Pumpkin festival</li> <li>• Historical Buildings</li> <li>• Railway</li> <li>• Jackeroo and Jillaroo schools</li> <li>• Warrabah National Parks</li> </ul>

## 6.4 Tourism and Recreation in National Parks

As indicated in Chapter 2, there are a number of National Parks and Nature Reserves in the Nandewar. Table 2-3 lists the National Parks and Nature Reserve. The total gazetted area of these Parks and Reserves is 21,456 ha.

### 6.4.1 Types of Activities

Table 6-3 presents the services and activities available to people using National Parks in the Nandewar. NPWS indicated that<sup>27</sup>:

- the most common activities undertaken in National Parks include picnicking, camping, scenic driving, four wheel driving, bird watching, fishing, bush walking and photography;
- local families and retired tourists were the most common type of visitor; and
- no commercial operators are licensed to operate tourism businesses in National Parks and Nature Reserves in the Nandewar.

**TABLE 6-3: NATIONAL PARKS AND NATURE RESERVES IN THE NANDEWAR**

Park Name	Bushwalking	Swimming	Horse riding	4wding	Camping	Caving	Aboriginal	Picnics	Fishing	Boating/canoe	Sightseeing	Canyoning	Illegal acts	Fauna apprec.	Geology	Bird watching	Weekend courses	AAbselling/orienteer
Warrabah NP		✓			✓			✓	✓	✓								✓
Kings Plains NP	✓			✓	✓	✓			✓			✓						
Kwiambal NP	✓								✓									
Mount Kaputar NP*	✓			✓	✓		✓	✓			✓			✓	✓	✓		✓

<http://www.nationalparks.nsw.gov.au/npws.nsf/content/New+England+Tablelands+Bioregion?OpenDocument> (collected 08/03).

\* Mt Kaputar NP provided for context only, not included within this study.

### 6.4.2 Visitors to the Parks in the Nandewar

In 2002/2003, an estimated 28,170 people visited the King Plains, Kwiambal and Warrabah National Parks in the Nandewar<sup>28</sup>. However, no visitor data was available for the Nature Reserves. Table 6-4 provides a breakdown of visitor numbers by National Park and Nature Reserve as well as a listing of the main attractions and facilities.

<sup>27</sup> As provided by the NPWS 10/03.

<sup>28</sup> Provided by NPWS October 2003

**TABLE 6-4: ESTIMATED VISITORS TO NATIONAL PARKS AND ACCESSIBILITY TO TOWNS IN THE NANDEWAR**

Park Name	Visitors 2002/2003	Nearest Major Town	Nearest Town that Services the Park	Distance (km)	Main Attractions	Facilities
Watsons Creek Reserve	No data	Manilla	Bendemeer	40km to Manilla	nil	nil
Linton Nature Reserve	No data	Armidale	Kingstown	30km to Kingstown	nil	nil
Iron Bark Nature Reserve	No data	Bundarra	Bundarra	50km to Bundarra	nil	nil
Warrabah National Park	16,470	Manilla	Manilla	37 km to Manilla	Biodiversity, river and scenic views	Day use, camping areas, tables and toilets
Melville Range	No data			No visitation accessed through private land	nil*	Nil
Kings Plains National Park	4,500	Glen Innes	Glen Innes	50 km to Glen Innes	Creek falls, wildflowers, camping and picnics	Picnic, camping, fireplaces, toilets and interpretive displays
Severn River Nature Reserve	No data	Inverell	Ashford/Inverell	90km to Inverell	River and gorge	nil
Kwiambal National Park	7,200	Inverell	Ashford/Inverell	90km to Inverell	Severn and McIntyre rivers, falls, caves, swimming and camping	Camping, picnics, BBQ's, walking tracks and interpretive displays
Total	28,170					
Mount Kaputar National Park (provided for context only)	42,166	Narrabri	Narrabri	53 km to Narrabri	Swan Rocks, Was Gorge, Natural Springs, flora/fauna, snow and waterfalls	Cabins, camping area, picnic areas, walking tracks, BBQ's, lookout and amenities

Source: NPWS, October 2003.

\* Melville Range Nature Reserve is a small parcel of remote land that is inaccessible to the public. It is accessed via private land and therefore has no current visitation.

Warrabah National Park is the most visited National Park in the assessed region and there are plans for further development within the Park. Manilla is the nearest town to two of the three National Parks however is not on a direct route.

## 6.5 Tourism and Recreation in State Forests

There is a total of 35,719 ha of State Forests and Crown Land Timber Reserves in the Nandewar. A breakdown of this area is shown by LGA in Table 6-5. An extended table showing the area of individual forests within each LGA is included in Chapter 2. Over 80 percent of the State Forests in the Nandewar are located in the Bingara and Inverell LGAs.

**TABLE 6-5: AREA OF STATE FORESTS AND CROWN LAND TIMBER RESERVES IN THE NANDEWAR**

LGA	Ha	Percentage
Bingara	14,604	40.9%
Inverell	14,888	41.7%
Manilla	428	1.2%
Parry	921	2.6%
Gunnedah	789	2.2%
Moree Plains	2,784	7.8%
Yallaro	1,304	3.7%
<b>Total</b>	<b>35,719</b>	

Source: SFNSW, 11/11/03.

### 6.5.1 Types of Activities

As part of the assessment of the Nandewar, SFNSW were consulted to confirm the common recreational activities that occur in State Forests in the Nandewar. Table 6-6 lists the common activities identified.

**TABLE 6-6: RECREATIONAL ACTIVITIES IN NANDEWAR STATE FORESTS**

Recreational Activities	
General Recreation	General sightseeing
Camping	Bush walking
Four-wheel driving	Mountain bike riding
Trail bike riding	Horse riding
Exercising dogs	Fire wood collection
Fishing	Swimming
Picnicking	Car rallies
Orienteering	Pistol and rifle clubs

Source: SFNSW 11/11/03.

Important points to note include:

- four-wheel driving and trail bike riding are only legal in State Forests if the driver is licenced, the vehicle is registered and used on a formed road;
- firewood collection can only occur if written authorisation is granted; and
- the Tamworth Bird Watchers Club indicated that they use Attunga State Forest as a bird watching site<sup>29</sup>.

<sup>29</sup> Russ Watts, Tamworth Birdwatchers, pers. comm. 08/10/03.

In addition to the activities listed above, SFNSW can issue recreational special purpose permits. No special use recreational permits have been issued in the Nandewar.

### **6.5.2 Visitors to Nandewar State Forests**

SFNSW do not record the number of visitors to State Forests in the Nandewar<sup>30</sup>.

### **6.5.3 Recreational Facilities in State Forests and Parks**

SFNSW report that there are no recreational facilities in State Forests in the Nandewar<sup>31</sup>.

### **6.5.4 Commercial Tourism and Recreation activities in State Forests and Crown Lands**

State Forests issued two commercial licenses to undertake endurance horse riding in State Forests in the Nandewar. Commercial licenses cost \$25 each. Generic conditions are attached to commercial licenses with specific ones added when appropriate for the particular activity<sup>32</sup>.

## **6.6 Fossicking in the Nandewar**

Fossicking is a unique activity featured in the Nandewar. Consultation with Visitors Centre operators and Tourism Development Officers identified the following key points relating to fossicking.

- Fossicking for sapphires, diamonds, gold and other minerals is a significant activity, in particular in the Inverell, Barraba and Bingara LGAs where fossicking is one of the main attractions.
- The Fossickers Way is a major tourist route through the region. It is scenic drive incorporating six LGAs in northern NSW, the majority of which are in the Nandewar. The route takes in Tamworth, Nundle, Manilla, Barraba, Bingara, Wyallda, Inverell and Glen Innes. The scenic route and associated website<sup>33</sup> have principally been set up to promote tourism activities in and around the Northern Tablelands / Nandewar Bioregion.
- The majority of fossicking in the area is conducted privately for recreation purposes.
- No commercial fossicking tourist operations were registered in the region. An operator based in Glen Innes outside the Nandewar, however visits areas within the boundary.

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<sup>30</sup> As Provided by SFNSW 11/11/03.

<sup>31</sup> As Provided by SFNSW 11/11/03.

<sup>32</sup> As Provided by SFNSW 11/11/03

<sup>33</sup> <http://www.fossickersway.com> (10/03)

- Inverell allows fossicking to be undertaken without the need of a permit. Fossicking can be undertaken on vacant crown land and government land that is restricted to grazing. Bingara Visitor Centre advised that all fossicking in the Shire occurs on private land<sup>34</sup>.
- The SFNSW website outlined fossicking as one of two unique recreational activities popular in State Forests’.

## 6.7 Bird Watching

Inverell, Bingara and Barraba Tourism officers listed bird watching as a major attraction for their shires<sup>35</sup>. They do not have visitor numbers for visitors to the Nandewar undertaking bird watching activities.

Recently there has been active promotion and documentation of bird routes in the Barraba LGA. This has resulted in the Barraba Shire Council attracting awards (2000 National Awards for Innovation in Local Government) and additional tourist visitors. In addition to this, the concept of bird routes has spread to the surrounding shire of Manilla<sup>36</sup>.

## 6.8 Copeton Dam

When interviewing representatives from the Inverell and Bingara Visitor Centres they highlighted the importance of Copeton Dam to local tourism<sup>37</sup>. Although Copeton Dam is not in the Nandewar Bioregion, it is clearly an important tourist attraction to the Bingara and Inverell LGAs. The Inverell Visitor Centre estimated that 90,000 people visit the Copeton Dam / Recreational Reserve each year<sup>38</sup>.

## 6.9 Commercial Tour Operators

Hassall & Associates undertook limited consultation with commercial tour operators using public lands in the Nandewar for their activities. A list of the commercial tour operators in the region was compiled from the Visit NSW website<sup>39</sup>. The New England region contains eighteen tour operators. Five are located in the Armidale area and were not contacted. The remaining thirteen were surveyed to investigate their use of National Parks and State Forests. The following is a summary of responses.

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<sup>34</sup> Jenny Mead, Bingara Shire Council, pers.comm. 07/08/03.

<sup>35</sup> Les Moulds, Inverell Shire Council, pers.comm. 11/08/03, Jenny Mead, Bingara Shire Council, pers.comm. 07/08/03, Pat Molloy, Barraba Shire Council, pers.comm. 08/08/03.

<sup>36</sup> <http://www.barraba.org/Visiting.html#anchor241133>, 10/03

<sup>37</sup> Les Moulds, Inverell Shire Council, pers.comm. 11/08/03, Jenny Mead, Bingara Shire Council, pers.comm. 07/08/03.

<sup>38</sup> Les Moulds, Inverell Shire Council, pers.comm. 11/08/03; and <http://www.nnsw.com.au/copetondam/index.html>, October 2003.

<sup>39</sup> <http://www.visitnsw.com.au/>, 11/03.

- The majority of the tour operators do not use National Parks or State Forests.
- Four tour operators indicated that they use National Parks and State Forests occasionally.
- Two of these had ceased operation due to the expense of public liability insurance and low patronage of the tours.
- One of the tour operators regularly used stock routes and occasionally used State Forests and National Parks.
- The remaining tour operator only accessed the National Park about twice a year on private tours.

## 6.10 Tamworth Country Music Festival

The Tamworth country music festival is a 10-day country festival held in January. The 2003 festival attracted half a million people over the 10-day period <sup>40</sup>. Crowd numbers increased by 20 percent in 2003 and it was estimated \$72 million was injected into the local economy <sup>41</sup>.

The Tamworth country music festival offers country music enthusiasts the chance to experience over 2,500 events and 800 artists including the Golden Guitar Awards. The Tamworth country music festival is ranked in the top ten music festivals in the world <sup>42</sup>.

## 6.11 Trends and Outlook

Drawing on the information available:

- there has been an increase in the number of visitors, visitor nights and expenditure over time. Interviews with staff from Shire and City Councils were undertaken as part of this study. They indicate that tourism remains significant in the region and visitor numbers are expected to continue growing. It has not been possible to verify this with time series data for tourism in the region;
- Warrabah National Park is the most visited National Park in the assessed region and there are plans for further development within the Park; and
- SFNSW consider recreation, tourism and education activities as having potential to be developed in State Forests of the Nandewar<sup>43</sup>. The development of collaborative tours involving local community groups (bird watching), indigenous communities, National Parks and State Forests is considered to have a high level of potential and result in the generation of positive outcomes for all groups involved. Resources would have to be allocated to this task.

<sup>40</sup> <http://www.tamworth.nsw.gov.au/default.asp?iSubCatID=875&iNavCatID=578> (collected 24/11/03).

<sup>41</sup> <http://www.tamworth.nsw.gov.au/default.asp?iSubCatID=875&iNavCatID=578> (collected 24/11/03)

<sup>42</sup> <http://www.tamworth.nsw.gov.au/default.asp?iSubCatID=875&iNavCatID=578> (collected 24/11/03)

<sup>43</sup> As Provided by SFNSW 11/11/03





## 7. APIARY

### 7.1 Introduction

This chapter draws on ABS Agricultural Census Data and a report produced by NSW Agriculture and SFNSW. The data and information was supplemented by consultation with the President of the NSW Apiarists' Association and staff from NSW Agriculture.

It is important to note that NSW was advised that the honey industry felt that ABS figures were lower than actual production and industry involvement in the Nandewar. The two main reasons for this being: (1) that it is difficult to monitor locations; and (2) a significant amount of production may be completed by small operators that fall below the gross agricultural value of \$5,000 required for inclusion in the ABS survey<sup>44</sup>. However, a comparison with the Honey Bee Survey undertaken by the Australian Bureau of Agricultural and Resource Economics in 2003 shows the ABS statistics do not understate the figures significantly (Rodriguez *et al*, 2003)

### 7.2 Characteristics and Extent of Apiary

Through interviews with NSW Agriculture, NSW Apiarists' Association and SFNSW, it was found that the Nandewar apiary industry has the following characteristics:

- beekeeping and honey production mainly occur around Inverell and Tamworth;
- the Nandewar provides a reliable and valuable overwintering area;
- the industry is highly mobile;
- the Nandewar as a long historical link to apiary production (approximately 50 years);
- the industry is made up of local, other NSW and interstate beekeepers;
- production is eucalyptus based;
- apiary activity occurs in State Forests, National Parks and on private land;
- use of State Forests is not regular and dependent on rainfall and tree flowering. The honey production process involves moving hives in and out of the area as conditions change and favourable flowerings occurs (Somerville & Rienstra 1997);
- the industry is dominated by apiarists who rely on beekeeping as their primary source of income; and
- the area provides a useful drought reserve for southern NSW and interstate beekeepers.

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<sup>44</sup> Gordon Cameron, ABS, email. comm. 3/12/03.

The Nandewar contains approximately 8 percent of the hives kept in NSW and produces approximately 6 percent of the honey. The majority of production occurs around Inverell and Tamworth. Murrurundi and Quirindi also produce significant quantities of honey but it is unclear how much of this production occurs in the Nandewar. Table 7-1 shows the production of honey and number of hives located in the shires of the Nandewar for 2001.

**TABLE 7-1: HONEY PRODUCTION IN THE NANDEWAR 2001**

	Hives Kept – Number	Honey Production (incl. honey comb) (kg)
<b>Nandewar LGAs</b>		
Barraba	0	0
Bingara	550	13,861
Inverell	5,881	215,413
Manilla	270	6,165
Parry	1,072	56,503
Tamworth	4,160	229,159
<b>Nandewar</b>	<b>11,933</b>	<b>521,101</b>
<b>Bordering Shires</b>		
Nundle	0	0
Murrurundi	1,296	178,147
Gunnedah	0	0
Moree Plains	0	0
Narrabri	0	0
Quirindi	2,150	126,553
Yallaro	68	3,304
<b>Total all Shires</b>	<b>15,447</b>	<b>829,105</b>
<b>New South Wales</b>	<b>157,918</b>	<b>9,255,259</b>

Source: ABS Agricultural Census 2001.

There are at least 93 apiary sites in the Nandewar, 83 of these are located in State Forests, two on CTL, eight in Kwiambie National Park as well as an unknown number on private land<sup>45</sup>. The apiary survey undertaken in 1997 suggested that there was an approximate 50:50 split between apiary sites within State Forests and sites adjacent to State Forests located on private land in the Inverell area (Somerville & Rienstra, 1997). A total of 33 licenses were issued in the Nandewar, 31 of these were issued for State Forests while two were issued for CTLs<sup>46</sup>

<sup>45</sup> As provided by SFNSW 11/11/03 and NPWS 2/10/03.

<sup>46</sup> As provided by SFNSW 11/11/03. NPWS did not provide information regarding the number of apiary licences active for National Parks/Nature Reserves in the Nandewar.

Between the 1997 and 2001 Agricultural Census there was a decline in the value of honey and bees wax production of approximately \$1.3 million in the Nandewar. The number of apiarist in the area also declined from 45 to 39 during the same period. Table 7-2 shows the value of honey and beeswax production in the Nandewar.

**TABLE 7-2: TOTAL VALUE (\$) OF HONEY AND BEESWAX PRODUCTION IN THE NANDEWAR**

	1997 (\$)	2001 (\$)
<b>Nandewar LGAs<sup>47</sup></b>		
Barraba	0	0
Bingara	83,716	26,895
Inverell	1,170,200	415,431
Manilla	26,535	12,180
Parry	64,761	104,088
Tamworth	934,475	430,792
<b>Nandewar</b>	<b>2,279,687</b>	<b>989,386</b>
<b>Bordering LGAs<sup>48</sup></b>		
Nundle	0	0
Quirindi	148,783	244,931
Yallaroi	5,498	5,923
Murrurundi	192,179	324,188
<b>Total all Shires</b>	<b>2,626,147</b>	<b>1,564,428</b>
<b>New South Wales</b>	<b>22,811,537</b>	<b>17,250,910</b>

Source: ABS Ag Census 1997 and 2001.

The Inverell apiary industry is based on four main eucalyptus tree species. Silver leaf ironbark (*Eucalyptus melanophloia*), white box (*Eucalyptus albens*) and narrow leaf ironbark (*Eucalyptus crebra*) trees are considered to have a high level of importance for honey production and medium importance for pollen (Somerville & Rienstra, 1997). While the New England blackbutt (*Eucalyptus andrewsii*) is considered to have a medium level of importance for honey production and high importance for pollen. Information for the Tamworth industry, the second largest in the Nandewar, was not available.

<sup>47</sup> Key Shires – majority of shire located in the Nandewar Bioregion

<sup>48</sup> Part Shires – small section of shire located in the Nandewar Bioregion

### 7.3 Economic Value of the Apiary Industry

The apiary industry generates value from honey, wax, queen bee, package bee sales and pollination fees.

The ABS Agricultural Census reported that in 2001 the apiary industry in the Nandewar produced approximately 6 per cent of the NSW value of honey and beeswax production. There were approximately 11,933 hives in the Nandewar producing approximately 521 tonnes of honey with a gross value of \$915,575. Wax and other products generated a value of \$73,811. Queen bee, package bee sales and pollination fees made an unquantified additional contribution to the industry.

Table 7-3 summarises the gross value for each product produced in the Nandewar.

**TABLE 7-3: VALUE (\$) OF APIARY PRODUCTION IN THE NANDEWAR (STATE FORESTS AND OTHER RESOURCES) 2001**

Product	Nandewar Bioregion
Honey	\$915,575
Wax	\$73,811
Queen and packaged bees	Not quantified
Pollination	Not quantified
<b>Total</b>	<b>\$989,386</b>

Source: ABS Agricultural Census 2001.

Native forests are important to the apiary industry by providing nectar resources, locations for overwintering, and as a drought reserve for bee populations. Pine plantations also have economic value by providing an additional source of pollen useful for bee breeding due to regrowth following harvest.

Resting of bees, sometimes referred to as overwintering, has no direct quantifiable value to an apiary industry. It does, however provide the basis of the pollination services operated by apiarists in other regions for many economically significant agricultural and horticultural crops. Bees are brought to the Nandewar from coastal NSW to overwinter which allows some honey production and an increase in hive strength to prepare for the major spring/summer production period (Hassall & Associates 1999).

Pollination services are an economic value provided by beekeepers. Hives are leased to agricultural producers and subsequent pollination boosts crop returns. There are only small areas of horticultural and canola crops in the Nandewar. This may limit the potential for beekeepers to generate income from pollination services.

Honey prices continue to climb above record levels, with packers again raising their bids for both domestic and overseas product. Prices are at their highest in forty years, with retail quotes now ranging between \$10 and \$41 a kilo<sup>49</sup>.

The calculation of the economic value of the drought capacity of the Nandewar is not a straightforward exercise. However, its worth to the NSW apiary industry, and those who benefit from the industries activities, should not be overlooked (Hassall & Associates 1999).

## **7.4 Outlook**

The apiary industry represents only a minor agricultural industry in the Nandewar and data would suggest there has been a decline in the industry over the past 5 years.

On average half of the honey produced in Australia is exported however, this data is not specific to the Nandewar. The products and services from bee keeping enterprises remains strong both for domestic and export markets. Further opportunities may exist through the development of a regional brand or in the production of propolis, pollen and royal jelly<sup>50</sup>.

The production figures may also decline further from current levels as a result of the recent drought, however, there may be an increase in the value of production. Chief Apiary Officer with New South Wales Agriculture, Bruce White, noted that while the drought has caused problems with eucalypt trees flowering erratically a world shortage is also pushing prices<sup>51</sup>.

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<sup>49</sup> Bruce White, Chief Apiary Officer, NSW Agriculture, NSW Country Hour, 28/10/2003

<sup>50</sup> Doug Somerville NSW Agriculture – Apiculture pers.comm. 3/10/03.

<sup>51</sup> Bruce White, Chief Apiary Officer, NSW Agriculture, NSW Country Hour, 28/10/2003



## 8. MINERALS AND CONSTRUCTION MATERIALS

### 8.1 Introduction

The information from this chapter has been compiled and reviewed by Roger McEvilly of the Department of Mineral Resources (DMR). It includes excerpts from the report NAND07 prepared by the DMR for the Nandewar study area. Appendix B includes a list of all projects that are being undertaken as part of the Nandewar Western Regional Assessment.

The chapter provides general information about the mineral resources in the Nandewar study area including:

- recent production;
- identified resources;
- current titles and applications;
- assessed potential; and
- major projects.

Mining and exploration have made a major contribution to the economy of the Nandewar study area. Many of the towns and settlements have origins related to past mining. Mining of a wide range of commodities continues throughout the area and provides many of the raw materials used in the construction, agriculture and the gemstone industry.

The area has a long history of gold, tin, sapphire, diamond, coal, asbestos, diatomite and limestone mining. The historic production value for various mineral commodities in the Nandewar study area from 1852 (the time of the first gold rush in the area) to 2003 is approximately \$2.5 billion.

### 8.2 Recent Production

Recent annual production from all minerals and construction materials in the Nandewar study area amounts to around \$15,749,000 (Table 8-1). There is high potential for further development in a number of commodities, particularly coal (DMR, NAND07). The location of the producing quarries and mines is shown in Figure 8-1. Of this, the value of production for construction materials in the Nandewar study area is \$2,150,000 for the 2001-2002 financial year (Production figures for the 2002-2003 financial year are not available).

The actual value of production is greater than the amount reported because some operations, such as some unprocessed construction material quarries, do not provide data to the Department of Mineral Resources.

Royalties paid from production of all minerals currently amounts to around \$0.6 million annually.

Whilst in general terms the gross value of recent production is low-moderate, the Nandewar is distinctive in terms of its broad variety of identified mineral and construction material resources. There is considerable potential for moderate to large-scale development in a few commodities, particularly for coal.

Regional incomes reported in Section 3.4 show income earned from mining employment was approximately \$3 million in 2001. Based on the ABS Population and Housing Census, total employment in the mining industry decreased from 141 persons in 1996 to 90 in 2001.

**TABLE 8-1: RECENT AVERAGE ANNUAL PRODUCTION FIGURES IN THE NANDEWAR**

Commodity	Number of Quarries or Mines	Production (\$)
<b>Metallic and Industrial Minerals<sup>a</sup></b>		<b>Last Reported Year</b>
Limestone/Agricultural Lime	2	\$8 000 000
Diatomite	2	\$3 000 000
Sapphire	7	\$2 000 000
Zeolite	1	\$500 000
Diamond <sup>b</sup>	1	\$50 000
Jade-nephrite	1	\$30 000
Serpentinite	1	\$10 000
Rhodonite	2	\$7 000
Gold	1	\$2 000
<b>Construction Materials<sup>c</sup></b>		<b>2001/2002</b>
Unprocessed construction materials	32	\$750 000
Coarse aggregate inc. river gravel	7	\$1 050 000
Construction sand	1	\$350 000
<b>Total Production</b>		<b>\$15 749 000</b>

Source: Department of Mineral Resources, report NAND07 Assessment of Mineral and Energy Resources and Potential.

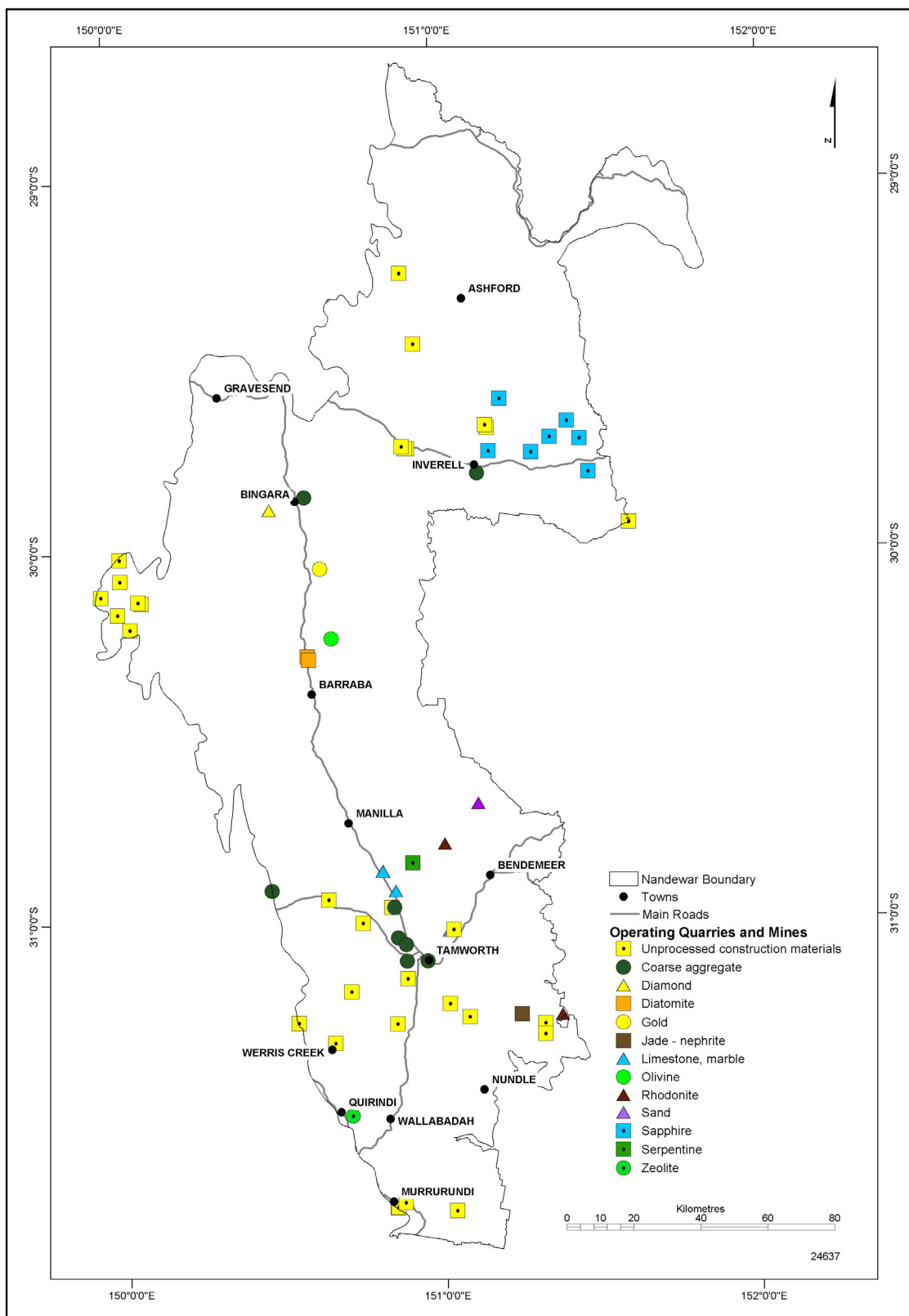
<sup>a</sup>Metallic and Industrial Minerals: Figures are the totals for the last reported year of each licence in that commodity.

<sup>b</sup>Estimated from limited recent production details.

<sup>c</sup>Construction materials: Figures are for the 2001-2002 financial year.



**FIGURE 8-1: OPERATING QUARRIES AND MINES (SEPTEMBER 2003), NANDEWAR STUDY AREA**



### 8.3 Identified Resources and Current Mining and Quarrying

#### 8.3.1 Identified Resources

A broad variety of resources have been identified in the Nandewar study area as shown on Figure 8-2.

#### 8.3.2 Current Titles and Applications

##### Mining Titles and Applications

Table 8-2 summarises the type and number of current mining titles and applications administered by the DMR in the Nandewar study area. Table 8-3 details the commodity and location of the titles and assessment leases.

**TABLE 8-2: MINING TITLES AND ASSESSMENT LEASES IN THE NANDEWAR  
(1 OCTOBER 2003)**

<b>Titles</b>	<b>Number</b>
Mining Leases (ML)	34
Mineral Claims (MC)	14
Gold Lease (GL)	1
Private Lands Leases (PLL)	4
Mining Lease Application	1
Assessment Lease Applications (ALA)	3

Source: Department of Mineral Resources, report NAND07 Assessment of Mineral and Energy Resources and Potential, 08/03/04.

**TABLE 8-3 MINING TITLES AND APPLICATIONS 24 SEPTEMBER 2003, NANDEWAR STUDY AREA**

<b>Title</b>	<b>No of Titles</b>	<b>Commodity</b>	<b>Area</b>
Mining Leases	7	Diatomite	Barraba
Mining Leases	2	Limestone	Attunga
Mining Leases	12	Sapphire/corundum/zircon	Inverell
Mining Leases	3	Rhodonite	Manilla, Nundle
Mining Leases	1	Serpentine	Manilla
Mining Leases	1	Jade/nephrite	Nundle
Mining Leases	1	Diamond/tin	Inverell
Mining Leases	2	Zeolite	Quirindi
Mining Leases	1	Kaolin plus ten minerals	Barraba
Mining Leases	1	Tin plus seven minerals	Watsons Creek
Mining Leases	1	Sapphire plus six minerals	Inverell
Mining Leases	1	Rhodonite plus seven minerals	Nundle
Mining Leases	1	Copper/gold plus ten minerals	Attunga
Minerals Claims	4	Gold	Bingara, Nundle
Minerals Claims	2	Diatomite	Barraba
Minerals Claims	1	Diamond/gold	Bingara
Minerals Claims	5	Sapphire/corundum/zircon	Inverell
Minerals Claims	2	Serpentine	Barraba, Tamworth
Gold Lease	1	Gold	Bingara
Private Lands Leases	1	Kaolin plus three minerals	Barraba
Private Lands Leases	2	Sapphire	Inverell
Private Lands Leases	1	Copper/gold plus 12 minerals	Attunga
Mining Lease Application	1	Coal	Murrurundi
Assessment Lease Applications	1	Serpentine	Barraba
Assessment Lease Applications	1	Sapphire/corundum	Inverell
Assessment Lease Applications	1	Sapphire/corundum/diamond	Inverell

Source: Department of Mineral Resources, report NAND07 Assessment of Mineral and Energy Resources and Potential.

### Construction Material Operations

The DMR has a recognised and accepted role in assessing the State's resources of construction materials, but does not issue titles for construction materials. Local councils, and various other agencies issue these. There are currently 40 operating quarries for construction materials in the Nandewar study area. Table 8-4 summarises the type and number of construction material quarries in the Nandewar.

**TABLE 8-4: CONSTRUCTION MATERIAL OPERATIONS IN THE NANDEWAR  
(1 OCTOBER 2003)**

Construction Material Operations	Number
Unprocessed construction materials	32
Coarse aggregate inc. river gravel	7
Construction sand	1

Source: Department of Mineral Resources, report NAND07 Assessment of Mineral and Energy Resources and Potential, 01/04.

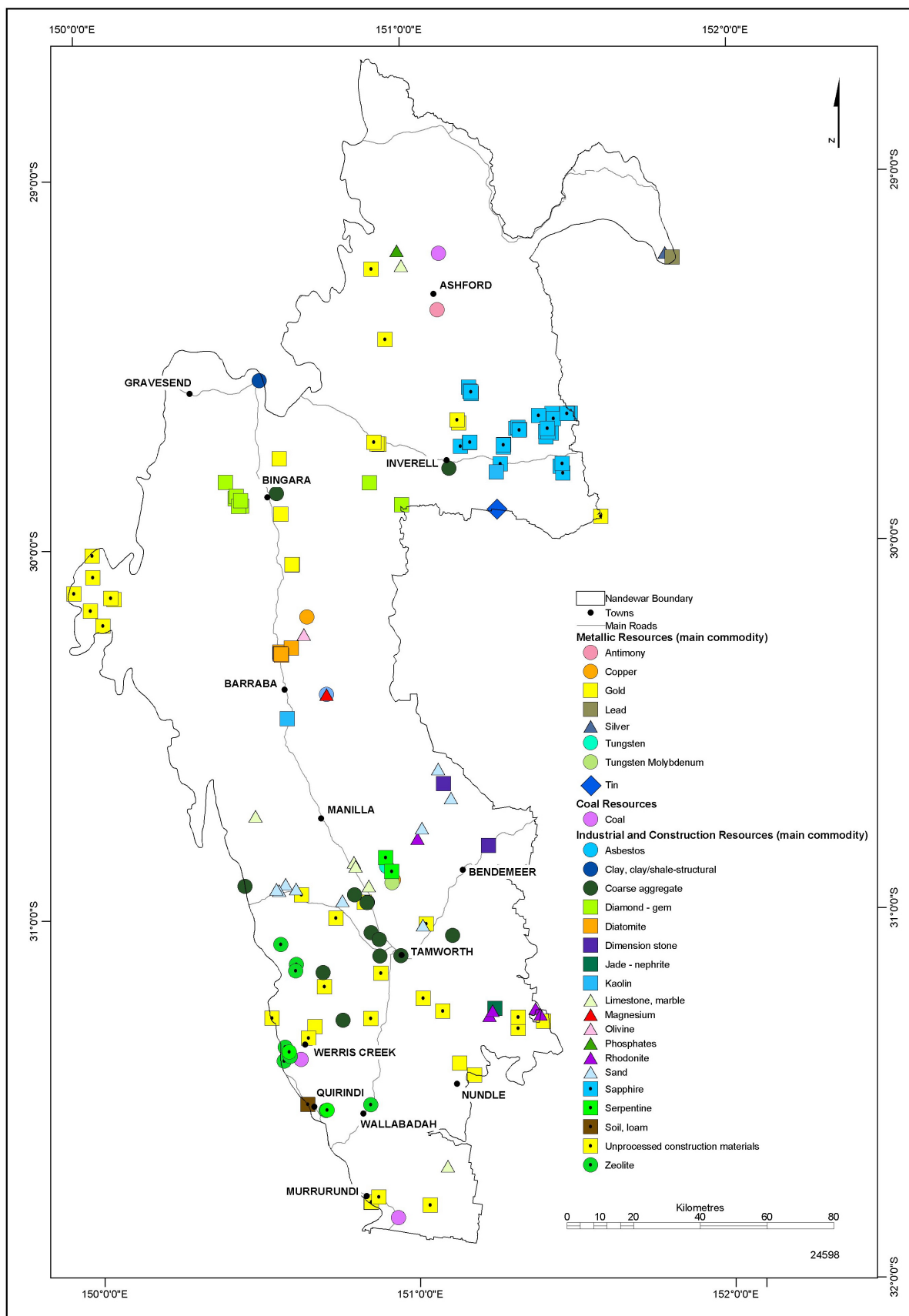
### Assessment Leases and Applications

Table 8-4 summarises the number of assessment leases and applications in the Nandewar study area.

**TABLE 8-5 ASSESSMENT LEASES AND APPLICATIONS 24 SEPTEMBER 2003,  
NANDEWAR STUDY AREA**

Title	No of Titles	Commodity
Assessment leases	2	Zeolites
Assessment leases	1	Sapphire, corundum, zircon
Assessment lease applications	1	Serpentine
Assessment lease applications	1	Sapphire, corundum, diamond
Assessment lease applications	1	Sapphire, corundum

FIGURE 8-2: IDENTIFIED RESOURCES IN THE NANDEWAR



## Exploration Titles and Applications

Table 8-6 summarises the type and number of exploration titles and applications in the Nandewar study area.

**TABLE 8-6: EXPLORATION TITLES AND APPLICATIONS 24 SEPTEMBER 2003, NANDEWAR STUDY AREA**

Title	No of Titles	Group/Commodity
Exploration Licences	12	Metallic minerals
Exploration Licences	4	Metallic minerals; gemstones
Exploration Licences	7	Non metallic minerals
Exploration Licences	7	Gemstones
Exploration Licences	3	Coal
Coal Authorisation	1	Coal
Petroleum Exploration Licence	4	Petroleum
Exploration Licence Applications	1	Metallic minerals
Exploration Licence Applications	1	Metallic minerals; clay minerals; gemstones
Exploration Licence Applications	2	Semi precious stones
Exploration Licence Applications	5	Gemstones
Exploration Licence Applications	1	Coal
<b>Total</b>	<b>48</b>	

Source: Department of Mineral Resources, report NAND07 Assessment of Mineral and Energy Resources and Potential.

Annual exploration expenditure for various minerals and construction materials in the Nandewar study area has averaged around \$2 million (2003) over the last decade. Commodities that are being explored and assessed include limestone, zeolite, sapphire, diatomite, gold, silver, tungsten, molybdenum, copper, diamond, magnesium, coal, coal seam methane, petroleum and kaolin.

## 8.4 Major Projects

The Bickham Coal Project is a medium to large coal project (>\$2 billion coal resource) situated in the extreme southwest of the Nandewar study area near Murrurundi. Resources of coal are also under assessment at the Creek Resources Coal Project near Werris Creek, and near Ashford (>\$1.6 billion resource).

Very large resources of magnesium occur in old mine tailings near Barraba (\$20 billion resource), at the old Woodsreef Asbestos Mine. An initial estimation of the project is \$680 million in capital costs and full time employment of approximately 350 people, however it is very unclear whether this project is viable, due to competition for other sources, and uncertainty in projected future prices and demand for magnesium.

There are a number of other smaller projects also under assessment.

## **8.5 Assessed Potential and Outlook**

The areas of highest potential are scattered widely in the Nandewar study area. They include:

- the Ashford, Werris Creek and Murrurundi areas (coal);
- the Nandewar Range area (petroleum and coal seam methane);
- the Barraba area (diatomite, magnesium and gold);
- the Attunga area (base and precious metals and limestone) ;
- the Werris Creek area (zeolite, gold and silver);
- the Bingara area (gold and diamond);
- the Inverell area (diamond, kaolin, tin and sapphire);
- construction materials adjacent to major roads; and
- gold in a narrow elongated zone through the middle of the Nandewar study area.





## 9. AGRICULTURE

### 9.1 Introduction

This chapter presents an overview of agricultural activity within the Nandewar. The information has been gathered using a desk based approach relying on reports completed as part of the Regional Vegetation Management Plans, Water Sharing Plans and Catchment Blue Prints, recently published data from ABS, ABARE and NSW Agriculture, and telephone interviews.

The information provided in this chapter has been prepared to assist linked consultancies including *NAND12, Development Opportunities in the Nandewar Bioregion: Forest based opportunities; and Conservation opportunities*, and *NAND13, Regional Impact Analysis to understand the impact to agriculture of conservation on native vegetation*. In the tables presented throughout this chapter information is provided at the LGA level. Whilst it is recognised that there is spatial variability across the LGAs and that the six key LGAs reported do not cover the Nandewar, LGAs are the smallest geographical scales for which data is provided consistently and across time.

There is approximately 1 percent<sup>52</sup> of land under public control for conservation by the State Government. Therefore, conservation outcomes are unlikely to be achieved without private commitments. It is important therefore, to understand the nature and extent of agricultural production within the Nandewar to assist in determining the extent of conservation outcomes that might be possible.

### 9.2 Characteristics and Extent of Agricultural Enterprise

The Nandewar is a very diverse environment with large variations in soil type, fertility, altitude, temperature and rainfall. It has a competitive advantage in agriculture in that it encompasses quality pastoral land, a diversified structure of agriculture and manufacturing activity, and strong transport infrastructure<sup>53</sup>. The region is well serviced by road, rail and air with an extensive highway system linking major towns and freight systems linking the region to major domestic markets and export ports.

<sup>52</sup> Of the total assessable area of 2,623,000 ha only 21,500 ha are held in National Parks and Nature Reserves.

<sup>53</sup> NSW Department of State and Regional Development, [www.business.nsw.gov.au](http://www.business.nsw.gov.au), 10/03.

Consequently, the Nandewar has developed into one of the most diversified agricultural regions in the state of NSW<sup>54</sup>. The primary land use in the Nandewar is for agricultural production. While wheat, sheep and cattle production remain the dominant agricultural activities<sup>55</sup>, diversity of enterprises has increased significantly over the last decade. This has been seen mostly in cropping enterprises.

Agricultural enterprises within the region include:

- merino wool and prime lamb production;
- beef cattle production;
- mixed grazing (sheep and cattle);
- mixed farming (grazing and cropping);
- specialist dryland cropping (wheat, barley, sorghum);
- fodder crop production;
- dairy farming;
- poultry farming;
- pig production;
- equine operations; and
- horticulture (fruits, vegetables and nuts).

There are a number of water resources in the Nandewar with the MacIntyre, Gwydir, Horton, Namoi and Peel rivers and several of their tributaries flow through the Nandewar. There are dams on each of these rivers to regulate flows to downstream users. Most of the irrigation for agricultural production supported by these dams occurs in the shires of Moree, Narrabri, Gunnedah and Quirindi, which predominantly lie beyond the boundaries of the Nandewar. Some landholders within the Nandewar also have access to groundwater from aquifers of the Great Artesian Basin. These producers may be licenced to use groundwater for stock and domestic, and/or irrigation purposes.

Irrigation from both surface and groundwater sources represents a very small proportion of agricultural land use within the bioregion. ABS (2001) statistics indicate that less than 1 percent of agricultural land within the six key LGAs of the Nandewar is irrigated. Most of this irrigation occurs in the Inverell, Parry and Tamworth LGAs. Approximately 65 percent of irrigated land is pastured.

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<sup>54</sup> New England – North West Regional Development, <http://nio.com.au/nenwrdb/>, 10/03.

<sup>55</sup> Wilton, Barraba Shire Council, pers. comm. 25/08/03; Jim Lane, Bingar Shire Council, pers. comm. 27/08/03; Ken Beddy, Inverell Shire Council, pers. comm. 27/08/03.

### 9.2.1 Number and size of Agricultural Establishments

Table 9-1 shows that the total area of agricultural holdings remained relatively stable from 1996 to 2001 with increases in area in the Bingara, Barraba and Manilla LGAs offset by decreases in the Inverell, Parry and Tamworth LGAs. The relative decline in the area of agriculture in the latter mentioned LGAs suggests increased urbanisation surrounding the major centres of Inverell and Tamworth.

It should be noted that given there are a number of other LGAs that fall partly within the boundaries of the Nandewar, the data in Table 9-1 and Table 9-2 underestimate the total area and number of agricultural establishments in the Nandewar.

**TABLE 9-1: AREA OF AGRICULTURAL HOLDINGS IN THE NANDEWAR  
(AS AT 30 JUNE 1996 AND 2001)**

Nandewar LGAs	Total Area 1996 (ha)	Total Area 2001 (ha)	Area of Ag 1996 (ha)	Area of Ag 2001 (ha)	Ag Estab as % of Total Area 1996	Ag Estab as % of Total Area 2001
Bingara	285,046	285,928	197,815	227,070	69	79
Barraba	306,548	307,462	263,622	274,749	86	89
Inverell	858,290	862,182	626,214	621,090	73	72
Manilla	219,129	224,469	147,936	157,891	68	70
Parry	440,003	438,607	396,055	356,904	90	81
Tamworth	18,545	18,309	18,512	15,957	99	87
<b>Nandewar</b>	<b>2,127,561</b>	<b>2,136,957</b>	<b>1,650,154</b>	<b>1,653,661</b>	<b>78</b>	<b>77</b>

Source: ABS Agricultural Census Data 1996 and 2001.

Table 9-2 shows that the number of agricultural establishments making up the total area of agricultural land decreased slightly from 1,867 to 1,839 in the five years to 2001, while the average farm size increased from 878 ha to 939 ha. The average size of properties remained highest in the Barraba and Bingara LGAs.

**TABLE 9-2: AGRICULTURAL ESTABLISHMENTS IN THE NANDEWAR  
(AS AT 30 JUNE 1996 AND 2001)**

Nandewar LGAs	Number Ag Estab 1996	Number Ag Estab 2001	Avg Area Per Ag Estab 1996 (ha)	Avg Area Per Ag Estab 2001 (ha)
Bingara	165	163	1,199	1,393
Barraba	191	186	1,380	1,477
Inverell	597	569	1,049	1,092
Manilla	183	162	808	975
Parry	646	657	613	543
Tamworth	85	102	218	156
<b>Nandewar</b>	<b>1,867</b>	<b>1,839</b>	<b>878</b>	<b>939</b>

Source: ABS Agricultural Census Data 1996 and 2001.

SFNSW have advised that there are no grazing permits on State Forest land in the Nandewar. There are however, 16 Occupational Permits for grazing in the State Forests with a total area of 12,208 ha and an average area per Permit of 763 ha. The average rental payment for these Permits is \$400 per annum. Grazing is not encouraged in State Forests during drought periods. Existing permittees are required to move stock before overgrazing results<sup>56</sup>.

### 9.2.2 Representative Farm Profiles

At the Nandewar Socio-Economic Project Coordination Committee meeting of 28 August 2003, Hassall & Associates undertook to profile 6-8 representative farm types as part of NAND11. Subsequent research using Hassall & Associates farm management consultants and NSW Agriculture district agronomists revealed five main farm types across the Nandewar, which are presented in Table 9-3.

<sup>56</sup> As provided by SFNSW, 1/12/03.

**TABLE 9-3: TABLE FARMING SYSTEMS OF THE NANDEWAR**

Farming Systems	Characteristics
<b><i>Grazing</i></b>	<ul style="list-style-type: none"> <li>• Grazing systems dominate in areas with less reliable rainfall and where soils and topography are unsuitable for broad scale cropping. Grazing of this nature is the most common farming system in the Nandewar. These types of farms are found across all shires.</li> <li>• Grazing systems are generally mixed, running both sheep and beef cattle. Sheep production includes fat lambs and merino wool (medium).</li> <li>• Small areas may be cropped for fodder. Fodder crops include lucerne, oats and forage sorghum. Cropping generally accounts for less than 5 percent of farm area.</li> <li>• Pastures tend to be native to semi-improved with stocking rates varying from 1-6 DSE/ha.</li> <li>• Soil type varies from shallow earthy sands to red and brown loams. Soils are often of low fertility, low organic matter and poor soil structure.</li> <li>• Farm size ranges from 500ha – 1,000ha.</li> <li>• The climate is temperate with summer dominant rainfall. Variations in rainfall from 600mm-750mm.</li> <li>• Average Stocking Rate 3.0 DSE/ha.</li> <li>• Indicative Gross Margin \$50/ha.</li> </ul>
<b><i>Specialist Cropping</i></b>	<ul style="list-style-type: none"> <li>• Skirting the edge of the Nandewar are the Moree Plains, Yallaro, Narrabri, Gunnedah, Murrumbidgee and Quirindi shires, which are dominated by broadacre dryland cropping enterprises. Some specialist cropping enterprises within these shires sit on the western plains of the Nandewar. There is also a number of specialist cropping enterprises in the Tamworth/Parry and Inverell shires.</li> <li>• Enterprise mix includes wheat, barley and sorghum.</li> <li>• Wheat comprises approximately half of the total area cropped. The presence of chickpeas in the rotation is increasing.</li> <li>• Farm size generally ranges from 500ha – 750ha. Farm size may increase above 1,000ha to the north and to the west of the study area.</li> <li>• The climate is temperate with summer dominant rainfall (average 650mm-700mm). Intensive summer storms makes opportunity cropping possible in the Nandewar.</li> <li>• Cracking clay soils.</li> <li>• High levels of fertiliser use, particularly nitrogen.</li> <li>• Average Yield 2.0 t/ha.</li> <li>• Indicative Gross Margin \$185/ha.</li> </ul>

Farming Systems	Characteristics
<b>Mixed Farming and Grazing</b>	<ul style="list-style-type: none"> <li>Mixed farming systems of sheep (prime lambs and merino wool), beef and wheat are common right across the Nandewar.</li> <li>Dryland cereal crops (wheat, barley, sorghum) are grown for grain while smaller areas are sown as fodder crops (predominantly oats, some lucerne and forage sorghum).</li> <li>The area cropped is generally less than 10 percent of the total property area.</li> <li>Pastures are native to semi-improved with stocking rates varying from 1-6 DSE/ha.</li> <li>Farm size ranges from 500ha-1,500ha.</li> <li>Temperate climate with summer dominant rainfall. Average annual rainfall varies from 650mm-750mm.</li> <li>Variations in soil type from shallow earthy sands to red and brown loams, and cracking clays. Large areas of the slopes have a long history of cultivation, which has reduced fertility and soil structure.</li> <li>Average Stocking Rate 2.5-3.5DSE/ha, and Average Crop Yield 2.0 t/ha.</li> <li>Indicative Gross Margin \$105/ha.</li> </ul>
<b>Productive Grazing</b>	<ul style="list-style-type: none"> <li>Areas of specialist grazing exist to the east of the Nandewar. These areas have relatively productive soils and high rainfall. Beef cattle, fat lamb and fine wool enterprises comprise this system.</li> <li>Higher quality native and improved pastures with carrying capacities ranging from 5DSE/ha to 12 DSE/ha.</li> <li>Farm size ranges from 500ha-1,000ha.</li> <li>Rainfall is higher in the east of the Nandewar and increases to the north (750mm-850mm). Average temperatures are lower in these parts of the Bioregion, particularly in winter months.</li> <li>Average Stocking Rate 7.0 DSE/ha.</li> <li>Indicative Gross Margin \$90/ha.</li> </ul>
<b>Heavily Timbered/Limited Grazing</b>	<ul style="list-style-type: none"> <li>Scattered across the Nandewar are areas of less productive soils and heavily timbered country with limited agricultural activity. Cattle generally lightly graze these areas.</li> <li>Pastures are poorer quality native grasses with stocking rates of less than 2.5 DSE/ha.</li> <li>Soils tend to be light, of low fertility, low organic matter and poor soil structure.</li> <li>Farm size ranges from 500ha – 1,000ha.</li> <li>The climate is temperate with summer dominant rainfall. Variations in rainfall from 600mm-750mm.</li> <li>Average Stocking Rate 1.0 DSE/ha.</li> <li>Indicative Gross Margin \$15/ha.</li> </ul>

### 9.2.3 Secondary Agricultural Industries

The two main centres in the Nandewar are Tamworth to the south and Inverell to the north. There are a number of secondary agricultural enterprises located within each of these centres. Inverell hosts the head office of Bindaree Beef, the largest meat processor in NSW. Bindaree Beef acquired the Inverell abattoir in 1995, which processes up to 1,200 head/day relying strongly on the support of the regions beef industry<sup>57</sup>. The abattoir employs approximately 500 people in the Inverell area<sup>58</sup>. Inverell also boasts a processing plant for Gwydir grown olives. Gwydir Olives is a company devoted to growing, processing and marketing quality olive products and has operated the Inverell based processing plant for the past six years<sup>59</sup>.

The Tamworth Development Corporation advises that there are 135 manufacturing enterprises within the Tamworth region making it one of the largest inland bases in NSW. A number of these enterprises provide services and value adding activities to agriculture within the region. Value adding activities include chicken, cattle and small stock abattoirs (Baiada Poultry, Cargill Australia and Peel Valley Exporters) and grain processing facilities for flour, stockfeed, and flour bi-products (Goodman Fielder). Baiada, Cargill, Peel Valley Exporters and Goodman Fielder are among the major employers within the Tamworth area.

## 9.3 Economic Value of Agricultural Industry/Lands

The Nandewar relies heavily on agriculture and services to agriculture as the major contributor to employment and gross production value. Table 9-4 shows that for the six LGAs located wholly within the Nandewar, the total value of agricultural production was approximately \$256 million in the 2001 Agricultural Census year. Again it should be noted that given there are a number of other LGAs that fall partly within the boundaries of the Nandewar, the figures in Table 9-4 and Table 9-5 underestimate the total value of agricultural production.

<sup>57</sup> Bindaree Beef Pty Ltd, [www.bindareebeef.com.au](http://www.bindareebeef.com.au), 11/03.

<sup>58</sup> Ken Beddy, Inverell Shire Council, pers. comm. 27/08/03.

<sup>59</sup> Inverell On-Line, [www.inverell-online.com.au](http://www.inverell-online.com.au), 11/03.

**TABLE 9-4: VALUE OF AGRICULTURE IN THE NANDEWAR  
(JULY 2000 - JUNE 2001)**

Nandewar LGAs	Total Value of Ag (\$'000)	Total Value of Crops (\$'000) (not including fruit)	Total Value of Livestock Products (\$'000)	Total Value of Fruit (\$'000)
Bingara	16,409	1,532	14,877	0
Barraba	26,954	765	26,189	0
Inverell	69,741	20,583	47,796	1,362
Manilla	19,067	1,589	17,478	0
Parry	77,193	16,608	59,987	598
Tamworth	47,015	3,301	43,675	39
<b>Nandewar</b>	<b>256,379</b>	<b>44,378</b>	<b>210,001</b>	<b>1,999</b>
New South Wales	8,836,597	4,265,406	3,927,344	643,847
Percent of NSW	3.0	1.1	5.7	0.3

Source: ABS Agricultural Census Data 2001.

The total value of agricultural production in the 1996 Agricultural Census year is presented in Table 9-5 for comparison. The total value of agriculture in the Nandewar decreased by 1.5 percent from 1996 to 2001 compared with a rise of 6.8 percent across the state. The value of fruit and livestock products increased over the period while the total value of crops declined.

**TABLE 9-5: VALUE OF AGRICULTURE IN THE NANDEWAR  
(JULY 1995 - JUNE 1996)**

Nandewar LGAs	Total Value of Ag (\$'000)	Total Value of Crops (\$'000) (not including fruit)	Total Value of Livestock Products (\$'000)	Total Value of Fruit (\$'000)
Bingara	14,564	3,600	10,964	0.34
Barraba	21,152	2,625	18,527	0
Inverell	79,195	39,482	39,681	32
Manilla	15,269	5,507	9,762	0
Parry	93,642	22,943	70,460	239
Tamworth	36,469	3,775	32,694	0
<b>Nandewar</b>	<b>260,290</b>	<b>77,932</b>	<b>182,086</b>	<b>272</b>
New South Wales	8,275,055	4,359,092	3,339,103	576,860
Percent of NSW	3.1	1.8	5.5	0.1

Source: ABS Agricultural Census Data 1996.

Table 9-6 presents data on the number of persons employed in agriculture in the Nandewar. The ABS (2001) has indicated that of 27,962 persons employed in the Nandewar, 3,414 persons were employed in the Agriculture, Forestry and Fishing Industry. This represents 12 percent of



total employment and is 9 percentage points higher than the state average. The reliance on agriculture for employment is significantly higher in the Bingara and Barraba shires with employment in agriculture representing approximately 40 percent of total employment.

The relative importance of the Agriculture, Forestry and Fishing Industry in 1996 is included in Table 9-6 for comparison. The figures remain largely unchanged in each of the six LGAs over the five-year period.

**TABLE 9-6: NUMBER OF PERSONS EMPLOYED IN AGRICULTURE IN THE NANDEWAR (AS AT 30 JUNE 2001 AND 1996 PERCENTAGE COMPARISON)**

Nandewar LGAs	Total Employed (number)	Employed in Ag, Forestry and Fishing	Percentage of Total Employed 2001	Percentage of Total Employed 1996
Bingara	713	278	39	42
Barraba	790	316	40	40
Inverell	5,757	1,039	18	19
Manilla	1,019	286	28	27
Parry	5,356	1,070	20	21
Tamworth	14,654	499	3	3
<b>Nandewar</b>	<b>27,962</b>	<b>3,414</b>	<b>12</b>	<b>9</b>
New South Wales	2,748,396	92,358	3	0.36

Source: ABS Population Census 1996 and 2001.

#### 9.4 Conservation of Biodiversity on Agricultural Land

There is limited information available on conservation of biodiversity on private land within the Nandewar. Consultation suggests that most on-farm conservation efforts have been directed at conservation farming and introduction of rotations as compared to protection of remnant vegetation.

Conservation of biodiversity has been impacted in recent years through implementation of SEPP46 and subsequently the Native Vegetation Conservation Act 1997 with specific objectives of these regulations being to conserve and manage native vegetation<sup>60</sup>. Introduction of regulation may have served to increase education relating to conservation of biodiversity and hence led to increased on-farm conservation efforts. Conversely, there is anecdotal evidence to suggest that regulation may in fact have had a perverse effect on conservation leading to increased levels of illegal clearing. Farmer perceptions and responses to this legislation are further explored in NAND12.

<sup>60</sup> Native Vegetation Conservation Act 1997

The 2001 ABS Agricultural Census collected data for a number of land management indicators, including information about on-farm conservation initiatives. Table 9-7 identifies information about on-farm actions taken to conserve biodiversity on agricultural land within the Nandewar. It should be noted that these figures only represent areas that have been fenced or planted with species in the 2000/01 year and therefore, do not represent the total area conserved for remnant vegetation or planted trees and shrubs on agricultural land in the Nandewar.

**TABLE 9-7: ON-FARM CONSERVATION INITIATIVES IN THE NANDEWAR  
(JULY 2000 – JUNE 2001)**

Nandewar LGAs	Area of Ag Holdings (ha)	Land Fenced for Remnant Native Veg		Land Fenced for Planted Trees & Shrubs		Seedlings Planted for Nature Conservation	
		No. Farms	Area (ha)	No. Farms	Area (ha)	No. Farms	Area (ha)
Bingara	227,070	6	866	4	18	4	9
Barraba	274,749	1	104	2	5	4	4
Inverell	621,090	7	670	10	31	9	97
Manilla	157,891	5	869	15	63	9	26
Parry	356,904	4	768	29	259	17	154
Tamworth	15,957	-	-	8	26	4	2
<b>Nandewar</b>	<b>1,653,661</b>	<b>23</b>	<b>3,277</b>	<b>68</b>	<b>546</b>	<b>47</b>	<b>292</b>
New South Wales	61,007,388	840	44,520	1,987	18,967	1,076	14,721

Source: ABS Agricultural Census Data 2001.

Identifying involvement in current schemes and incentives for conservation is the objective of NAND12, *Development Opportunities in the Nandewar Bioregion: Forest based opportunities; and Conservation opportunities*. The Bioregional Framework being prepared by Department of Environment and Conservation aims to identify habitat suitable for conservation and conservation targets for the Nandewar.

## 9.5 Industry Trends and Outlook

### 9.5.1 Trends

ABS Agricultural Census data over the past ten years indicates an overall increase in the area cropped within the six LGAs of the Nandewar. This increase has largely been driven by a shift in resources from sheep to grain production reflecting the relative returns of these enterprises throughout the 1990s. Cattle numbers over the same period have remained relatively stable. The past ten years has also seen an increase in diversification of agricultural products with a number of specialist and boutique horticultural and agricultural activities emerging. These enterprises however, operate on relatively small parcels of land and their contribution to the Nandewar's gross production value is minor compared to that of cereal grains, sheep and cattle production.

Table 9-8 provides a summary of crop and livestock trends in the Nandewar for the past 10 years based on ABS Agricultural Census Data.

**TABLE 9-8: SUMMARY OF CROPPING AND LIVESTOCK TRENDS IN THE NANDEWAR (1993 – 2003)**

Nandewar LGAs	Summary
Bingara	Decline in area cropped, decline in sheep numbers, increase in cattle numbers.
Barraba	Area cropped relatively stable, decline in sheep numbers, increase in cattle numbers.
Inverell	Increase in area cropped, large decline in sheep numbers, decline in cattle numbers.
Manilla	Area cropped relatively stable, decline in sheep numbers, cattle numbers relatively stable.
Parry	Increase in area cropped, decline in sheep numbers and increase in cattle numbers.
Tamworth	Area cropped and sheep and cattle numbers relatively stable.
<b>Nandewar</b>	<b>Increase in area cropped, decline in sheep numbers, and cattle numbers relatively stable.</b>

Overall, the area devoted to agriculture within the Nandewar has remained relatively stable over the past ten years. The general increase in cropping, however indicates an overall increase in the area under cultivation. It should be noted that there have been significant improvements in conservation farming methods employed in the Nandewar over the past few decades in terms of adoption of no till farming methods and improved cropping rotations<sup>61</sup>. This has contributed toward improvements in salinity, erosion, soil biota and biomass<sup>62</sup>.

The shift toward more cropping is a direct reflection of the relative profitability of cropping activities. Hence, farmers will be unlikely to increase conservation efforts unless they can see direct benefits to their bottom line.

### 9.5.2 Outlook

There are a number of factors that may influence the outlook for agricultural commodities and on-farm performance over the short to medium term including climate variations, exchange rates, prices of other agricultural commodities, input costs, regulation and import and export markets. ABARE projects only a small rise above inflation for farm input costs over the next five years, however lower output prices leading to an overall decline in the net value of farm production by 2007/08 (ABARE, 2003).

<sup>61</sup> Fiona Scott, NSW Agriculture, pers. comm. 26/09/03.

<sup>62</sup> Fiona Scott, NSW Agriculture, pers. comm. 26/09/03.

The farm enterprise mix within the Nandewar will largely depend on seasonal conditions and the relative attractiveness of returns to crop and livestock production. Both area cropped and livestock numbers were lower throughout 2002 and 2003 due to drought conditions hence there is anticipated to be some recovery in total area cropped and livestock numbers over the next few years.

ABARE projects beef prices to fall over the medium term due to growing competition in export markets and a strengthening Australian dollar. The outlook for both sheep meat and wool prices is better than that for beef and ABARE anticipates a reversing or at least halting of the trend out of sheep over the past decade. Prices for grain will be lower than those experienced over the past few years due to an increase in supply coming out of the drought. Over the next five or six years it seems highly likely that the area under grains and other crops will be maintained or increased from pre- drought plantings with prices remaining relatively stable.

## 10. CONCLUSIONS

In the period since the mid 1990s the Nandewar has enjoyed employment and population growth, suggesting a level of economic and social robustness and prosperity. However, closer examination reveals that growth in the Nandewar has lagged behind performance for NSW as a whole. Also for a number of Nandewar LGAs there has been a decline in both population and persons employed. These LGAs include Barraba, Bingara, Murrurundi, Gunnedah, Quirindi and Yallaro. Strong growth in Tamworth and Parry LGAs have driven economic growth in the Nandewar. Social welfare payments exceeded taxation collected in all, but Tamworth and Parry LGAs.

The regions economy is reliant on agriculture, especially broadacre grain and grazing. Agricultural production is the major employer in the smaller LGAs of Bingara, Barraba, and Manilla. Earnings from agricultural production dominate these smaller areas as well as the larger LGAs of Parry and Inverell. The services sector, including the agricultural and health services sectors are important to Tamworth.

Key economic and social indicators include:

- The economy of the region is characterised by a high dependence on primary production, particularly broadacre agriculture.
- Health and Community services and Retail Trade are important industries.
- Total employment income for the Nandewar is \$842 million or 1 percent of the NSW total. Approximately 54 percent accrues to the residents of Tamworth.
- Average household income is 82 percent of the state average.
- There are approximately 36,000 ha of State Forest and 21,500 ha of NPWS managed land of the total 2,673,000 ha of the Nandewar Assessment Region (less the area of Mt Kaputar and areas previously assessed under the North East CRA). State Forest and NPWS land is less than 1 percent of land under public control for conservation purposes.
- Public forests and related industries comprise less than 1 percent of the assessment region's economic activity. The industry is not a significant employer in any of the towns or LGAs in the region. Forestry production from public lands accounts for around 1 percent of total regional employment.
- Community sensitivity analysis reveals that the majority of LGAs in the Nandewar show a level of resilience to change and are unlikely to be affected by changes in forest use. The mills are however large employers in the small towns in which they are present.
- Indigenous community unemployment is high. Over 50 percent of the Indigenous population live in rented accommodation and a large proportion of the Indigenous population are below 14 years of age.

The following provides a summary of the industry profiles.

### *Agriculture*

- Agriculture is the primary land use in the Nandewar with agricultural establishments covering approximately 77 percent of the area of the six key LGAs.
- The towns and communities within the Nandewar rely heavily on agriculture and services to agriculture as a major contributor to employment, income and gross value of production. The agricultural industries present however, throughout the region are becoming more diverse.
- The total value of agricultural production in 2001 was \$270 million and the Agriculture, Forestry and Fisheries industry represented approximately 12 percent of persons employed. This is 9 percentage points higher than the state average in NSW of 3 percent.
- Barraba, Bingara and Manilla LGAs are largely dependent on the agricultural industry for employment with the industry representing about 40 percent of total employment in these shires. The economies and communities of these LGAs would be sensitive to changes in agricultural production. They are also affected by out migration with the trend in migration of persons to larger towns.
- There are also a number of secondary agricultural enterprises, particularly in the centres of Inverell and Tamworth.
- Overall, the area devoted to agriculture within the Nandewar has remained relatively stable however, there has been a general shift in resources from sheep to grain production hence increasing the area under cultivation. This trend is a reflection of the relative returns from these enterprises.
- There have been significant improvements in conservation farming methods employed over the past few decades in terms of adoption of no till farming methods and improved cropping rotations. This has contributed toward improvements in salinity, erosion, soil biota and biomass.

### *Forest Products*

- There has been a long historical linkage to timber production in the region.
- The Nandewar supports commercial native softwood timber harvesting, however, the resource is minor when compared to the BBSB, with public forest yielding approximately 5,000 m<sup>3</sup> per annum of cypress as compared to 71,000 m<sup>3</sup> per annum from the BBSB.
- Public forests and related industries comprise less than 1 percent of economic activity in the Nandewar and accounts for about 1 percent of persons employed.

*Tourism and Recreation*

- Tourism and recreation generated approximately \$148 million in 1996/1997 and attracted 712,000 visitors (latest available data).
- SFNSW consider recreation, tourism and education activities as having potential to be developed in State Forests of the Nandewar<sup>63</sup>. The development of collaborative tours involving local community groups (bird watching), indigenous communities, National Parks and State Forests is considered to have a high level of potential and result in the generation of positive outcomes for all groups involved. Resources would have to be allocated to this task.
- Local councils advised that the trend of growth in tourism that took place in the mid-1990s has and is expected to continue.

*Apiary*

- Apiary is a relatively minor primary industry in the Nandewar. In 2001, the value of production was approximately \$1 million or 6 percent of the total value of apiary production of NSW. It accounted for approximately 8 percent of hives kept and 6 percent of the honey produced in NSW.
- Beekeeping in the Nandewar occurs on both State Forests and private land. The regions apiary industry is dominated by apiarists who rely on beekeeping as their primary source of income.
- The industry appears to be in decline according to the 1997 and 2001 Agricultural Census data.

*Minerals and Construction Materials*

- Recent annual production from various minerals and construction materials in the Nandewar amounts to around \$15 million.
- There is high potential for a number of minerals and construction materials, including coal and magnesium (DMR, NAND07).

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<sup>63</sup> As Provided by SFNSW 11/11/03.





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## 12. APPENDIX A: PERSONS CONTACTED AS PART OF THE STUDY

The following is a list of persons contacted as part of the study in alphabetical order of organisation.

Person Contacted	Organisation
Paul Craigg	Aboriginal Development Officer North Western Area Consultative Committee
Steve Wilton	Barraba Shire Council
Pat Molloy	Barraba Shire Visitor Centre
Jim Lane	Bingara Shire Council
Jenny Mead	Bingara Shire Visitor Centre
Contacted	Cobb And Coach Tours
Donnella Anderson	Department of Environment and Conservation (NPWS)
David Godden	Department of Environment and Conservation (NPWS)
Roger McEvilly	Department of Mineral Resources
Dawn Bell	DIPNR – Resource and Conservation Division
Amanda Neirinckx	DIPNR – Resource and Conservation Division
Ric Noble	DIPNR – Resource and Conservation Division
Joan Chatfield	DIPNR Dubbo – RACD – Cultural and Heritage Assessment
Evelyn Crawford	DIPNR Dubbo – RACD – Cultural and Heritage Assessment
Michael Brown	Gunida Gunyah CDEP
Chris Friend	Gunnedah Visitor centre
Contacted	Gwydir Olives
Cheryl Brown	Information Officer, Department of Environment and Conservation, NPWS Coffs Harbour
Ken Beddy	Inverell Shire council
Les Moulds	Inverell Shire Visitor Centre
Contacted	Kaputar Aviation
Contacted	Lake Keepit Soaring Centre
Contacted	Lions Club Town Tour
Contacted	Lowder & Son's Wee Waa Cotton Tours
Not available	Manilla Shire Council
Robin Fletcher	Manilla Tourism Development Officer
Perry Phelps	Narrabri Visitor Centre
Carmel Flint	North East Forestry Association
Contacted	Northern NSW River Bank And Dam Safaris
Doug Sommerville	NSW Agriculture
Phil Graham	NSW Agriculture, Bathurst
Doug Somerville	NSW Agriculture, Goulburn

Person Contacted	Organisation
Greg Roberts/Bill Weis	NSW Apiarists Association
Barry Rothwell	NSW Department of State and Regional Development
Russell Watts	NSW National Parks Association (and Tamworth Birdwatchers)
Not available	NSW Tourism
Donna Ausling	Parry Shire Council
Carolyn Noon	Parry Visitor Centre
Contacted	Pub Crawls On Horseback
Contacted	Quinns Mini Bus Tour
Contacted	Quinns Mini Bus Tours
Peter Beale	Red Chief Aboriginal Land Council
Gina Fisher	Red Chief Local Aboriginal Land Council
Narelle White	Secretary Tamworth LALC
Contacted	Spider's Tours
Warrick Bratby	State Forest NSW
Barbara Saunders	State Forest NSW
Contacted	Symes Bus Service
Ivan Johnson	Tamworth Aboriginal Land Council
Not available	Tamworth City Council
June Smyth	Tamworth Country Music Festival Organiser
Donna Shields	Tourism NSW
Contacted	Woolloomoolool Aboriginal Culture Tours

## 13. APPENDIX B: NANDEWAR WRA PROJECTS

### ISBNs NANDEWAR projects

1 74029 201 4	NAND01 - Landscape Conservation Framework
1 74029 202 2	NAND02 - Conservation Criteria
1 74029 203 0	NAND03 - Crown Tenure Validation and Mapping
1 74029 204 9	NAND04 - Geology – Integration and Upgrade
1 74029 205 7	NAND05 - Biodiversity Surrogates (Fauna Analysis)
1 74029 206 5	NAND06 - Biodiversity Surrogates (Veg Mapping)
1 74029 207 3	NAND07 - Assessment of Mineral and Energy Resources and Potential
1 74029 208 1	NAND08 -Wood Resources (set)
1 74029 209 X	NAND09 - Aboriginal Culture and Consultation
1 74029 210 3	NAND10 - Local Consequences of Land Use for Biodiversity in the Nandewar WRA
1 74029 211 1	NAND11 - Economic and Social Scoping Study and Regional Profile
1 74029 212 X	NAND12 - Development Opportunities in the Nandewar Bioregion: Forest based opportunities; and Conservation opportunities
1 74029 213 8	NAND13 - Regional Impact Analysis
1 74029 214 6	NAND14 – Aboriginal Consultation in 2004 (proposed)



# 14. APPENDIX C: TOURISM AND RECREATION ATTRACTIONS

## NRMA ATTRACTIONS IN THE NANDEWAR BY TOWN (AUGUST 2003)<sup>64</sup>

Type of Activity	Number
<b>Inverell - Total of 14</b>	
Natural	5
Commercial Tourist	3
Museum	3
Sight Seeing	1
Craft Shop	1
Winery	1
Entertainment	2
Food and Wine	4
Historic Site	1
<b>Tamworth - Total of 15</b>	
Museum	4
Gallery	4
Natural	3
Commercial Tourist	3
Historic Buildings	1

<sup>64</sup> NRMA web site address: <http://www.mynrma.com.au/travel/do/attractions/index.shtml> (collected 08/03)

Type of Activity	Number
<b>Gunnedah – Total of 8</b>	
Museum	3
Natural	1
Gallery	1
Scenic Flight	1
Commercial Tourist	1
Scenic Route	1
<b>Warialda – Total of 4</b>	
Commercial Tourist	1
Natural	1
Museum	1
Historic Buildings	1

**TOURISM NSW ATTRACTIONS IN THE NANDEWAR BY CATEGORY (AUGUST 2003)<sup>65</sup>**

Attraction	Number
Aboriginal and Torres Strait	2
Agriculture and Produce	9
Animal	12
Art	4
Building and Structure	42
Dining/Eating Out	1
Educational	4
Entertainment	2
Food and Wine	4
Historic Site	1
Mining and Industry	6
Museum	11
Natural	31
Park and Garden	3
Relaxation and Well-being	1
Retail	9
Sport and Recreation	2
Visitor Information Centre	4
Total	148

<sup>65</sup> Tourism New South Wales web site address: <http://www.visitnsw.com.au/0500/0505/0505.asp>  
(collected August 2003)



