Social assessment report

Southern Region NSW

A project undertaken as part of the NSW Comprehensive Regional Assessments

February 2000

Social assessment report

Southern Region
New South Wales

A report prepared by
the Joint Commonwealth NSW Regional Forest Agreement Steering Committee
as part of the
NSW Comprehensive Regional Assessments

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EXECUTIVE SUMMARY

The Southern NSW RFA Social Assessment defines the demographic and social characteristics of the region and the communities and people that live in and depend on that region.

The social assessment includes:

- regional analysis of the study area;
- analysis of case study and occupational communities;
- surveys of forest industry managers and workers, forest users, forest-based tourism operators and the general community;
- profiling of social catchments and socio-demographic characteristics of the region; and
- modelling of relative levels of impact of a number of forest use scenarios.

The social assessment process is aimed at determining the level of sensitivity to forest use and management changes at the community or township level.

Communities included in the assessment were selected in consultation with industry and stakeholder groups as communities likely to experience significant social impacts as a result of changes to forest management and land tenure. The communities are Narooma, Batemans Bay, Ulladulla, Wandandian, Tumbarumba and Tumut.

This summary describes the results of a series of projects approved by the NSW Social and Economic Technical Committee, some of which are available separately.

SOCIAL INDICATORS USED IN THE SOCIAL ASSESSMENT

In the initial stages of the development of the assessment framework for the Comprehensive Regional Assessments, the Social Assessment Unit of AFFA together with the CRA Technical Committee, approved a range of social indicators for use in the assessment of impact following the identification of land use options. These indicators included:

- Population changes;
- Economic diversity;
- Employment and labour force;
- Infrastructure and amenity;
- Community vitality;
- Social well being;
- Community resilience;
- Mitigative change factors; and
- Community attitudes.

REGIONAL PROFILE

The Southern region study area covered 27 local Government areas (LGAs) of which 17 were included in the social assessment. These included the Cooma-Monaro, Crookwell, Eurobodalla, Goulburn, Gunning, Holbrook, Kiama, Mulwaree, Oberon, Queanbeyan, Shoalhaven, Snowy River, Tallanganda, Tumbarumba, Tumut, Yarrowlumla and Yass LGAs.

The remaining 10 LGAs (Bega Valley, Bombala, Culcairn, Greater Lithgow, Gundagai, Hume, Shellharbour, Wagga Wagga, Wingecarribee and Wollondilly) were excluded from the study because they were either covered in the Eden RFA, they contained no hardwood forests, or because no major population centres fell within these LGAs within the bounds of the Southern region study area.

In 1996 there were approximately 255 000 persons in the Southern region, with over 60% of the population residing in four LGAs; the Shoalhaven, Eurobodalla, Queanbeyan and Goulburn LGAs. The Shoalhaven LGA contained over 30% of the Southern region population (76 726 persons), more than twice that of Eurobodalla and around three times that of Queanbeyan and Goulburn LGAs. The greatest population change between 1991 and 1996 occurred in the Yarrowlumla LGA, which grew by 14.9%. In this period the Southern region population increased by an average of 8% compared to the NSW growth of only 5%.

The population in the study area is ageing. A number of LGAs had significant populations of persons aged 65 and over. These included Eurobodalla (21.7%), Shoalhaven (17.7%), Kiama (16.8%), Holbrook (15.9%), Crookwell (15.1%) and Tallaganda (14.4%) LGAs.

In 1996 approximately 1921 persons were employed in forestry and related industries (both hardwood and softwood). Employment in the softwood processing industry is increasing, particularly in Tumut and Oberon LGAs.

In 1996 the unemployment rate for the region was 9%, approximately the same as that of NSW. Unemployment decreased by 2% between the 1991and 1996 census periods. Shoalhaven and Eurobodalla LGAs recorded the highest 1996 unemployment rates having rates of 14.43% and 16.29% respectively.

Median weekly personal incomes for persons aged 15 years and over in the region ranged from $228 in Eurobodalla LGA to $506 in Yarrowlumla LGA. The NSW median personal weekly income was $336.

Median weekly household income figures in 1996 reflected differences in median personal weekly incomes, and ranged from $431 in Eurobodalla LGA to $983 in Yarrowlumla LGA.

Public and private health services in the region include nine hospitals, three combined hospitals and health services, two stand-alone health services, three multi-purpose centres, and 13 nursing homes.

Shoalhaven LGA had the highest proportion of persons attending educational institutions at all levels in 1996. Queanbeyan and Snowy River LGAs had the highest proportions of persons attending universities and places of advanced learning. Goulburn and Shoalhaven LGAs had large proportions attending other educational institutions (which include evening classes and special interest classes).

The dominant form of housing tenure in the Southern region in 1996 was home ownership. Home ownership rates ranged from 27% in Queanbeyan LGA to 49% in Crookwell LGA. In the Southern region, home ownership levels were 3% less than in NSW (39%). The highest proportion of dwellings being purchased or rented was in Queanbeyan LGA (59%). The proportion of unoccupied dwellings in the study area at the 1996 census (23%) was almost three times higher than that found in NSW (9%). The number of unoccupied dwellings in the Southern region varied by up to 23%, ranging from 9% of dwellings in Goulburn LGA to 32% of dwellings in Eurobodalla LGA.

Median weekly rental rates ranged between $50 per week in Crookwell LGA and $178 per week in Snowy River LGA. The median weekly rent for the Southern region was $85 per week compared to the NSW figure of $142 per week.

The median monthly loan repayment for the Southern region in 1996 was $906 per month. Median monthly loan repayments ranged from $542 per month in Tumbarumba LGA to $1371 per month in Yarrowlumla LGA. All but one LGA had a median monthly loan repayment lower than that for NSW in 1996 ($906).

CASE STUDY COMMUNITY PROFILES

Described briefly below are the demographic and social characteristic of each case study town assessed as part of the Social Assessment process in June and July 1999.

Narooma community profile

Population 1996	3 389 persons
Population 1991	3 443 persons
Population change	-1.57%.
Median age 1996	48 years
Dependency ratio	47.33%
Unemployment rate 1996	14.30%

- Major industries of employment in Narooma include: retail trade (20%); accommodation, cafes and restaurants (14%); and education (8%).

- Narooma does not have a hospital but is served by Shoalhaven Hospital at Moruya which also provides outreach services. A wide range of community health services are provided in Narooma.
- Narooma has a government high school and primary school and a special unit that assists emotionally disturbed children.
- The community is proud of their clean environment and the beauty of the region.
- The town is experiencing a period of reduced vitality. It has an ageing population with a narrow economic resource base.
- Industry losses over the years include a cannery, sawmills, spot mills and a hospital leading to an overall decline in essential services.
- **At present, there is one hardwood sawmill dependent on hardwood resource from public forests which employs approximately 32 people.**
- **There is also a logging and timber transport contractor located at Dalmeny, who employs approximately 22 workers.**

Summary of sensitivity

- Since the mid 1980s there has been strong development of tourism in the area with an emphasis on whale watching.
- However, there is a lack of job opportunities and future for young people to encourage them to stay in the area.
- There is a perception amongst the community that the town lacks a community spirit and the bonding to be able to create a better future.
- Narooma has a high degree of vulnerability to negative change with a low capacity to respond.

Batemans Bay community profile

Population 1996	9 568 persons
Population 1991	8 320 persons
Population change	15.00%
Median age 1996	42 years
Dependency ratio	45.03%
Unemployment rate 1996	15.30%

- Major industries include retail trade (22%); accommodation, cafes and restaurants (13%); property and business services and manufacturing (equal at 7%).
- **One hardwood sawmill operates in Batemans Bay, approximately 15 timber workers are employed.**

- **Small hardwood mill operates at Termeil, employs approximately 10 timber workers. A smaller hardwood mill located just north of Batemans Bay focuses on hardwood from private property.**
- Community development has included building of Woolworths Supermarket in 1983 and an increase in shops and clubs to cope with community expansion.
- Town expansion continues to attract ex-public servants, early retirees and young families.
- Health services include a 37 bed hospital and a Community Health Service which provides a wide range of services.
- The number of schools in Batemans Bay grew between 1980 and 1988. Batemans Bay area now has 2 secondary schools, 5 primary schools, and an adult education centre.
- Community services are comprehensive and include respite care, children's disability respite, family day care, community transport, supported accommodation and an Aboriginal consultative committee.
- Other services include a library, public hall and community centre, swimming pool, numerous sports grounds and public reserves.
- The community supports the concept of a clean and green environment, and the need for sensitive development.
- Strong development of tourism in the area is well supported by locals.
- The community is proud of their clean environment and the beauty of the region.

Summary of sensitivity

- The town has a relatively broad economic base including tourism and government services, health and retirement services.
- There is a perception that town needs lacks community spirit and bonding to be able to create a better future.
- There is a lack of job opportunities to encourage young people to stay in the area.
- The community is assessed as having low vulnerability and medium community capacity defined by relatively skilled community leadership.

Ulladulla community profile

Population 1996	8 384 persons
Population 1991	7 381 persons
Population change	13.59%.
Median age 1996	42 years
Dependency ratio	45.56%
Unemployment rate 1996	16.30%

- Major industries include retail trade (20%); accommodation, cafes and restaurants (11%); construction and manufacturing (equal at 7%).
- **One hardwood sawmill operates in Milton. Approximately 16 timber workers are employed.**
- **A number of mills, including the Boral, Alan Taylor Mill and Davis & Herbert Mill, have closed in the past 20 years.**
- The demise of the dairy industry as a result of quotas becoming negotiable has had a large impact on the area.
- An influx of retirees has impacted on real estate availability and social balance and, combined with an interest rate drop, has led to a decline in spending power.
- There has been a decline in the availability of health services due to pressures from the ageing population. In turn, this has led to an exodus of people because of a lack of medical services and an inadequate hospital.
- Milton/Ulladulla Council has a vision and structure plan and community consultation has led to a decision to develop a by-pass.
- Major events in the community have included the opening of Coles Supermarket, a leisure centre and a heated pool.
- Major events for young people have included Skate Frenzy, a national skateboarding event, the 'Warped' Tour, bands, BMX and skateboard facilities.

Summary of sensitivity

- The local hardwood mill is a proactive and integrated company with an emphasis on value–adding.
- Visions for tourism are tempered by the limits of infrastructure and concern for sustainability of what is being promoted.
- There is great community concern for the preservation of forestry, beaches and environment.
- The Ulladulla community is assessed as having medium vulnerability and a medium capacity to adapt to change.

Wandandian community profile

Population 1996	309 persons
Population 1991	302 persons
Population change	2.32%.
Median age 1996	38 years
Dependency ratio	31.55%
Unemployment rate 1996	11.80%

- Major industries include retail trade (16%); manufacturing (13%); construction (12%).
- Wandandian is a community with a high cultural attachment to the hardwood industry.
- The annual woodchopping event is held each October long weekend.
- **There is one hardwood sawmill in Wandandian employing 7 people (some private property timber is milled).**
- **Miscellaneous Timber Workers and licensees operate in nearby forests (approximately 20).**
- There has been a downsizing of community services and industry over the past 20 years, including loss of the school, post office, church and Red Cross Branch. No health services are available in the township; people travel to nearby villages or into Nowra for specialist services. Community facilities are minimal and include a hall, tennis court and clubhouse.
- Wandandian has an active Progress Association, Fire Brigade and Sport and Recreation Association. The threatened closure of the fire brigade was successfully overturned due to community lobbying.
- The community is changing to one of commuters and hobby farmers.

Summary of sensitivity

- Wandandian has a high dependence on timber industry expenditure.
- It is a close knit community looking for more jobs and expansion.
- The community fears further quota cuts will cause overall loss of jobs, skills, services and people.
- Wandandian is assessed as having a high level of vulnerability despite strong community unity. The community's capacity to adapt is constrained by size of community and the already reduced service base.

Tumut community profile

Population 1996	5 915 persons
Population 1991	5 955 persons
Population change	-0.67%.
Median age 1996	34 years
Dependency ratio	38.10%
Unemployment rate 1996	8.50%

- Major industries include manufacturing (21%); retail trade (15%); agriculture, forestry and fishing (11%).
- **One hardwood sawmill operates in Tumut employing approximately 29 timber workers.**
- **A smaller mill is located at Adjungbilly employing approximately 13 timber workers.**
- **A number of softwood mills operate in the region, the largest being CSR employing approximately 360 timber workers.**
- **A large harvesting contractor also operates in the area employing approximately 9 timber harvesting workers.**
- Hardwood harvesting and milling is a small sector compared to the vast and increasing pine plantations which provide the town's timber resource base.
- Tumut's economy relies on agricultural and pastoral pursuits. Tourism is gaining importance.
- Tumut still has six banks operating (full branches).
- The proposed Visy Mill is the community's vision of prosperity for the future.
- Health services include 26 bed hospital and multi purpose services. Specialist doctors visit from Wagga Wagga.
- Tumut is a regional centre for learning having a campus of the Riverina Community College and a campus of the Riverina Institute of TAFE (which offers a range of programs including a forest industry training centre). Additionally, Sefton House operates as a private provider of vocational education.
- Tumut has a wide range of emergency and community services.

Summary of sensitivity

- Tumut is a positive, forward thinking community looking forward to a bright future with emerging jobs and opportunities for the next generation.

- The community is assessed as having low vulnerability, medium to low community capacity defined by the continuing high levels of employment and income consistently provided by the softwood sector over many years.

Tumbarumba community profile

Population 1996	1 502 persons
Population 1991	1 548 persons
Population change	-2.97%.
Median age 1996	37 years
Dependency ratio	24.30%
Unemployment rate 1996	7.90%

- Major industries include manufacturing (19%); agriculture, forestry and fishing (14%); retail trade (13%).
- **One hardwood sawmill operates in Laurel Hill where approximately 9–11 timber workers are employed.**
- **A large softwood mill also operates out of Tumbarumba, employing approximately 150 timber workers.**
- **A logging and hauling contractor also operates out of Tumbarumba employing approximately 38 timber workers.**
- Health facilities include a 36 bed incorporating aged care, hostel and nursing home beds. Other services include radiology, a school dental clinic, and a day care centre. Visiting specialists visit the town regularly.
- Educational facilities comprise 1 pre school, 2 primary schools, 1 secondary school and Tumbarumba Technology and Information Centre.
- Community facilities include a library, Council Chambers, a number of churches, a neighbourhood centre and emergency services.
- It is a remote community assisted by the upgrade of a tourist drive.
- The town has many empty shops and reduced main street vitality.

Summary of sensitivity

- Tumbarumba has a high reliance on the timber sector; both hardwood and softwood.
- There is a high degree of community resilience — the community raised money for telecommunications infrastructure, saved the local racecourse and established a hardwood mill co-operative, raising capital in the town. They have plans to include value adding at the mill.
- The community is disappointed with constant loss of services. There is a strong feeling that the Government is encouraging ‘regional’ services at the expense of

'small rural' communities. The community sees Tumbarumba having opportunities in the tourism, timber and wine industries.

- It is a proud community who are united in wanting a future for their youth, however there area currently few opportunities for young people.
- The community is assessed as having high vulnerability to changes in timber allocation and a high capacity to respond.

FOREST-RELATED OCCUPATIONAL COMMUNITIES STUDY

Data was collected from one hundred and forty-two forest-related workers and businesses owners to develop a profile of each occupational community. Three surveys were undertaken to determine demographic and occupational information from defined forest-related occupational groups. These included surveys of:

- forest contractors and forest user businesses (including owners of small mobile and fixed hardwood milling operations, timber hauling and harvesting contractors, sub-contractors and miscellaneous timber operators as well as other forest user businesses such as graziers and seed collectors);
- forest and forest product workers (including employees working in hardwood sawmills, harvesting, hauling and miscellaneous timber operations, other forest user businesses employees); and
- tourism operators and businesses using public forests.

The surveys were the basis for estimating 'occupational' and 'personal' flexibility within and across occupational groups. Based on survey data, forest workers were assessed as having a low degree of personal and occupational flexibility. Characteristics of each survey group were as follows.

Forest workers

Age	65% of respondents were aged between 30 and 58 years
Gender balance	93% of respondents were male
Annual salary	47% earned between 25 000 and $40 000 and 37% earned between $12 000 and $25 000.
Average length of time in the industry	17 years
Aboriginal representation in the sample	7% of respondents identified as Aboriginals or Torres Strait Islanders
Education	More than 80% left school at or before Year 10. 48% had no post school qualifications. Qualifications held were largely timber industry oriented.
Main communities of residence (communities having > 8% of sample)	Tumut (18.3%), Nowra (9.2%), Batemans Bay (9%), Bomaderry (9%)
Dependent children	38% of respondents had dependent children
Home ownership	60% of respondents own their home or are paying off their mortgage.
Family ties	60% of respondents have family living in their area
Assessed degree of overall flexibility	Occupational flexibility — low Personal flexibility — low

Forest contractor and forest user businesses

Characteristics of respondent businesses (main groups only)	Native timber transporting (28%) Graziers (28%) Native sawlog harvesting and sawmilling (22%) Timber processing (22%) Native commercial firewood cutting (18%) Sleeper/fencing timber cutting (18%)
Location of respondent businesses	The majority were located in Nowra (16%), Tumut (10%), Ulladulla (8%) and Batemans Bay (8%).
Employment	90% employed one or more workers, 20% employed two or more workers. Over 50% have employed one or more workers on a part time basis.
Use of sub-contractors	50% have employed a sub-contractor in the last 12 months.
Location of main customers	Nowra, Narooma and Wollongong.
Location of main place where goods and services are obtained	Nowra, Tumut and Batemans Bay

BUSINESS DEPENDENCY ON NATIVE FORESTS (PROPORTION WITHIN AND OUTSIDE SOUTHERN RFA REGION)

(per cent)

	Public native forest users		Private native forest users	
Type of business	From within Southern RFA region	From outside Southern RFA region	From within Southern RFA region	From outside Southern RFA region
Native timber transporting	97	3	100	0
Native sawlog harvesting	100	0	100	0
Native sawmilling/timber processing	90	10	100	0
Cattle grazing	100	0	100	0
Native commercial firewood cutter	100	0	100	0
Sleeper/fencing timber cutter	100	0	100	0
Forestry roading	99	1	100	0
Apiarist	85	15	100	0
House poles/shed poles	93	7	90	10
Plantation timber production	100	0	100	0
Seed collection	20	80	40	60
Wildflower collection/wildflower	80	20	100	0
Sheep grazing	10	90	0	0
Other	93	8	78	23
Total	90	10	90	10

Nowra, Tumut and Batemans Bay were the most commonly mentioned towns from which business purchased good and services. The following percentages of respondents went to Nowra, Tumut and Batemans Bay for the goods listed:

TOWN IN WHICH BUSINESS IS CONDUCTED

(per cent)

Goods/services	Nowra	Tumut	Batemans Bay
Accounting	22	8	2
Legal expenses	22	6	0
Fuel	18	8	2
Freight	10	8	6
Office supplies	18	14	2
Advertising and marketing	14	12	2
Banking	24	10	6
Printing	16	8	2
Machinery/equipment	20	10	6
Vehicles	20	10	6
Building and office	10	10	2
Machinery/plant/equipment	12	4	2
Vehicles	16	8	2
Computing and office equipment	16	6	4
Extensions/alterations to buildings	0	6	2
New building/land purchases	0	6	2
Council rates	12	14	2
Royalties and related levies	0	0	36
Harvesting and log cartage	8	2	6
Permit fees	2	4	38
Water	2	2	0
Electricity	2	0	0

COMMUNITY ATTITUDES SURVEY

Three hundred and eighty domestic telephone numbers were randomly selected using an electronic White Pages database from the postcodes comprising the Southern CRA region to assess social values relating to forest use. 117 successful interviews were carried out. This was a response rate of just over 30%.

The following are the main responses to questions that explored respondents attitudes to different uses of forested land and the conflict, perceived or actual, between certain uses:

Social issue statement	% agree
• Aboriginal sites of significance should be protected	41
• Environmental protection cannot co-exist with forestry industries	16
• The forestry industry can be economically important for some small communities providing valuable employment, and therefore should be maintained	51
• Australia should draw its timber products from Australian forests rather than overseas forests even if overseas timber products are cheaper	58
• I would like to see more forested land conserved even if it means a loss of income to the state from timber harvesting	32
• Tourism from conserving forested areas may be able to generate regional income and employment offsetting possible losses in the timber industry	55
• Timber harvesting in native forests may have an adverse impact on the abundance of native plants and animals. If the environmental costs are too high, it might be better to compromise on forestry activities	76
• The current management of forested land is ecologically sustainable	33.9
• Forestry jobs may be lost to create new environmental reserves. This may then affect some small communities adversely, by reducing their access to basic services. The social costs are too high — it may be better to compromise on creating environmental reserves than reduce people's access to basic services	53.5
• Some forested areas are rarely visited by or used by people. It is personally satisfying to know that there is forested land that is 'untouched' by humans even if it is never used for recreational or economic activity.	78.3

SOCIAL CATCHMENTS AND SOCIO-DEMOGRAHIC PROFILES FOR THE SOUTHERN FOREST CRA/RFA REGION

This study was undertaken by Environment and Behaviour Consultants P/L in 1999 to identify social catchments within the Southern region, the demographic profiles of each catchment, community sensitivity to change indicators and profiles of the number of forest and timber industry employees within each social catchment.

The social catchments which formed the basis of this study represented geographically defined areas within the Southern region that contained a network of interdependent towns that were likely to be related in terms of industry location, employee residential locations, local industry expenditure, employee household expenditure and the use of social infrastructure services by industry employees. These catchments were defined as areas including communities and townships

which are inter-dependent and inter-related. These were identified using a gravity modelling technique. In addition to describing specific socio-demographic profiles for each sub-region and social catchment, core indicators of community sensitivity to change or vulnerability were also identified. These indicators included unemployment and income, education and occupation, family structure and housing, and age dependency.

The study showed that across all four community sensitivity indices, the social catchments of Ulladulla, Narooma and Nowra were the three catchments which were consistently above average. At the same time these social catchments had moderate levels of employment in forest and timber industries when compared to other catchments. The Tumut and Bathurst catchments had the highest employment in forest and timber industries but, with the exception of the index of education and occupation, had either average or below average scores in relation to the community sensitivity indexes.

MODELLING

A consultancy was carried out by Environmetrics P/L to provide a visual display of both baseline conditions and relative levels of impact of forest use options on the case study communities.

The model applied uses both quantitative and qualitative factors to indicate the likely impacts on a community. The key variable applied from the forest use options is changes in the number of direct timber industry jobs in those communities.

The following figure sets out the ‘baseline assessment’ of the comparative well-being of the case study communities.

FIGURE 0.1: COMPARATIVE COMMUNITY WELL-BEING—SOUTHERN REGION, 45 000 M^3

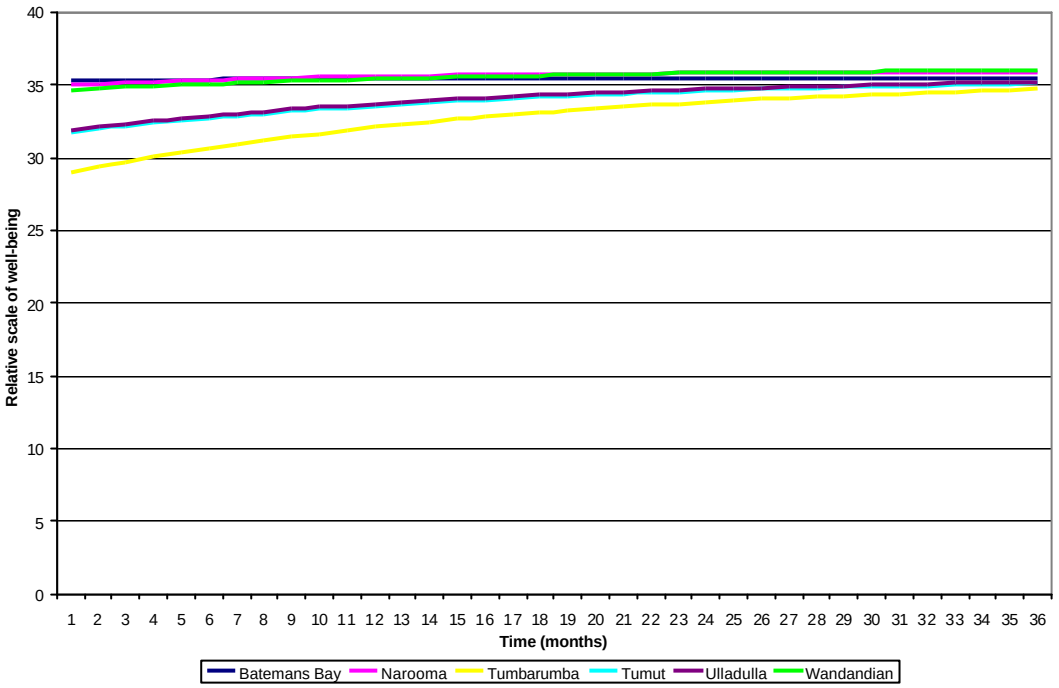

Figure 0.1 represents a 'baseline' assessment of the comparative well-being of the case study communities assessed during the comprehensive regional assessment. Qualitative data was collected at community workshops in each of the towns, and validated by secondary data. This data was analysed to present a visual display of two important characteristics; the current levels of cumulative stress being experienced by communities, for whatever reason; the levels of adaptability or resilience assessed in that community. These are qualitative indicators essential for social impact assessment.

In the graph above, for example, the entry point of each towns history (time = 1) represents current assessed level of 'community stress'. Batemans Bay is assessed as having a recent low level of cumulative stress and a moderate capacity to adapt to change. Tumbarumba, on the other hand, has a high level of cumulative stress and a high level of community resilience.

These figures have been projected over a three year period, without any 'trigger' for change to produce this 'baseline' graph. Such triggers, in social impact terms, may range from drought, closure of a bank or a development proposal. As a result of various forest use options, the trigger may be specific loss/gain in forest industry employment in a community.

These variations in employment predicted at the local level will be fed into the modelling tool to depict a predicted relative severity of impact (either positive or negative) taking into account a community's specific resilience. All other trends and contexts have been taken into account in the construction of the model and are assumed constant for the projected period of three years.

1. INTRODUCTION

1.1 SOCIAL ASSESSMENT WITHIN THE REGIONAL FOREST AGREEMENT PROCESS

The two broad objectives defined in the National Forest Policy Statement are:

- a comprehensive and adequate reserve system (CAR)
- an efficient, viable and competitive timber industry.

In achieving these two objectives for the Southern region there may be social consequences for communities. The social consequences, both positive and negative, of policy changes to forest use and management in the Southern RFA region will largely occur at the individual and community level, while the policy settings will be driven by state and national objectives.

The social assessment work was negotiated through an Economic and Social Technical Committee (ESTC) which included Commonwealth and State agencies and stakeholder groups representing the interests of conservationists, industry and union members.

1.1.1 Social impact assessment

Social Impact Assessment follows a comprehensive social assessment at a community level. Social Impact Assessment aims to:

- address some of the equity issues involved in achieving the objectives of the National Forest Policy Statement
- highlight any undesirable or avoidable consequences in meeting these objectives
- model probable community responses to various change options.

While the objectives of the CAR system are driven by the conservation criteria and have defined targets, social and economic objectives are not readily quantifiable. However, within the RFA process, social assessment will identify communities which may experience significant social consequences and suggest where these may be enhanced or minimised.

1.1.2 Social objectives

Social objectives within the RFA process are defined at the community level. These are to:

- minimise social dislocation
- minimise social disadvantage
- minimise social costs arising from any land use changes
- enhance community vitality and social cohesion
- maximise employment opportunities and skills development within communities
- identify previous and proposed community mitigation measures

A broad description of some of the key identifiers is provided below.

Social dislocation

Social dislocation may occur at the community level when a significant proportion of the population relocates and/or changes their employment status. Measures include: demographic changes, changes in age structure, and/or changes in the proportions of dependant young and older people.

Social disadvantage

Social disadvantage may occur at the community level with land use changes. Measures include: unemployment levels, levels of participation in the workforce, relative median incomes, and proportions of single parent and/or absent parent families.

Social costs

Social costs arising from land use changes such as welfare payments, increases in health requirements, distances to travel to attend schools and access to community services may affect a community's viability. Measures include: the availability and extent of transport facilities, education facilities, and health facilities and other community services.

Community vitality and social cohesion

The quality of life for communities will be affected by the extent and type of cumulative changes that have occurred and the ability of communities to adapt to those changes. Measures include: adequate leadership, and optimism about alternative visions for social and economic development.

Employment opportunities

The availability/accessibility of employment and training opportunities will affect communities which are more sensitive than others to hardwood resource supply issues.

1.1.3 Social indicators

The key indicators outlined in the table following are based upon outcomes from a Social Indicators Workshop that were agreed to at a Montreal Process Conference held in Tasmania in November 1996. National stakeholders were involved in workshops at this conference.

The table incorporates the social indicators developed at the workshop adapting them to maximise information gathered from the approved social assessment data collection projects.

The methods used in these projects provide for the collection of both quantitative and qualitative data. This was obtained through published documents, surveys, and community workshops, and through networking widely across the region. The data has been collected with scientific rigour and cross-checked to ensure validity, and will be used at the integration phase to identify and describe sensitive communities, and for predicting impacts from a number of resource scenarios.

TABLE 1.1: SOCIAL INDICATORS

Key indicator	Sub-indicators	Measures	Source
Socio-demographic structure of communities	Age structure of communities and region	% of population per age category	ABS
	Level of household income	Annual family and household income	ABS
	Mobility	Usual residence 1991 and 1996 Nature of occupancy Percentage of population per age category	ABS ABS ABS
Economic structure of communities	Locational dependence on forest-based industries	Level of dependence by location No. of employees	ABS Surveys Councils
Employment and labour force characteristics	Unemployment levels	Unemployment levels 1991 and 1996 and State averages	ABS
	Industry diversity	Employment by industry	ABS
	Occupational community characteristics	Percentage of labour force in forest industries Age Length of residence No. of school-age children Income Place of residence	ABS/Surveys Surveys Surveys Surveys Surveys Surveys
Community services and infrastructure	Current service provision and trends across key service areas Identification of any threshold services Lobbying capacity	No. and type of health services No. of schools Level of past activity on local service issues	Health Dept Education Dept Network
Additional qualitative stressors	Identification of cumulative change over past 15 years at 2 year intervals Service closures	Compilation of qualitative data No. and range of services lost Significant industry trends Rural trends	Lit review Workshops/Reports Councils/ABARE/ ABS
Community vitality	Community events Past management of change Occupational communities participation Income levels	No. of annual events Analysis of qualitative data Average household income	Workshops/Council Network/Council Surveys/ABS
Social well-being	Attachment to place (occupational community)	No. of family members in area Length of family residence in area Reasons for living there	Surveys Surveys Surveys/Workshops
Community attitudes	Sense of community Social values of forests Attitudes to policy proposals	Occupational community responses General community responses Regional community attitudes Stakeholder attitudes	Surveys/Workshops Surveys Community attitudes survey Regional Forest Forums

2. METHODOLOGIES

A multiple method approach was taken to the NSW Southern region social assessment. The research methods applied for each social assessment project are outlined below.

2.1 LITERATURE REVIEW

A significant part of social assessment is the review of past patterns of change within the study region and in forested communities in the region.

The objectives of the literature review were to:

- provide a review of national and international studies relating to social impacts on resource-based communities;
- provide a review of social impact studies conducted within the Southern CRA/RFA region; and
- provide a review of other literature pertaining to social and demographic changes in the region and within case study communities.

Primarily this was achieved through researching previously published material to provide insights into the trends and responses of communities within the study region. The majority of this information was collected through desktop research.

2.2 REGIONAL PROFILE

The objectives of the regional profile were to:

- provide a snapshot of the socio-demographic and geographic features of each local government area studied as part of the social assessment; and
- undertake a comparative analysis of the demographic characteristics of the local government areas within the Southern region.

Desktop research, use of statistics from the Australian Bureau of Statistics (ABS) and liaison with local and State government officers provided the basis for the profile. The analysis of demographic statistics was generally limited to the period

1991 to 1996 and included analyses of data on both a regional scale and at the local government area level.

2.3 COMMUNITY CASE STUDIES

Detailed case studies were developed as part of a social values project undertaken in the Southern region.

A variety of methods were used to develop a profile of each case study area. They included:

- an assessment of the social and economic structure of communities;
- an historical assessment of significant events in the community; and
- an outline of community concerns and visions for the future.

The analysis drew upon data collected from workshops, interviews, and participant observation methods. Extensive fieldwork was undertaken by Forest Community Coordinators, Annette Sugden and Anni Chilton.

2.3.1 Criteria for selection of communities

Selection of case study communities was based on the likelihood of significant social impacts resulting from changes to forest management and land tenure and their diversity of size, industries, infrastructure, growth/decline trends, and urban/rural population.

Batemans Bay, Narooma, Ulladulla, Wandandian, Tumut and Tumbarumba, were approved by the NSW Southern Region Economic and Social Technical Committee as case study communities.

2.3.2 Community profiles

Four analyses were used to develop each case study community profile. Included were:

- a brief history of settlement and a summary of major annual events;
- a statistical profile including demographic and key socio-economic data;
- an examination of employment profiles and major industries of employment; and
- a summary of community infrastructure within the communities including health, education, housing, communications and community services facilities.

This process enabled the production of a picture of each community, its diversity and its characteristics.

Demographic and socio-economic data cited in the community profile was largely sourced from the Australian Bureau of Statistics 1991 and 1996 Census of Housing and Population. Historical and community data was generally derived from local government community profiles, information produced by tourism and historical organisations in each community and telephone conversations with community organisations.

2.3.3 Community workshop process

Community workshops were conducted in Batemans Bay, Narooma, Ulladulla, Wandandian, Tumut and Tumbarumba. The workshops were conducted by trained facilitators from the Social Assessment Unit of the Fisheries and Forestry Industries Division of the Department of Agriculture, Fisheries and Forestry Australia (AFFA) in local community venues.

Three facilitators were in attendance at each workshop, one of them in a scribe role to ensure the maximum information was recorded. Information presented in the workshop is included in this report *as it was presented by the community.* This is particularly evident in the writeup for the three scenarios presented in the second half of the workshops where points raised and ranked by the community were left in the form presented and ranked.

Representatives randomly selected from a wide range of community and stakeholder groups were invited to each workshop. These included representatives from:

- Aboriginal communities;
- Apiarists;
- Catchment management;
- Chamber of Commerce;
- Community event organisers;
- Construction, Forestry, Mining and Energy Union;
- Local Council staff;
- Education;
- Elected representatives;
- Emergency services;
- Farmers;
- Forest Protection Society;
- Health;
- Housing;
- Landcare;
- Logging contractors;
- National Conservation Council;
- National Parks and Wildlife Service;
- Other forest users;
- Post Office/communications;
- Religious groups;
- Sawmills;
- Senior citizens;
- State Forests of NSW;
- Transport;
- Young people.

Participants were asked to focus on a number of questions designed to reflect the characteristics of their community. These questions included:

- What have been the significant events in your community since 1980?

- How did the community manage two of these events (one positive and one negative)?

- How do you feel about your community?; and

- What are your visions for your community?

Participants were also asked to consider the potential negative and positive impacts of three public forested land use scenarios in reference to forest areas deferred from harvesting by the 1996 New South Wales Interim Assessment Process.

The three scenarios were:

- deferred areas remain available for conservation and recreational uses;
- deferred areas remain available for timber and other industry uses;
- 50% of deferred areas remain available for conservation and recreational uses, and 50% of deferred areas remain available for timber and other industry uses.

Reference was made to a map of the Southern region study area where public land uses were depicted, including areas deferred from harvesting under the NSW 1996 Interim Assessment Process.

Following these workshops, telephone calls were made to individuals and/or organisations, where needed, to verify information provided at the workshop.

The outcomes of all workshops were included within each community profile. The resulting outcomes were used to create a profile of each community's coping and adaptive thresholds, and the social well-being of each community. This information was later fed into the modelling process to determine how the community might be affected by various scenarios for forest management and community change.

2.4 PROFILING FOREST COMMUNITIES

The objectives of this project were to survey forest-related industry and user groups for the purposes of:

- linking community dependence to areas of forested land;
- identifying and linking the social values of forests held by these groups;
- establishing the impact felt to date by these groups from changes to forest management.

The surveys developed for each occupational community addressed four main content areas:

- demographic characteristics including age, gender, marital status, number of children and other dependents, and home ownership;
- business/employment characteristics including the nature of employment, age and structure of the workforce, years worked in the industry, experience in other industries, and education/skill level;

- community characteristics including length of residence, attachment to community, and local expenditure;
- attitudes towards the forest debate and perceived social impacts.

Three surveys were undertaken. The first surveyed owners of forest-based businesses (including saw mill owners/managers, logging contractors, transport operators and other forest-based operations such as apiarists and graziers). The second surveyed forest industry workers (including mill employees, bush crews and people working for logging contractors, transport operators and miscellaneous timber workers). The third surveyed those who held a licence to undertake tourism-based activities in State Forests and National Parks.

Profiles of these regional communities were developed based on their response to survey questions.

2.4.1 Sawmills

Initially a NSW State Forest database was used to identify industries in the region economically dependent on the forests. This was extended through liaison with other agencies and industry stakeholders during the 1998 survey period.

Because of the large number of sawmills in the Southern region a census approach was not undertaken. Rather a sampling method based on the location of sawmills within, or close proximity, to case study communities was chosen. This method ensured that those communities potentially most vulnerable to changes to forest management were adequately assessed. Another consideration was the relatively short-time frame for completion of surveys.

Prior to undertaking surveys, support from industry stakeholders was requested and obtained.

Methods used to survey mill employees included face-to-face interviews, leaving surveys at the mill and arranging for them to be returned upon completion, and mailouts.

Agreement to undertake surveys at the mill site was obtained by contacting the owner/manager of the mill prior to surveying to arrange an appropriate time and survey method. All care was taken to ensure that face-to-face surveys did not unduly disrupt production lines.

In the event of mailouts a letter of introduction and explanation of the purpose of surveying and a request to participate in the exercise, was sent to the mill/owner manager.

Prepaid return envelopes were supplied to ensure confidentiality was maintained and to ensure that respondents did not incur any financial cost.

2.4.2 Harvesting and hauling contractors and employees

A database of harvesting and hauling contractors was obtained from State Forests NSW. These businesses were surveyed either through mailouts or face-to-face, with the majority being surveyed through mailouts. This took into account the short time frame for completion of data collection and the difficulty of accessing both the business owners and their workers.

In the event of mailouts, a letter of introduction, explanation of the intent, and request to participate in the exercise accompanied the surveys. Prepaid return envelopes were supplied for each respondent to ensure confidentiality was maintained.

2.4.3 Other forest users

A database of other forest users, including graziers with State Forest leases and apiarists, was obtained from State Forests NSW.

This group was surveyed through mailouts. A covering letter was provided with each mailout explaining the purpose of the survey, and a request to participate in the study. Prepaid return envelopes were supplied for each respondent to ensure confidentiality was maintained.

2.4.4 Tourism

A database for tourist operators, accommodation and other tourist based businesses in the study region was obtained from the NRMA.

This group was surveyed through mailouts. A covering letter explained the purpose of the survey and a request to participate in the study. Prepaid return envelopes were supplied for each respondent to ensure confidentiality was maintained.

2.5 COMMUNITY ATTITUDES TO FOREST IN THE REGION

2.5.1 Questionnaire design

The questionnaire was divided into five sections to investigate the five original aims of the report:

- demographic attributes of the respondents;
- employment details of the respondents;
- respondents opinions towards social and environmental issues;
- respondents current personal uses and desired future uses of forested land; and
- the values respondents invest in forested land.

The questionnaire design consisted of four main phases.

Comments submitted by members of the Social and Economic Technical Committee were collected and a brief literature review was carried out. Basic questions were considered and tested through a focus group interview session. The results of these three procedures were used to draft the base questionnaire which took the consultancy aims as its rationale for including or excluding questions.

The base questionnaire was circulated amongst committee members for review and comments.

A modified questionnaire was designed to incorporate the committee's comments. The modified questionnaire was recirculated amongst the committee and a meeting was held on 15 July 1997 where further changes were made.

The final questionnaire covered standard demographic variables whilst investigating the economic, environmental and social dimensions of people's opinions about forest use and values.

2.5.2 Site selection

Whilst the Southern CRA region overlaps standard geographic units, postcode boundaries were found to be the most accurate method of delineating the Southern region. Whilst there is some overlap with other regions it was not thought that this would alter the results of an attitudinal survey in any significant way.

The postcodes delineating the boundaries of the Southern sample are as follows: 2535–2538, 2540, 2541, 2545, 2446, 2579–2583, 2621, 2622, 2626–2628, 2630, 2631, 2633, 2642, 2653, 2720, 2730, 2787.

Three hundred and eighty domestic telephone numbers were randomly selected using an electronic White Pages database from the postcodes comprising the Southern CRA region. Using 1991 Census data this conformed to approximately one call to every 467 persons living in the Southern CRA region.

2.5.3 Interview procedure

Each interviewer was allocated a list of randomly generated phone numbers which they were to call between 6:00 pm and 9:00 pm on weeknights and between 10:00 am and 9:00 pm on weekends. Phone calls were carried out between 17 July and 2 August 1997. If no-one answered the telephone at the first attempt, the phone number was called two more times with a minimum interval of two hours between the calls. If after the third call no-one answered, the call was considered a rejection.

If an answering machine was operating the interviewer read out a standardised statement informing members of the household about the objectives of the interview and indicated that the household would be called again in the next few days. No more messages were left on subsequent calls and the number was considered a rejection after three calls.

If the call was answered but the respondent did not wish to participate, interviewers asked whether it would be appropriate to call back at another time, or alternatively if

anyone else in the household would be interested in participating. As asking other members of the house to participate potentially compromises the random selection criteria interviewers recorded the number of respondents located through this technique.

The only criteria for successful phone calls was that the respondents be 17 years of age or over. For 'closed' questions interviewers were instructed to indicate on the questionnaire which of the selected options the respondent had chosen. For open-ended questions the interviewer recorded the response of the respondent by entering one of the preselected codes on the questionnaire sheet, or if the response did not fit any of these codes the response was written into the question sheet for later coding and analysis. If the respondent was unwilling to answer any of the questions they were not required or encouraged to do so.

2.5.4 Response rate

Of the 380 phone calls made to the Southern CRA region 117 successful interviews were carried out. This is a response rate of just over 30%. Very few contacts were made with secondary respondents and their responses were not thought to effect the results in any significant way.

2.6 SOCIAL CATCHMENTS AND SOCIO-DEMOGRAPHIC PROFILES

Environment and Behaviour Consultants undertook a consultancy to provide a written report of both baseline conditions and social impacts of a number of forest scenarios on identified social catchments.

The report identifies (a) specific social catchments within the Southern NSW CRA region, (b) the demographic profiles of each social catchment including profiles of the number of forest and timber industry employees within each social catchment (c) indicators of community sensitivity to change for each social catchment The information used in the analysis is based primarily on 1996 census data and information on the location of licensed timber processing industries supplied by NSW State Forests.

Social catchments represent geographically defined areas within the Southern NSW CRA region that contain a network of interdependent towns that are likely to be related in terms of industry location, employee residential locations, local industry expenditure, employee household expenditure and the use of social infrastructure services by industry employees. The social catchment will often include a regional or sub regional centre and many smaller towns and communities which are dependent on these centre for the supply of goods and services to industry and industry employees. The yellow pages directory was used to determine the number of functional units within towns.

Socio-demographic profiles were based on census information (1996) The profiles were selected in order to provide descriptive information about the catchments. These profiles included population size, the number of occupied private dwellings,

occupancy rate, employment in agriculture, forestry and fishing and employment in manufacturing industries. Other profiles were selected on the basis that they provided an indication of advantage or disadvantage within the community, or that they were indicators of community vulnerability or sensitivity to change. Such profiles included age dependency, unemployment rates, workforce participation and family, occupational, income and educational characteristics. The value for each demographic profile was transformed into a standard score using a Z-score transformation, with a mean equal to zero and standard deviation of 1.00.

Primarily, core indicators of community sensitivity to change and vulnerability were identified through previous research based on the clustering of specific demographic profiles. The four distinct indicator groups included (a) Unemployment and Income, (b) Education and Occupation, (c) Family and Housing and (d) Age Dependency. The standard score transformation of each profile within each of the four clusters was summed and averaged providing a single standard score for each of the four community sensitivity indices. Each of the four community sensitivity indices for each social catchment was measured relative to the Southern CRA region and rural NSW. Visual inspection of the bar charts for each sub-region and social catchment showed which of the four indices were below or above the average for each social catchment. This was followed by an analysis of relative impacts of a number of forest management scenarios on identified social catchments.

2.7 MODELLING

Environmetrics Pty Ltd undertook a consultancy to provide a visual display of both baseline conditions and relative levels of impact of a number of forest use scenarios.

Using the preliminary list of social indicators, dynamic indicators of community and individual flexibility, community history and resilience were developed. These dynamic indicators were displayed against the dimension of time.

Survey data collected from forest occupational communities in the social assessment phase was statistically and spatially analysed, primarily referencing residency by township. Data sets for catchment areas were identified in relation to forest use with employment, education, retail use and other infrastructure sectors in case study communities.

The relationship between surveyed and census based employment, education and retail use patterns were used as a basis for analysing the relationship between key community indicators and land use and management options.

Qualitative data obtained from workshop data were given derived numerical values as follows.

- A baseline of community history was derived from a cumulative ranking of significant events recorded from unprompted group recall at the workshops.
- In order to incorporate time and capacities of communities to recover, each year’s accumulated stress variable was given a half life before being

accumulated the next year. A graph of the communities recent history was obtained and the current year's total used in the modelling baseline for the current year.

A community's capacity to adapt to change was also given a derived numerical value. Analysis The community's narrative at the workshop on past management of change was further ranked on the following scales:

- Was the signified event imposed or community initiated (0,1)
- What was the range of interest groups involved in the nominated event (1–5 with 5 being highest ranking)
- Was the event nominated a natural disaster or not (0,1)
- Were the stated objectives of the community response achieved (1–5)

Responses to both positive and negative events were given different values, since some communities may have a greater capacity to cope with a positive event than a negative one. The resulting value represents a communities assessed capacity to adapt to change, or its resilience.

In addition, individual indices of personal and occupational flexibility of the hardwood workforce within case study communities was assessed and given an aggregate community value. This assessed the capacity of the hardwood workforce in a potentially affected community to either relocate or find alternative employment appropriate to skills and experience.

3. LITERATURE REVIEW

3.1 INTRODUCTION

The aim of the literature review in the Southern CRA/RFA region is two-fold. Firstly to scan the literature of the regions, specifically as it links the social conditions of communities to forest use and management over recent history. Secondly, to record as a baseline appropriate detailed social assessments or social impact assessments that have been undertaken within the region. This is the final literature review in a national series of social assessment reports prepared for Regional Forest Agreements throughout Australia.

The Social Assessment Unit has developed a range of indicators that may be used in assessing social impacts on communities against forest use and management options that may be suggested in developing a southern NSW Regional Forest Agreement (see Table 1.1). These indicators have been used to develop themes for the literature review. The themes are rural trends; social studies of forest and land use; specific community data; and regional planning documents**.** An extensive bibliography of social studies has also been compiled and is shown in Sections 3.6 and 3.7.

One of the measures to enhance regional stakeholder participation in the assessment process is the Southern Regional Forest Forum. In one of its initial meetings the combined knowledge of members of this Forum was combined to create a table depicting the history of land use in the region. The results are shown in Table 3.7 at the end of this chapter.

3.2 RURAL TRENDS

3.2.1 General trends

A national study commissioned by the National Farmers Federation identified trends and issues impacting on rural consumers, communities and the rural sector developing a picture of health care, education and banking services in rural communities with populations of 100 000 or less. Data was collected from over 200 providers and consumers in six small rural towns across each State in Australia to

identify the principle issues common to all communities and common between consumers and providers.

Key trends and issues identified were:

- the rationalisation of health care services by governments;
- health care workforce maldistribution and shortages;
- the continuing under-representation of rural people in education outcomes, particularly at post-compulsory levels;
- the rationalisation of banking branch infrastructure; and
- the use by banks and other financial institutions of alternative networks to bank branches.

A set of recommendations was made in respect of each of the services as a suggested approach to bringing about positive change in the delivery of services in communities disadvantaged by distance and remoteness. These address policy, planning and other actions that need to be taken by governments, the banking sector, non-government agencies and rural communities (Harrison, H., February 1997).

3.2.2 Trends in banking

In the late 1990s a study was undertaken to examine the impact of bank closures on rural communities. Towns included in the study were Ashford, Bundarra, Mungindi, Urana and Oaklands in NSW, and Jandowae and Wandoan in Queensland. With the exception of Jandowae which still had one bank branch located in the town, all towns had lost their last bank branch.

The ensuing report found that over recent years the number of bank branches in rural communities declined significantly with approximately one in three major bank branches closing during the 1993–1996 period.

Impacts were identified at individual, business and community level:

- the impacts on individuals were reduced savings, increased size of cash withdrawals, reduced investment income, reduced access to and increased cost of finance, and reduced access to financial planning advice;
- the impacts on business was felt in terms of increase in cheque cashing, loss of cash sales, accumulation of excess cash, delay in deposit of cheques, and increase in bad debts; and
- the impacts on the community occurred in three main ways, financial drain from the community, loss of financial investment, loss of confidence in the community.

The report also found that when a bank leaves a community, it usually leaves behind two classes or resource which are under-utilised at least for a period. These are:

- the trained staff who do not transfer to other banking positions, usually because of family or property commitments in the district, and the bank premises; the skills of these people are not being put to their best use; and

- the security systems, strongrooms, counters and offices suitable for financial institutions are often not able to be exploited by building societies and credit unions when banks close because they conceive that establishment and unit operating costs are too high (Beal, D., & Ralston D, (nd)).

3.3 SOCIAL STUDIES OF FOREST AND LAND USE

The following studies provide a baseline for other social studies of forest and land use.

3.3.1 Adjustment of woodchip licences 1995

In 1995 a study was undertaken to provide an assessment of the social implications of removing certain coupes from woodchip production. The Eden region in NSW, Manjimup in Western Australia, and Tasmania were selected for case studies. The methodology included information from national, state and local government databases that identified employment and socioeconomic status and service provision. Regional development, industry planning (timber and local industries), training and occupational health reports were also sourced. Discussions were conducted with key community representatives, timber workers and their families, local businesses, state industry and union leaders.

It was estimated that 1875 workers would be made redundant from non-release of coupes in the four states (WA, NSW, Victoria and Tasmania) and would represent a loss of approximately $65.5m in wages in one year. Direct and indirect employment losses were estimated to be 868 workers (direct and indirectly employed). The greatest employment impact would occur in Tasmania, which would incur a direct employment loss of 212 workers. The hardest hit would be the logging forestry, sawmilling, pulp and wood products sectors.

The study also found that:

- employment opportunities for displaced workers in all areas were limited and exacerbated by low education and skills levels, and locational issues; and

- timber workers and their families, local businesses, and logging communities were currently experiencing a period of uncertainty and a lack of security from changes to forest management. This was manifesting in low self-esteem, business reluctance to invest, a lack of purpose by both adults and children, and dysfunctional and direction-less communities.

Cumulative impacts identified were a loss of community rental housing, low personal ability to transfer housing investment, high demands on stress counselling and emergency financial relief services, and an inability of small business

(especially logging contractors and vehicle operators) to meet their legal contractual obligations (Department of Primary Industries and Energy, 1995).

3.3.2 Margules report, December 1995

A study undertaken by Margules Groome Poÿry Pty Ltd (MGP), Roy Powell, and David James described the structure and economic impacts of the NSW forest products industry sector. Sectors defined for the study were based on one or more of the following factors: the stage of processing, type of materials processed, and the products produced. The focus was on businesses that processed logs from NSW sources in all areas except the Sydney region where imported (interstate and overseas) timber products are used in the further processing and fabrication sectors in the region dictated a broader approach. The economic impact and dependency of the NSW timber industry was analysed in accordance with the Australian Bureau of Statistics (ABS) statistical divisions (SDs) data, and included the Far West, North Western, Murray, Northern, Mid-North Coast, Murrumbidgee, Central West, South East, Illawarra, Sydney and Hunter regions.

The report documented that there were 20 928 people employed in the timber industry with 8127 of these working in non-metropolitan regions. The direct gross output was $2.1 billion.

Given the scope of the study area, the results of the study are not readily translatable to the current study context. Nevertheless they do provide useful baseline data at the State level.

3.3.3 Interim forest assessment

In June 1995, the NSW government announced a series of forest reforms which included the identification of additional national parks and varying degrees of negative change to wood flows from State Forests to the timber industry. Prior to these changes, a series of assessments were undertaken.

In this section the social and economic studies relevant to the southern CRA study region are analysed in order to establish some baseline analysis to inform the current study. However, direct comparison between data in this report and data being collected as part of the Southern RFA assessments is difficult because of the different boundaries in the interim assessment process (IAP) and the CRA/RFA process. The current study area includes the S1, S2 and Tumut Study areas of the Interim Forest Assessment. Quota mills identified in the S1 and S2 regions during the assessment were Davis and Herbert (Nowra, Batemans Bay and Narooma) Romney Park Sawmill (Ulladulla) D&P Timbers (Wandandian), Tablelands Sawmill (Captains Flat and Cooma) and Gumm Bros (Captains Flat).

In addition to reporting on environmental data were two reports dealing with the anticipated social and economic impacts. The first of these was an socio-economic and regional impact study completed by the Centre for Agricultural and Regional Economics (CARE) in 1996. The CARE report draws on the Margules Study and the areas covered by the South Eastern region, including the Eden Forest

Management Area, section 2 and 3 of S1 and 2 and 3 of S2. Therefore, the report is not transparently comparable with the current study area. In addition much of the employment data includes softwood in the forestry component as contribution to the regional economy.

Table 3.4 shows the location and totals of forestry employment in the South East region. (Employment in the softwood sector is not elaborated).

TABLE 3.4: EMPLOYMENT IN THE SOUTH EAST REGION

Item	Employment
Forestry	296
Logging	312
Hardwood mill (State forest)	551
Total	1160

Source: CARE Report 1996, Table 7.1.

If one were to subtract the identified employment from the Bega Valley and Bombala Shires (ie the Eden Forest Management Area) the following figures would be derived as an estimate of totals for 1996 prior to the interim forest assessment.

Hardwood mill (State forest) 551 – 189 + 363

No comparable figures are given for forestry and logging, so it is unclear whether they were taken into account when the final impact figures were derived.

The predicted analysis of impact of a 30% reduction in wood flow was as follows in the local government areas (LGA) of the current study area where hardwood timber workers were resident:

TABLE 3.5: PREDICTED IMPACTS BY SAWMILL RESIDENCE OF 30 PER CENT IAP REDUCTION

LGA	Sawmill employees resident	Predicted direct impact of 30% reduction in quota wood flow
Tallaganda	10	2
Yarrowlumla	12	
Mulwaree	3	
Eurobodalla	91	21
Snowy River	3	
Cooma	21	8
Total	140	31

Source: CARE 1996, excerpt from Table 7.4.

In order to get a pre IAP estimate that included sawmill, forestry and harvesting it would be necessary to add the figures for the Tumut IAP region. The above table, however, clearly identifies Eurobodalla as the LGA with the greatest concentration of hardwood derived employment in the current Southern CRA region.

Analysis of predicted impacts

As noted above the ability to compare details of employment changes as a result of recent forest policy decisions is hampered by the lack of a consistent boundary for study areas.

State Forests NSW are now reporting to a series of indicators that should enable comparison between 1997–98 and future years following the signing of a Regional Forest Agreement.

Table 3.6 shows the figures for the South Coast State Forest region 1997–98

TABLE 3.6: EMPLOYMENT FOR THE SOUTH COAST STATE FOREST REGION, 1997–98

Industry	Total industry employment	State Forest related employment
Forestry		
Growing/managing	56	51.3
Harvesting/haulage	49	42
Primary processing	185	158.4
Subtotal	290	251.7
Apiary	45	45
Grazing	0	0
Ecotourism	8	8
Other	1	1

3.3.4 Visy pulp and paper mill

In February 1998 a social impact assessment report was prepared for Nolan-Itu-Pty Ltd on the proposed Kraft pulp and paper mill in Tumut.

In addition to developing a social profile of the area, this study documented potential positive and negative social. It also identified some mitigative strategies to minimise any potential negative social and environmental impacts.

Potential social effects of the VISY pulp and paper mill during construction includes:

- a temporary boost to employment of up to 400 jobs with approximately half being sourced locally and about half from outside the region;
- some 145 direct jobs in the Tumut-Adelong region with approximately 70% being sourced locally;
- the absorption of some of the job losses created by the restructuring of CSR Wood Panels;
- flow-on effects and additional jobs likely to be created in other sectors of industry, and some 50% or between 176 and 267 jobs likely to be filled by local labour marker participants; and

- assist in redressing the unemployment rate — particularly in the younger age group and in the male labour force.

Positive impacts were also identified in the areas of education and training, population growth, social linkages and patterns.

Potential negative social impacts included an increase in ambient noise levels that could annoy some residents, an increase in housing demands that could strain the existing supply, and community conflict related to cultural change.

The only long-term impacts on the quality of the environment were related to traffic. These were:

- a change in traffic conditions may reduce the area's attractiveness as a destination for recreation and tourism activities; and

- the change in traffic conditions may reduce the communities' level of satisfaction with the quality of their living environment and may affect behavioural patterns and access to facilities and services.

Mitigative measures included an environmental plan that addresses farm management as well as air quality, noise emissions, water quality in streams etc. Other strategies included communication and education, the establishment of a community liaison committee, investigation of alternative accommodation and the provision of facilities, particularly accommodation for the incoming construction and operational workers.

3.3.5 Apiary report

A report on apiary for the Southern RFA region prepared for the Resource and Conservation Assessment Council found that the southern apiary industry is located in a major beekeeping and honey production area. This area is a reliable and valuable overwintering area, and is a useful drought reserve for southern NSW and interstate beekeepers. The industry is comprised of mobile, local and other NSW and interstate beekeepers, is eucalypt based, and is dominated by apiarists who rely on beekeeping as their primary source of income. It is managed on a family basis with apiarists relying on learned skills rather than formal education and make a modest income relying on infrequent good years to replace capital and equipment. Conclusions in the report were that there were limited opportunities for the southern apiary industry to locate to alternative areas, and loss of access to the region would impact on the immediate viability of a large number of apiarists (July 1998).

3.4 SPECIFIC COMMUNITY DATA

3.4.1 Narooma

A social impact assessment was commissioned primarily to approve a social impact assessment methodology for the CRA was undertaken during the IAP. The methodology was developed from a rigorous peer review follow publication of the draft report. Narooma was one of the five communities selected as a case study community to pilot the methodology.

Key finding from the Narooma study obtained from 1988 and 1991 Census data, and from community workshops and from conversations with local business and organisation representatives during 1996 included:

- in 1991 Narooma's population was 4181 (an increase of 124 since 1988), unemployment rates were 16.7% (an increase of 3.9% since 1988), and over 40% of the population was over the age of 55;

- Narooma was showing warning signs of social fragmentation. The density of acquaintanceship and family networks was high amongst families that had been in the area for a long time, but this represented only half of the population. There were limited recreational opportunities for the young, and community perception that was an alcohol problem in Narooma.

The study assessed Narooma capacity to adapt to change as limited. Past crisis management indicated that the town had a limited capacity for community leadership and coordinated action. In addition the community was experiencing a sense of apathy, frustration, powerlessness and isolation, and felt excluded from urban planning, tourist development, and planning for the timber industry. (Manidis Roberts Consultants, June 1996).

3.4.2 Tumut

A Vision 2020 document prepared by the Tumut Shire was developed that set out the objectives, strategies, and key result areas and actions for long-term growth of the Shire. National, State, sub-regional and local economic tools for achieving long-term growth were identified. Special consideration was given to the Visy Pulp and Paper mill, promoting/marketing the horticulture/viticulture industry based on regional brands including 'Mountain Maid', 'Batlow', and 'Riverina Naturally', and regional tourism strategies aimed at ACT/Snowy Mountains Tourism, Edu-Tourism/Eco-Tourism, and Indigenous Tourism. The development of a social plan was identified as a critical need. This would be linked to the economic plan and become the Council's Community Plan (Tumut Shire Council, (1998).

3.5 REGIONAL PLANNING DOCUMENTS

3.5.1 Regional needs analysis (ACT and sub-region)

A regional needs analysis (RNA) was undertaken as part of the development work associated with the preparation of the Community Planning Framework for the ACT and Sub-region. This updated a draft RNA completed in November 1996 that represented a snapshot of twelve main human service delivery programs, their target populations, performance indicators and related planning issues.

The report presented a regional needs assessment for the ACT and Sub-region and included the local government areas of Yass, Yarrowlumla, Queanbeyan, Gunning and parts of Cooma-Monaro. The methodology included desktop studies, socioeconomic and demographic analysis based on available qualitative data, current demand and service delivery data, discussions with government, non-government and community representatives, and a series of public consultations.

The analysis focused on describing the current environment and the provision advice and direction for developing the Regional Community Planning framework. Key areas included childcare, community safety, services for people with disabilities, services for older people, education and training, family support, health services, housing, recreation and sport, and transport (S & S Consultants and FOCUS, 1998).

3.5.2 Draft alpine regional strategy

This State planning document notes the shift over recent years in forests, to a situation where one third of the region is now conserved in national parks. The Alpine region includes the local government areas of Bombala, Cooma-Monaro, Snowy River, Tumut and Tumbarumba along with Kosciusko National Park and is a significant contributor to the State's economy through tourism, primary industry, water and nature conservation.

The document sets out a range of objectives, policies and actions to strengthen the environmental, economic and social well-being of the region taking into account a number of existing public and private sector initiatives currently being implemented. The preparation of a plantation strategy for Tumut, Tumbarumba and Bombala was perceived to be important for providing the opportunity for a strong and viable plantation and farm forestry industry for these areas. Support for Cooma as a regional centre, Jindabyne as a tourist centre, Bombala and Tumbarumba as timber, agricultural, and emerging tourism towns and Tumut as a regional service centre and timber and agricultural centre were also considered to be important. Other opportunities included the development of nature-based tourism (including fishing), seeking out new and valued adding options for agriculture, both through export and for supplying local tourist markets (Department of Urban Affairs and Planning, 1998).

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3.7 ANNOTATED BIBLIOGRAPHY

Cocks, K., Ive, K., and Clark, J., Forest Issues, Processes and Tools for Inventory, Evaluation and Mediation and Allocation: report on a case-study of the Batemans Bay area, New South Wales, Australia, CSIRO Division of Wildlife and Ecology in collaboration with Division of Forestry and Forest Products.

This document reports an exercise to integrate results from several CSIRO research programs into SIRO-MED, an issue-orientated, value-sensitive prototype if a mediation support system for people involved in planning the use of large areas of native forest. It is a revised version of the briefing notes provided to participants at a workshop held to trial and demonstrate SIRO-MED in November 1990.

Dwyer Leslie Pty Ltd in association with Corporate Impacts Pty Ltd and Dr. R. Powell, (1991) Oberon: Rural Community Development Study, Year Two Report, Forestry Commission of New South Wales.

This paper represents the second phase of a three stage project. It monitored, studied, and analysed in quantitative terms, the sociological, economic and commercial growth impacts of a major industrial development on a country town and dependent rural community in New South Wales. Regional ramifications were also included. A range of economic and social impacts was identified.

Eurobodalla Shire Council, 1996, Outcome of Eurobodalla Economic Development Meeting Held on Thursday 16 May 1996 at Narooma with guest speaker Peter Kenyon.

This paper represents a short and longer term planning document for the Narooma area. Following an identification of the perceived strengths of the area and its limitations, the paper identifies projects that would be implemented.

Key concerns included poor community vitality characterised by negativity, apathy and community fragmentation. The low employment rate was of major concern as were low/fixed incomes, a lack of infrastructure, and the silting of the inlet.

Initiatives focused on developing the infrastructure, beautification of the town, and improving customer service to assist in expanding the tourism industry, a youth program including educational, sporting, and recreational facilities.

Eurobodalla Shire Council, 1996, Outcome of Eurobodalla Economic Development Meeting Held on Thursday 15 May 1996 at Batemans Bay with guest speaker Peter Kenyon.

This paper represents a short- and long-term planning document for the Batemans Bay area. It identifies the perceived strengths of the area and its limitations, identifies projects to address, undertake and achieve, and prioritises implementation on a merit basis.

Key concerns included poor community vitality and cohesion characterised limited communication within the community, racial intolerance, and lack of infrastructure

and under-capitalisation of natural resources in the area. Other key concerns were a lack of youth employment opportunities and people on fixed or low incomes.

Initiatives focused on developing community infrastructure and improving customer service to encourage tourism, festival programs, capitalising on horticultural opportunities, strong leadership and improving community relations

Kinhill Engineers Pty Ltd, June 1993, Wet Tropics of Queensland Structural Adjustment Package: Program Evaluation, Final Report, Department of the Environment, Sport and Territories

This study assessed the efficiency and effectiveness of Structural Adjustment Package (SAP) as an integrated regional restructuring program in mitigating the impacts of the cessation of commercial forestry operations.

Lane, R., May 1995, Local Environmental Knowledge and Perspectives on Change: A Case Study in the Tumut Region of New South Wales, Thesis submitted for the Degree of Master of Arts in the Department of Geography, The Faculties, Australian National University.

This document demonstrates the value of bringing together local knowledge and perspectives on change with professional knowledge. The characteristics of the local environmental knowledge is explored and analysed in order to understand to construct a more detailed picture of how a particular region has changed over time, and how this knowledge may be tapped by new land managers.

Gibbs, D., March 1992, Promises and Realities: Political Decisions Affecting the Timber Industry — A Case Study of Far North Coast Experience Following the Rainforest Policy Decision of 1982, Forest Products Association Ltd, Darlinghurst, NSW

This paper reported on a study that examined some of the economic effects of certain political decisions made relating to land use in New South Wales State Forests. These economic effects are described in terms of changes experienced by the timber industry of the far North Coast of NSW and by the surrounding region as a result of the 'Rainforest Decision' (NSW Govt. 1982. The direct effects of this decision on levels of activity in the industry and the resultant impacts on the socio-economic environment of the region are assessed.

NSW Forest Products Association, November 1999, The NSW Native Forest Industry, Sydney

This paper is a submission to the Regional Forest Agreement (RFA) Process for the Southern NSW RFA region. It outlines the contribution of the timber industry at national and state levels, describes the current industry in NSW, regional development in NSW, and the timber industry in Southern Region. Significant economic impacts are predicted from the continuation of the current resource levels. A model for the Southern RFA is provided based on an expanded reserve system in the native forests in the region, incentives for investment in the hardwood industry, increased levels of value-added processing, and of economic activity for the region, and increased output and employment levels for the regional community.

Lugg A 1998 Social Impacts on a dependent rural community: bombshell or blessing? Australian Forestry, Volume: 61, Number 3, pp 173 –184, The Journal of the Institute of Foresters of Australia.

The small rural community of Grevillia in Northern NSW was studied to measure the social effects of a Government policy that resulted in closure of the local Munro & Lever sawmill. The study examined the impacts of the 'Rainforest Policy' on fifteen social variables to determine whether the community of Grevillia and mill employees did experience significant and negative social effects. Seven of the fifteen variables indicated that detrimental effects did occur. The other eight variables showed either an insignificant impact or were not conclusive. The study also found that social impacts due to structural adjustments at the Grevillia sawmill would have occurred irrespective of the Rainforest Policy. The Policy did, however, bring about immediate impacts on the community and workers and exacerbated the uncertainty in the timber industry. Government responsibility to mitigate the negative social consequences of intervention was discussed. The study concluded that both the Commonwealth and State Governments were obliged by international agreements and the National Forest Policy to assist affected businesses and individuals where intervention withdraws substantial areas of commercial forest as a result of the creation of new conservation reserves.

State Forests of NSW South Wales, Southern Region, December 1995, Environmental Impact Statement: Proposed Forestry Operations in the Queanbeyan and Badja Management Areas, Sydney, NSW.

This EIS assessed the region as not particularly dependent on the timber industry and unlikely to incur significant social impacts from a reduction in timber resource. It was estimated that communities such as Captains Flat (which had a current unemployment rate of 21%) and Braidwood would be more likely to be impacted than Bungendore and Queanbeyan. It was also estimated that there might be significant impacts on the labour force that could lead to migration from the area or increased unemployment if new jobs cannot be created or if people elect to remain in the area and unemployed. This might have a flow one effect and result in a reduce level of service provision.

Chapman, D., 1995, Ecotourism in State Forests, State Forests of New South Wales and The University of Sydney.

This publication represents the culmination of a three-phase program of research into the nature of recreation forestlands, with each successive phase taking a finer focus. The three phases consisted of a) a broad-brush approach to understanding the nature of outdoor recreation in bushland in eastern Australia generally, without regard to tenure, b) a program aimed specifically at understanding the nature of ecotourism in the State Forests of New South Wales. Results form the three phases are reports in the three central chapters of this work, viz.,

a) recreational use of bushland in eastern Australia — Chapter 2,
b) recreational use of State Forests of New South Wales — Chapter 3, and
c) ecotourism in State Forests of New South Wales — Chapter 4.

The research program was directed at providing information to support the management of the forest estate, and the final chapter is concerned with drawing conclusions to that end.

Forestry Commission of New South Wales, April 1983, Environmental Impact Statement, Sydney, NSW

This report examines the proposed logging operations and associated forest operations in the Wandella –Dampier which comprised all of Wandellla State Forest No. 1008 and the western half of Dampier State Forest No. 926. This area was also known as the Foothills Working Circle of Narooma Management Arena and covered 48 920 ha. No social impacts were identified.

Swan, H., (nd), Tumut Shire Council Social Plan, Tumut Shire Council

The Tumut Shire Council initiated the development of their first Social Plan as a response to changes to the NSW Local Government Act. The Plan includes demographic data and a human needs assessment. A range of community wide issues was identified and a range of recommendations made relating to improving and maintaining community vitality, improved social and economic equity across the community, and facilitating cooperative action between the three spheres of government, the community, the private sector, and the community

Tracey, J.L., August 1995, Coping with insecurity: Family firms in New South Wales Logging Industry, A thesis submitted for the degree of Doctor of Philosophy of the Australian National University.

This study combines a detailed examination of logging firms with an analysis of how they respond to the insecurities and livelihood problems that confront them. It argues that only by achieving the integration of the relations of production with those of family and gender can this be done. The analytical framework is informed by political economy and feminist developments in social theory of family and work. The relations of family and gender are explored and ideological dimensions are integrated into the overall analysis. Participant observation and interviewing are used to explore the reality of the owner's lives and to find out what it means to be a 'logging contractor' and a 'logging contractor's wife'. The study found that gender and family are defining features of the labour process. Women play an important role which varies according to the type of firm. Notions of family and kinship shape employment relations between employers and workers in complex, informal and negotiated ways. The major sources of insecurity and uncertainty for logging firms and their families are the flexible contract system in the timber industry and the environmental movement's anti-logging campaigns. The cumulative business, family and personal effects of these are discussed.

DS & S Consultants, October 1998, ACT & Sub-Regional Community Planning Framework, ACT

Professional Engineering Service Pty Ltd, (nd), Economic comparison of timber transport routes from Shelley/Koetong to Tumbarumba, Wagga Wagga, NSW

The analysis in this report extends the comments on economic viability of road improvement works offered in the 1995–96 TIRES report prepared by PES for Softwood Industries North East and the 1995 update of the South West Slopes of NSW Timber Haulage Study prepared by PES for the Riverina and Murray Regional Development Boards.

Tumut Shire Council, (nd), Vision — 2020: Economic Development in the Tumut Shire, A Community Focus, The Next Step Business Group, Wagga Wagga, NSW.

This planning document sets goals and outlines activities to improve the quality of life and well being of the community now and in the future. A key objective is the development of new ways of working together that include community management and leadership which is open, inclusive and addresses those issues important to the whole community.

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TABLE 3.7: A SOCIAL HISTORY OF LAND USE IN THE SOUTHERN CRA/RFA REGION — COMPILED BY THE REGIONAL FOREST FORUM

	Pre 1788	1788–1890	1890–1920	1920–1950	1950–1960	1960–1970	1970–1980	1980–1990	1990–1994	1994–1997
Main local events	Aboriginal occupation and management of land.	Gold (Shoalhaven, Adelong, Cooma) Settlement.	Largest mill in Southern Hemisphere at Kioloa with wooden tramlines.	Ninety-nine per cent of land in private tenure now clearcut at least once.	Snowy Mountains Scheme.	Major pine expansion Tumut, Oberon and everywhere.	Fight for the Forests published.	Continuing unresolved disputes about forest use.	EF (IP) Act December 1991 — stop work orders for endangered fauna.	Use of fires a weapon to destroy ecosystems.
Main local events	Tidal wave to 600 m along coast.	Exploration	Three fires over a ten year period totally destroy resource, mills and industry.	Wool price boom.	Diversion of Snowy.	Massive expansion of pine plantations.	Boom in coastal tourism on the South Coast.	Forest conflict.	Citizen peaceful protests against logging on Conjola, Croobyar, Deua, Glenbog, Badja and concern over other spots (Monga, McDonald).	Forest blockade of Parliament 'kick-starts' Regional Forest Agreement project.
Main local events	Sustainable agriculture.	Clearing for grazing.	Use of coastal areas for experimentation of silviculture practices.	Fire in 1939.	Formation of Kosciusko National Park (clearing outside boundaries).	Establishment of NPWS.	Discovery Woodlawn mine, continued exploration - extractive/ industrial minerals.	Expansion of private property plantations.	Resource Assessment Commission into forest and timber results in National Forest Policy all government (later Tasmania).	CSR announces loss of 95 jobs over two year period in Tumut.
Main local events	Settlement by Europeans.	Mining.	Farming along coastal belt and west.	Explosion of rabbit population.	Post-war building expansion — timber demand.	Larger growth in ACT impacting on southern region.	HDA commences operation at Eden.	Grazing to tree farms.	TI(IP) Act — allowing logging without EIS.	Destruction and sabotage of logging equipment in regrowth State Forest by person's yet to be determined.

	Pre 1788	1788–1890	1890–1920	1920–1950	1950–1960	1960–1970	1970–1980	1980–1990	1990–1994	1994–1997
Main local events	Aborigines had very different relationship to their environment and over time adapted to significant environmental changes.	Early settlement and clearing.	Captain's Flat commenced.	Forestry Commission — pine plantations.	Decision to overcut native forest and establish plantations.	Recreation and resources.		Forest conflicts with greens.	Over 1000 arrests of environmentalists in SE NSW.	Local plantation harvest guarantee act (Insecurity Act) INCREASES SOVEREIGN risk in plantation establishment.
Main local events	Full range of bio-physical systems present.	First forestry controls 1870.	Gold.	Canberra opened.						SEPP 46 causes cessation of all/most plantation development in NSW.
Main local events	Evolution of a unique flora and fauna.	Cedar getters move in and destroy a total forest ecosystem.	Sleeper cutting.	Decline in gold mining.						Five million hectares of private land now regrowth forest now ready for harvest IF ALLOWED.
Main local events	Invasion by British colonists.	Land clearing to prove ownership.	Railways.							There are at present 1200 bee sites within the Southern RFA which makes it the largest beekeeping area in Australia.
Main local events	Blaxland Wentworth and Lawson — Blue Mts.									Local pine sawmill announces $0.8 million losses — jobs in jeopardy.
Main local events	Hard hoofed animals clearing of woodland and forest to reproduce England and European landscape.									Captains Flat sawmill closure — jobs lost.
Main local events	Ongoing evolutionary process.									The new South East Forest Alliance formed.
Main external events	Population — crime problems in Europe and economic crisis.	British invasion and mass translocation of existing agriculture system.	Forest reserves created (first big response to clearing).	Growth in Australian building — demand for timber.	Chainsaws and bulldozers arrive.	Commence modern mineral exploration — extractive industries expanding.	Export license controls by Federal Government.	NPWS policy of phasing out beekeeping started 1989 since that time over 2000 beekeeping sites were lost to the industry.	Forest policy development.	NSW Environmental Movement agree to $60 million of environmental trusts to timber industry restructure out of 'high conservation value' forests in ALP platform in NSW.

	Pre 1788	1788–1890	1890–1920	1920–1950	1950–1960	1960–1970	1970–1980	1980–1990	1990–1994	1994–1997
Main external events	European animals and plants introduced.	Shipping.	Ad hoc clearing.	Forestry Commission — pine plantations.	Powered chainsaws developed.	HDA experimental woodchip plant/trial in Eden.	Commonwealth environmental legislation — start of EIS'.	Gold and base metal exploration.	Major new earth science technology to give better value of geology.	CRA process begins in NSW.
Main external events	Introduction of domestic animals (sheep).	Rabbits.	Immigration and increase in settlement rates.	Exploitation of forest reserves at a low level.	Realisation of timber shortage.	HDA opens and mass clear fell begins in Eden.	Some concern over forest losses and rainfall patterns.	Rise of mineral environmental awareness — rehabilitation.	Native Title recognised in 1993 — Mabo decision.	IAP completed.
Main external events	Infrastructure.	Internal combustion engine. Honeybee introduced 1822. For honey production and pollination.		Mechanisation chainsaw, bulldozer.	Pine plantation begins.			Start of decade of Land Care.	RIO — National Biodiversity Strategy — ESD policy.	1996 Federal Government effectively scraps export woodchip limits.
Main external events	Clearing for grazing.	Freehold/leasehold clearcut as a condition of ownership.		A war or two	Rural boom (eg soldier settlement).			Total Catchment Management Act.		New NPs in Eden force SFs to look further north for pulp logs to supply HDA.
Main external events	Aboriginal demise.	Wool price boom.		A Depression.						March 1995 — Carr ALP elected in NSW on platform of 'saving the forests' referred to in victory speech.
Main external events	Mining.	Colonisation and the beginning of European incursion/ownership of land in Australia.		Surge of bushwalking, camping, naturalist 'movement' because it was cheap (during the 1930s recession).						1995 FISAP program — $60m from State, $60m from CW for industry adjustment redundancy, relocation and retraining.
Main external events	Steam engine	Darwinism's contribution to attitudes toward Indigenous peoples.		Post war timber demand boom.						March 1995 — Labor party comes to power in NSW significantly due to public's disapproval of former Government's forest policy.
Main external events	Exploitation of forest reserves using chainsaws, bulldozers.									NPWS Threatened Species Conservation Act Discussion Paper.

	Pre 1788	1788–1890	1890–1920	1920–1950	1950–1960	1960–1970	1970–1980	1980–1990	1990–1994	1994–1997
Main external events	Private property clearing with machinery									Science of feral bee impacts develops — Australian Museum Graham Pike
Trends	Colonisation by UK and others ie France, The Netherlands, Spain etc	War on environment to turn Australia into England rather than living with what is here	High percentage of rural based populations and primary industry	Generations of wealth through the exploitation of natural resources began	Commence national geological mapping	Pine plantations in the Highland had a negative effect on the honey industry — loss of 'bee' land	Start of wood-chipping	Increased input by green movement into politics	Community consultation processes taken on by Government	Federal and Date Governments begin to seriously worry about unemployment trends
Main external events	Introduction of domestic animals (sheep).	Rabbits.	Immigration and increase in settlement rates.	Exploitation of forest reserves at a low level.	Realisation of timber shortage.	HDA opens and mass clear fell begins in Eden.	Some concern over forest losses and rainfall patterns.	Rise of mineral environmental awareness — rehabilitation.	Native Title recognised in 1993 — Mabo decision.	IAP completed.
Trends	Colonialism/ Darwinism/ Elitism	Industrial revolution	Affluence based on exploitation of natural resources and dramatic increases in population — man against nature — the taming of the continent		Massive consumption patterns cause massive decrease in biodiversity	Technological revolution	Rise of Environ-mental concerns	Increased social concerns	Clean green futures — societal view	Urban/rural conflict of land management practices and Government regulations
Trends	Exploitation of resources — natural and human				Soldier settlement		Super-markets increase packaging demands	Small sawmill closures — brought about by large corporations	Peaceful ecological revolution?	Community divided over conservation and employment
Trends	Clear as much as possible				Urban sprawl		Conservation movement gains momentum	Privatisation and downgrading of national infrastructure — user pays concept		Loss of support of traditional ALP votes due to large job losses in timber industry and Carr decisions
Trends	Fire				Mechanisation increased production levels		Growing environmental awareness	Information revolution		
Trends					Post war attitude to pull up economy — develop industries		Increased range of forest uses	Substitution of softwood for hardwood in timber framing. Increased demand for wood products (hardwood, woodchips, housing boom). Community takes increasing interest in forest management Computers begin to demand huge volumes of paper		

4. REGIONAL PROFILE

4.1 BACKGROUND

Project NS 10/ES Post Impact Studies and Regional Profile was undertaken for the joint Commonwealth/State NSW Regional Forest Agreement. This document was released initially as a stand alone report with the objectives of the project being:

- to provide a review of social impact studies conducted in the Southern region;
- to develop a regional profile for the Southern forest region; and
- to address Scoping Agreement Clause 10.

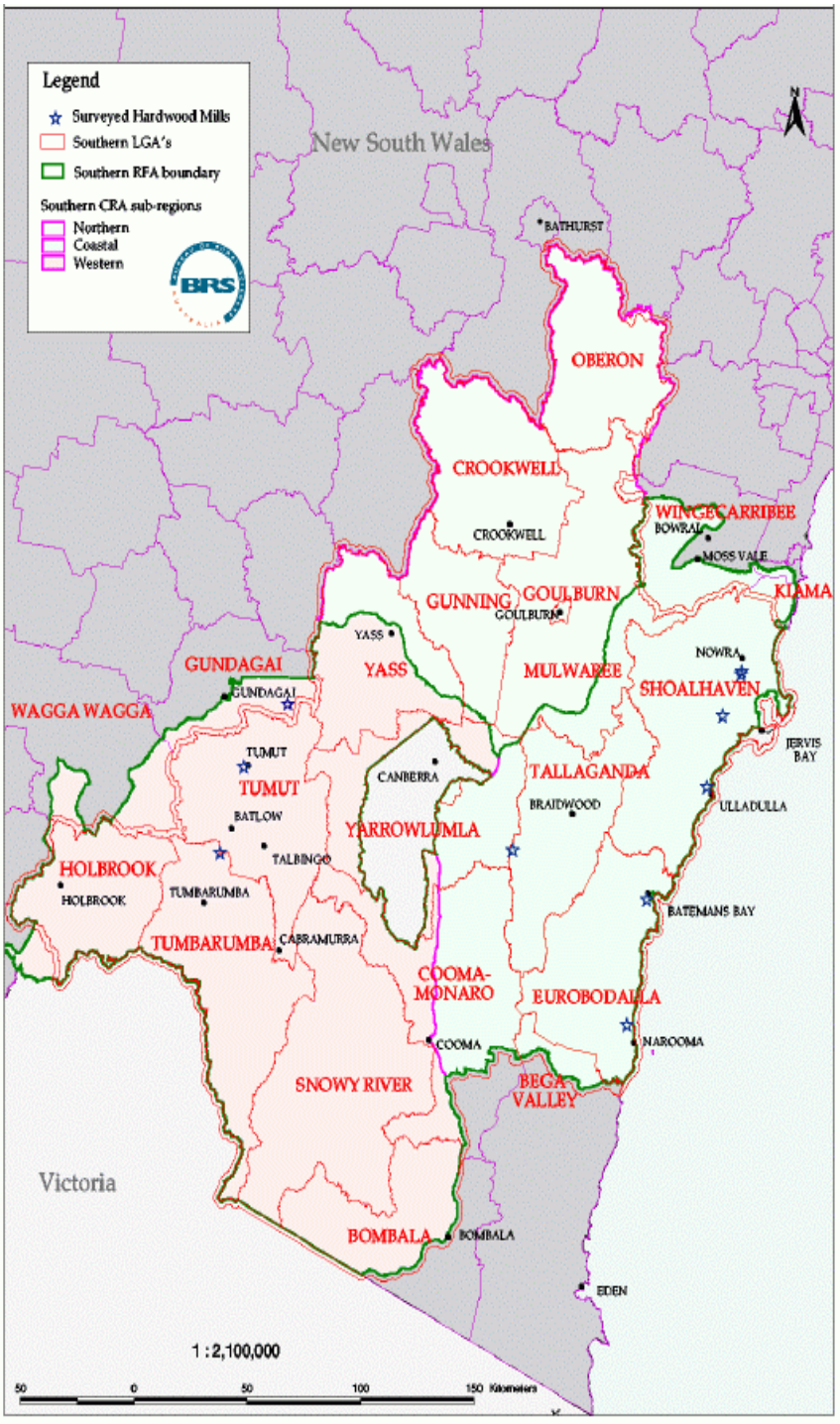
This chapter reflects the regional profile component of this report and includes demographic profiles and analyses of local government areas (LGAs) in the region and a sub-regional analysis. (Map 4.1 illustrates the distribution of the Southern region LGAs and the boundaries for the sub-regions).

The Southern Comprehensive Regional Assessment Area (CRA) of New South Wales extends over twenty-seven Local Government Areas (LGAs). It includes all or part of the Bega Valley, Bombala, Cooma-Monaro, Crookwell, Culcairn, Eurobodalla, Goulburn, Greater Lithgow, Gundagai, Gunning, Holbrook, Hume, Kiama, Mulwaree, Oberon, Queanbeyan, Shellharbour, Shoalhaven, Snowy River, Tallaganda, Tumbarumba, Tumut, Wagga Wagga, Wingecarribee, Wollondilly, Yarrowlumla, and Yass LGAs.

Ten of the above LGAs were **not included** in the regional profile because they were either covered in-depth as part of the South East NSW RFA, the major population centre occurred outside the Southern region, or they contained no hardwood forests and no major centres of population. These LGAs are Bega Valley, Bombala, Culcairn, Greater Lithgow, Gundagai, Hume, Shellharbour, Wagga Wagga, Wingcarribee and Wollondilly.

The Southern region has three distinct forestry regions. The majority of native forest harvesting occurs within the coastal sub region. In the western subregion native forest harvesting occurs in the Tumut and Tumbarumba areas, and in the northern sub region much of the harvesting of native forests occurs on private land.

MAP 4.1: LOCAL GOVERNMENT AREAS WITHIN THE SOUTHERN CRA REGION, NSW



4.2 LGA PROFILES

4.2.1 Cooma-Monaro LGA

In this study all but the south east corner of the LGA is covered [1]

The Cooma–Monaro LGA is located centrally between the South Coast, the Australian Alps and the ACT and covers an area of 4926 square kilometres. In 1996 the population was 9680, a decrease of -0.85 % since 1991 (9763 people).

Major industries are retail trade (16.9%), agriculture, forestry and fishing (10.7%), health and community services (9.2%), property and business services (9.0%) and accommodation, cafes and restaurants (6.7%). The rapidly developing tourist industry focuses on the Australian Alps, trout fishing and the Snowy Mountains Hydro Electricity Scheme.

Public forests in this LGA include Glen Fergus State Forest and part of Badja State Forest. Badja Swamps and Scabby Range Nature Reserve are also included. Wadbilliga National Park and part of Kosciusko National Park also lie within the LGA.

4.2.2 Crookwell LGA

Crookwell LGA is located in the north east of the Southern region CRA study area, and covers an area of 3439 square kilometres. In 1996 the population was 4250, a decrease of –1.02% since 1991 (4294 people).

Crookwell is the major service centre for the LGA. Other communities include Bigga, Binda, Graben Gullen, Laggan and Tuena.

Major industries are agriculture, forestry and fishing (39.9%), retail trade (9.2%), health and community services (7.9%), education (6.7%), and construction (5.0%).

Public forests in this LGA include Razorback Nature Reserve, Keverstone State Forest and Tarlo River National Park.

4.2.3 Eurobodalla LGA

The Eurobodalla LGA is located along the 110 kilometre stretch of the NSW coast between Durras and Wallaga Lake and covers an area of approximately 3400 square kilometres. In 1996 the population was 30 447, an increase 12.26 % since 1991 (27 121 people).

Major urban centres in the LGA include Batemans Bay, Moruya and Narooma.

[1] Although not all of the Cooma Monaro LGA falls within the Southern Region boundary, its major population centre and forested areas do fall within the boundary. Therefore, whole LGA data has been included in this study.

Major industries are retail trade (19.6%), health and community services (11.5%), accommodation, cafes and restaurants (10.7%), construction (8.6%) and education (7.5%). This LGA is a major retirement destination.

Public forests encompass approximately 80% of the area and include Broulee Island Nature Reserve, part of Budawang and Deua National Parks, Eurobodalla National Park and Bodalla Dampier, Wandera, Mogo, Bolaro, Benandarah, Boyne, Buckenbowra, Quart Pot, Mungerarie, Corunna, Moruya and Currowan State Forests.

4.2.4 Goulburn LGA

The Goulburn LGA is completely surrounded by the Mulwarree LGA and lies in the north of the region. Covering only 54.52 square kilometre it is the second smallest LGA in the area. In 1996 the population was 21 293 a decrease of 0.74% since 1991 (21 451 people).

Major industries are retail trade (15.6%), health and community services (13.4%), personal and other services (11.8%), manufacturing (11.1%) and transport and storage (7.1%). The LGA is a principal educational centre in the south east region of NSW.

No public forests are located in this LGA.

4.2.5 Gunning LGA

Gunning LGA is located in the central north of the study area and covers an area of 2210 square kilometres. In 1996 the population of the LGA was 2211 persons, an increase of 4.74% since 1991 (2111 people).

Gunning is the major service centre for the LGA. Other communities include Collector, Dalton, and Gundaroo.

Major industries are agriculture, forestry and fishing (32.3%), government administration and defence (10.5%), property and business services (8.0%), retail trade (6.8%) and health and community services (6.7%).

No public forests are located in this LGA. There are two nature reserves Mundoonen Nature Reserve and Wet Lagoon Reserve. Lake George is a prominent feature of the landscape in this LGA.

4.2.6 Holbrook LGA

Holbrook LGA is located on the south west slopes and plains of NSW covering 2590 square kilometres between Kyema Gap in the North, the Murray River in the south and Yambla Ridge in the West. In 1996 the population was 2529 persons, a decrease of –3.18% since 1991 (2612 people).

Major industries are agriculture, forestry and fishing (36.0%), retail trade (11.9%), health and community services (7.1%), government administration and defence (6.7%) and transport and storage (6.6%).

Public forests in this LGA include Woomargama State Forest and part of Carabost State Forest.

4.2.7 Kiama LGA

Kiama LGA is located in the north east of the study area and is bordered on one side by the sea and on the other side by the rugged Minamurra Rainforest. The LGA covers an area of 25 767 square kilometres. In 1996 the population was 17 706, an increase of 11.30% since 1991 (15 908 people). This LGA had one of the highest growth rates of the LGAs covered in this study.

Kiama is the major service centre in the LGA. Other communities include Jamberoo, Gerringong, and Gerroa.

Major industries are education (13.4%), retail trade (13.2%), health and community services (10.8%), construction (9.8%) and manufacturing (9.6%).

Public forests in this LGA include Budderoo National Park, Minnamurra Rainforest and Barren Ground Nature Reserve.

4.2.8 Mulwaree LGA

Mulwaree LGA is located at the north east of the Southern region study area and encapsulates the Goulburn LGA, covering an area of 5203 square kilometres. In 1996 the population was 5625, an increase of 4.83% since 1991 (5366 people).

This LGA has no large population centre. The seven largest settlements have populations of less than 500. They are Marulan, Marulan South, Lake Bathurst, Bungonia, Tallong, Tarago and Taralga.

The major industries are agriculture, forestry and fishing (22.0%), retail trade (10.9%), health and community services (10.8%), construction (9.8%) and education (6.6%). Goulburn LGA is a major source of employment for residents in this area.

Public forests in this LGA include Bungonia State Recreation Area, part of Morton and Blue Mountains National Parks, Tarlo River National Park and Wingello State Forest. The area is part of the Hawkesbury Nepean water catchment.

4.2.9 Oberon LGA

Oberon LGA is located in the central tablelands on the western side of the Great Dividing Range. In 1996 the population was 4608, an increase of 8.22% since 1991 (4258 people).

Major industries are manufacturing (22.7%), agriculture, forestry and fishing (21.1%), construction (10.1%), retail trade (7.3%) and accommodation, cafes and restaurants (6.2%).

Public forests in this LGA include Vulcan, Essington, Lowes Mountain, Hampton, Blenheim, Jenolan and Gurnang State Forests. Kanangra Boyd National Park and part of Blue Mountains National Park cover a significant part of the LGA. Jenolan and Wombeyan caves tourist areas are also within this LGA.

4.2.10 Queanbeyan LGA

Queanbeyan LGA is adjacent to the ACT. It is the smallest of the LGAs with an area of 52 square kilometres. In 1996 the population was 27 414, an increase of 9.91% since 1991 (24 942 people).

Major industries are government administration and defence (17.2%), retail trade (13.6%), property and business services (10.6%), construction (8.9%) and manufacturing (8.4%).

No public forests are located in this LGA.

4.2.11 Shoalhaven LGA

The Shoalhaven LGA covers an area of around 4660 square kilometres along the NSW coast. Nowra is the major service centre for the LGA. In 1996 the population was 76 726, an increase of 12.36% since 1991 (68 287 people).

Other communities include Berry, Shoalhaven Heads, Bomaderry, Vincentia, Huskisson, Kangaroo Valley, Greenwell Point, Milton/Ulladulla and HMAS Albatross.

Major industries are retail trade (17.3%), manufacturing (10.8%), health and community services (10.0%), construction (9.3%) and government administration and defence (8.9%).

Public forests in this LGA include 23 state forests and 13 conservation reserves.

4.2.12 Snowy River LGA

The Snowy River LGA is located on the Southern Tablelands of NSW and is bounded in the south by the Victorian border, in the north by the Murrumbidgee River, in the east by the Snowy River, and in the west by the Kosciusko Range. It covers an area of around 6059 square kilometres and is the largest LGA covered in this study. In 1996 the population was 17 697, an increase of 3.86% since 1991 (17 039 people).

There are several major urban centres in this LGA including Perisher Valley, Thredbo, Berridale, Adaminaby, Dalgety and Jindabyne.

Major industries are accommodation, cafes and restaurants (22.4%), property and business services (11.6%), retail trade (10.8%), construction (6.9%) and health and community services (6.6%).

Public forests in this LGA include Ingebirah and Mowamba State Forests, part of Pilot and Byadbo Wilderness Areas. Part of Kosciusko National Park also lies within the LGA.

4.2.13 Tallaganda LGA

Tallaganda LGA is located on the Southern Tablelands of NSW and has an area of around 3351 square kilometres. In 1996 the population was 2420 a decrease of -1.79% since 1991 (2464 people).

Communities in the LGA include Tallaganda, Araluen, Braidwood, Mongarlowe, Nerriga and Majors Creek.

Major industries are agriculture, forestry and fishing (30.3%), retail trade (10.0%), government administration and defence (9.9%), accommodation, cafes and restaurants (8.0%) and health and community services (6.9%).

Public forests in this LGA include Tallaganda, Bendoura, Berlang and Monga State Forests. Budawang, Deua and Morton National Parks are also part of the LGA.

4.2.14 Tumbarumba LGA

Tumbarumba LGA boundaries lie between Laurel Hill in the north to the Murray River and the NSW/Victoria border in the south. The Great Dividing Range and Jingellic mark the east and west boundaries. The LGA covers an area of almost 4380 square kilometres. In 1996 the population was 3613, a decrease of –1.98% since 1991 (3686 people).

Tumbarumba is the major urban centre in the LGA. Other communities include Khancoban, Rosewood and Jingellic.

Major industries are agriculture, forestry and fishing (33.4%), manufacturing (11.4%), retail trade (9.2%), electricity, gas and water supply (6.9%) and education (6.6%).

Public forests in the LGA include Ournie, Manus and Mrangle State Forests and parts of Bago and Green Hills State Forests. The Kosciusko National Park covers 45% of the LGA. This includes the Jagungal Wilderness area.

4.2.15 Tumut LGA

Tumut LGA includes a large proportion of the Australian alpine and sub-alpine area and covers an area of 3767 square kilometres. In 1996 the population was 10 951 a decrease of –2% since 1991 (11 175 people).

Tumut is the major service centre for the LGA. Other communities include Batlow, Adelong, Cabramurra and Talbingo. Major industries are agriculture, forestry and fishing (21.6%), manufacturing (16.7%), retail trade (11.9%), health and community services (6.7%) and education (6.6%).

This LGA also contains one of the State's largest softwood plantations and processing operations.

The Snowy Mountains Hydro-Electricity Scheme and Yarrangobilly Caves are both significant tourist attractions in the area.

Public forests in this LGA include Buccleuch, Tumbalong, Eilerslie, Tumut and Minjary State Forests. Bimberi Nature Reserve, Scabby Range Nature Reserve and part of Kosciusko National Park including Bogong Peaks Wilderness Area are also located in this LGA.

4.2.16 Yarrowlumla LGA

Yarrowlumla LGA surrounds the ACT and is divided into two distinct sections, the eastern section and the western section. The eastern section covers an area of 1930 square kilometres, and the western section an area of 1042 square kilometres. In 1996 the population was 9186, an increase of 14.97% since 1991 (7990). This LGA had the highest population growth of those covered in this study.

Communities located in the eastern section include Bungendore, Captains Flat, Burra, Hoskinstown, Michelago, Sutton, Radcliffe, Wamboin and Williamsdale.

Major industries are government administration and defence (16.4%), property and business services (11.4%), retail trade (11.1%), education 9.1% and construction (8.1%).

Public forests in this LGA include part of Tallaganda State Forest. Goorooyaroo Nature Reserve, Tinderry Nature Reserve, Bimberi Nature Reserve, and Dingo Flats Wildlife Refuge are included. Parts of Kosciusko and Brindabella National Parks are also located in this LGA.

4.2.17 Yass LGA

Yass LGA is located in the central north of the study area and covers an area of 3297 square kilometres. Other communities include Murrumbateman, Bowning, Binalong, Wee Jasper and Bookham. In 1996 the population was 9128, an increase of 3.96% from 1991 (8780).

Major industries are agriculture, forestry and fishing (15.7%), retail trade (14.4%), government administration and defence (10.6%), property and business services (8.4%) and health and community services (7.9%).

Public forests include part of Buccleuch State Forest, Burrinjuck Nature Reserve and State Recreation Area and Mundoonen Nature Reserve. Wee Jasper National Park and part of Brindabella National Park are also located in this LGA.

4.3 ANALYSIS OF DEMOGRAPHIC CHARACTERISTICS

4.3.1 Population

The ABS 1996 Census of Population and Housing figures showed that 255 484 persons lived in the Southern region RFA study area and was approximately 4% of the NSW 1996 population. The figure is an overestimate for it also includes visitors to the NSW ski fields in the west of the region (particularly in the Snowy River LGA) and tourists to the coastal areas. (Other figures provided below may also be influenced by these factors).

Between 1986 and 1996 the population for the whole of the Southern region increased by 26%. However, between 1991 and 1996 the population increased by only 8%, suggesting slowed growth during the latter five year period. Despite this it remained above the NSW growth rate of 5% for the 1991–1996 period.

Three sub-regions: northern, coastal and western, form the Southern RFA region. The coastal region had the highest concentration of people (68%) and the highest growth rate during the 1991–1996 period (11%). This was almost double the NSW rate and reflected the popularity of the Eurobodalla, Shoalhaven and Kiama LGAs as retirement and dormitory areas. In 1996, over 30% of the population of the Southern region study area resided in the Shoalhaven LGA (76 726 persons).

The most significant population growth during the 1986–1996 period was recorded in the Snowy River LGA (100%) in the western sub-region. However, the results were probably skewed due to the influx of visitors on Census night (Skewed population figures have been noted by the Snowy River Shire Council. In 1998 they estimated that 6280 lived in the Shire). Yarrowlumla LGA experienced the second largest population increase between 1986 and 1996 (52%).

FIGURE 4.1: PROPORTION OF POPULATION IN SOUTHERN REGION SUB-REGIONS

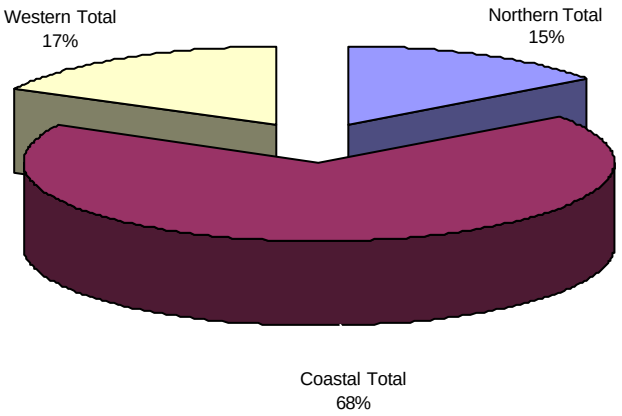


TABLE 4.1: POPULATION SOUTHERN REGION SUB-REGIONS, 1986 TO 1996

LGA	1986	1991	1996	% change 1986–1996	% change 1991–1996	LGA as % of Southern region
Northern sub-region						
Crookwell	4 262	4 294	4 250	-0.28	-1.02	1.66
Goulburn	21 552	21 451	21 293	-1.20	-0.74	8.33
Gunning	1 989	2 111	2 211	11.16	4.74	0.87
Mulwaree	4 923	5 366	5 625	14.26	4.83	2.20
Oberon	3 845	4 258	4 608	19.84	8.22	1.80
Northern total	36 571	37 480	37 987	3.87	1.35	14.87
Coastal sub-region						
Cooma-Monaro	9 589	9 763	9 680	0.95	-0.85	3.79
Eurobodalla	21 519	27 121	30 447	41.49	12.26	11.92
Kiama	13 443	15 908	17 706	31.71	11.30	6.93
Queanbeyan	23 036	24 942	27 414	19.01	9.91	10.73
Shoalhaven	55 980	68 287	76 726	37.06	12.36	30.03
Tallaganda	2 385	2 464	2 420	1.47	-1.79	0.95
Yarrowlumla	6 035	7 990	9 186	52.21	14.97	3.60
Coastal total	131 987	156 475	173 579	31.51	10.93	67.94
Western sub-region						
Holbrook	2 580	2 612	2 529	-1.98	-3.18	0.99
Snowy River	8 876	17 039	17 697	99.38	3.86	6.93
Tumbarumba	3 893	3 686	3 613	-7.19	-1.98	1.41
Tumut	11 507	11 175	10 951	-4.83	-2.00	4.29
Yass	8 034	8 780	9 128	13.62	3.96	3.57
West total	34 890	43 292	43 918	25.88	1.45	17.19
Total Southern area	203 448	237 247	255 484	25.58	7.69	100.00

Source: ABS CDATA 1998 final release.

4.3.2 Age profile

In 1996 the median age in the Southern region was 34, an increase from 1991 when the median age was 32. All sub-regions experienced an increase of one to two years in median age over this period, although Kiama LGA experienced the greatest increase in this period (33–37 years). The Eurobodalla LGA had the highest median age (42). The median age for NSW during the same period was 34.

In 1996, approximately 12% of the population was aged 65 years or over. The coastal sub-region, had the highest proportion of people aged over 65 years (16%), three per cent higher than that of NSW (13%). The Snowy River LGA had the lowest proportion of persons over 65 years of age (4%). Eurobodalla and the highest proportion of persons over 65 years of age (22%)

Twenty-three per cent of the population was aged 15 years or less. Yarrowlumla LGA had the highest percentage of people aged 15 years and under (26%) while the Snowy River LGA had the lowest percentage of people in this age bracket (17.34%).

Overall the Southern region had a higher dependency ratio (35%) than that of NSW (34%). Eurobodalla LGA had the highest dependency ratio (43%). The Snowy River LGA had the lowest dependency ratio (22%).[2]

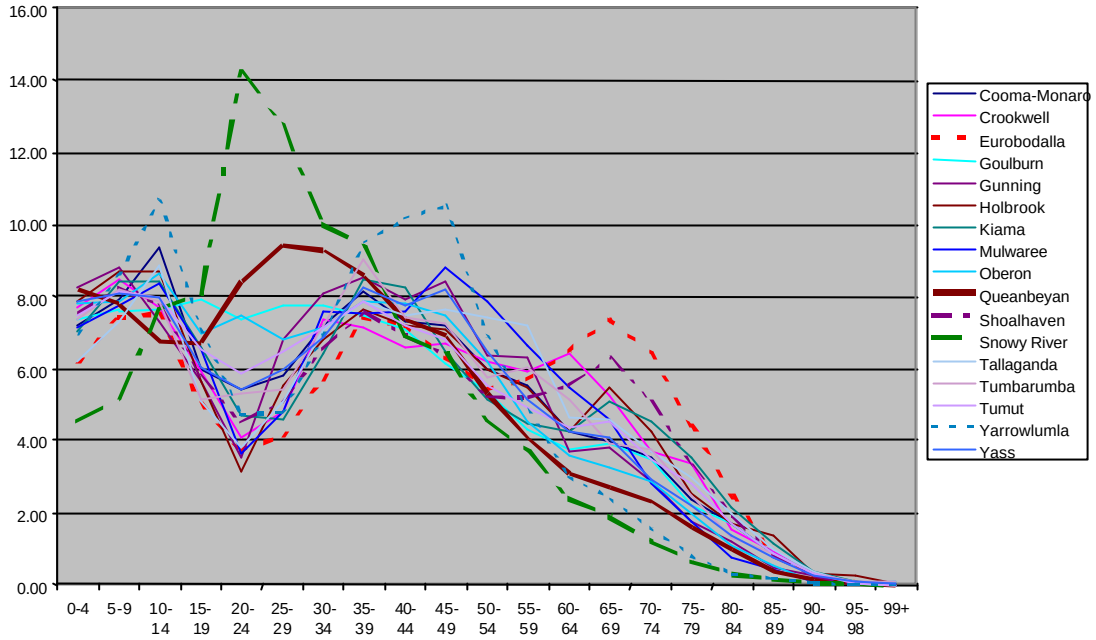
TABLE 4.2: SELECTED DEMOGRAPHIC CHARACTERISTICS OF THE SOUTHERN REGION POPULATION

LGA	Depend ratio	1996 median age	1991 median age	% <15 years	% >65 years
Northern sub-region					
Crookwell	38.96	37	35	23.86	15.11
Goulburn	35.04	32	31	22.58	12.47
Gunning	34.72	35	35	24.35	10.37
Mulwaree	33.60	37	35	23.25	10.35
Oberon	34.08	33	31	24.27	9.82
Northern total	35.13	33	32	23.13	12.01
Coastal sub-region					
Cooma-Monaro	37.25	35	32	24.47	12.78
Eurobodalla	42.90	42	39	21.12	21.78
Kiama	40.75	37	33	23.88	16.87
Queanbeyan	30.91	31	29	22.75	8.16
Shoalhaven	41.27	37	35	23.52	17.75
Tallaganda	36.77	39	36	22.32	14.45
Yarrowlumla	31.51	35	32	26.25	5.26
Coastal total	39.06	36	34	23.20	15.87
Western sub-region					
Holbrook	41.27	37	35	25.34	15.94
Snowy River	21.51	28	29	17.34	4.18
Tumbarumba	36.15	36	33	23.44	12.72
Tumut	37.35	35	33	23.57	13.79
Yass	35.61	36	33	23.94	11.68
West total	30.79	32	31	21.25	9.54
Total Southern area	34.99	34	33	23.00	37.42
New South Wales	33.92	34	32	21.40	12.70

Source: ABS 1996 Census of Population and Housing. Selected Social and Housing Characteristics for Statistical Local Areas. New South Wales and Jervis Bay. ABS Catalogue No. 2015.1 and ABS CDATA statistical package.

[2] Dependency ratios: the proportion of persons in the community not earning an income from participating in the labour force including those aged 0 to 15 years and those aged 65 years and over compared to the total population.

FIGURE 4.2: AGE PROFILE — PER CENT IN AGE GROUP 1996



Source: ABS CDATA 1998 final release

4.3.3 Employment and income

Labour force

The Southern region labour force increased by more than 26% over the 1986 to 1996 period. This approximated the population increase in the region during this period. The largest growth in the labour force occurred in the western sub-region (39%). This figure was strongly influenced by the extraordinary growth in the Snowy River LGA.

The coastal sub-region had an increase of 29% of persons in the labour force, with Kiama LGA having the largest increase in the sub-region (39%), possibly due to its increasing role as a dormitory/commuter suburb to Sydney. Cooma-Monaro LGA had a negative growth rate (-1%).

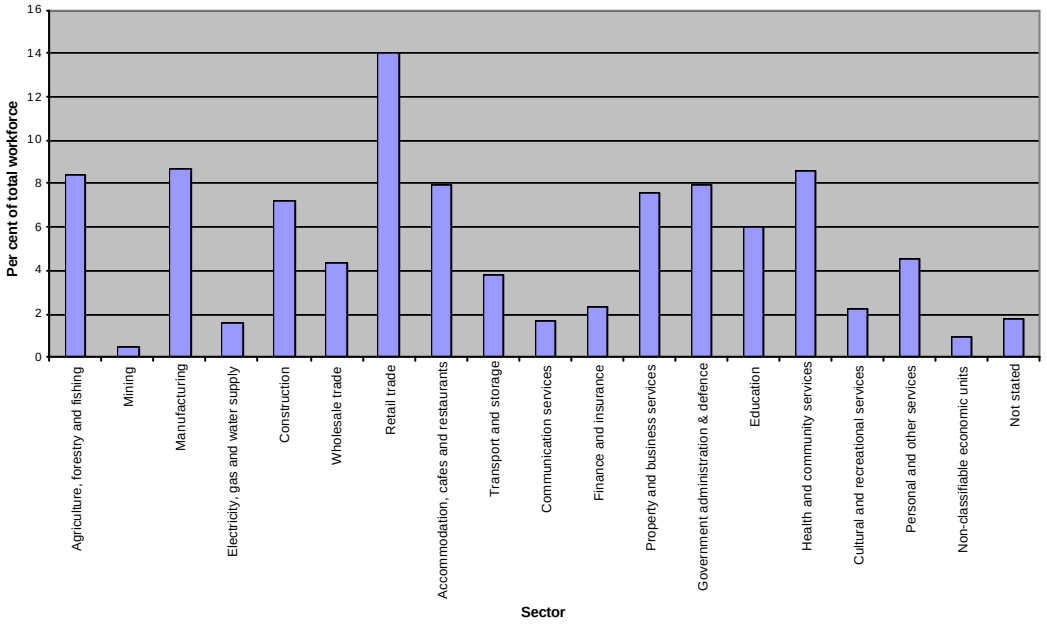
The Northern sub-region had a very low growth in its labour force in comparison with the other sub-regions (5%). However, Oberon LGA had an increase of 27% which may be at least partially attributed to the development of the softwood industry in this area.

TABLE 4.3: PERSONS IN THE LABOUR FORCE, 1986 TO 1996

LGA	1986	1991	1996	% change 1986-1996
Northern				
Crookwell	1 989	2 070	1 918	-3.57
Goulburn	9 678	9 796	9 790	1.16
Gunning	1 033	1 103	1 118	8.23
Mulwaree	2 392	2 692	2 680	12.04
Oberon	1 787	1 933	2 263	26.64
Northern sub-region	16 879	17 594	17 769	5.27
Coastal				
Cooma-Monaro	4 513	4 664	4 465	-1.06
Eurobodalla	7 863	9 979	10 787	37.19
Kiama	5 505	6 892	7 674	39.40
Queanbeyan	12 310	13 284	14 265	15.88
Shoalhaven	21 415	26 383	28 633	33.71
Tallaganda	1 048	1 161	1 138	8.49
Yarrowlumla	3 107	4 326	4 926	58.55
Coastal sub-region	55 761	66 689	71 888	28.92
Western				
Holbrook	1 177	1 189	1 102	-6.37
Snowy River	5 416	11 155	11 592	114.03
Tumbarumba	1 709	1 672	1 628	-4.74
Tumut	5 011	4 962	4 951	-1.20
Yass	3 818	4 360	4 606	20.64
Western sub-region	17 131	23 338	23 879	39.39
Total Southern area	89 771	107 621	113 535	26.47

Source: ABS Cdata 1998 final release

FIGURE 4.3: PER CENT OF WORKFORCE EMPLOYED IN THE SOUTHERN REGION 1996



Source: ABS CDATA 1998 final release

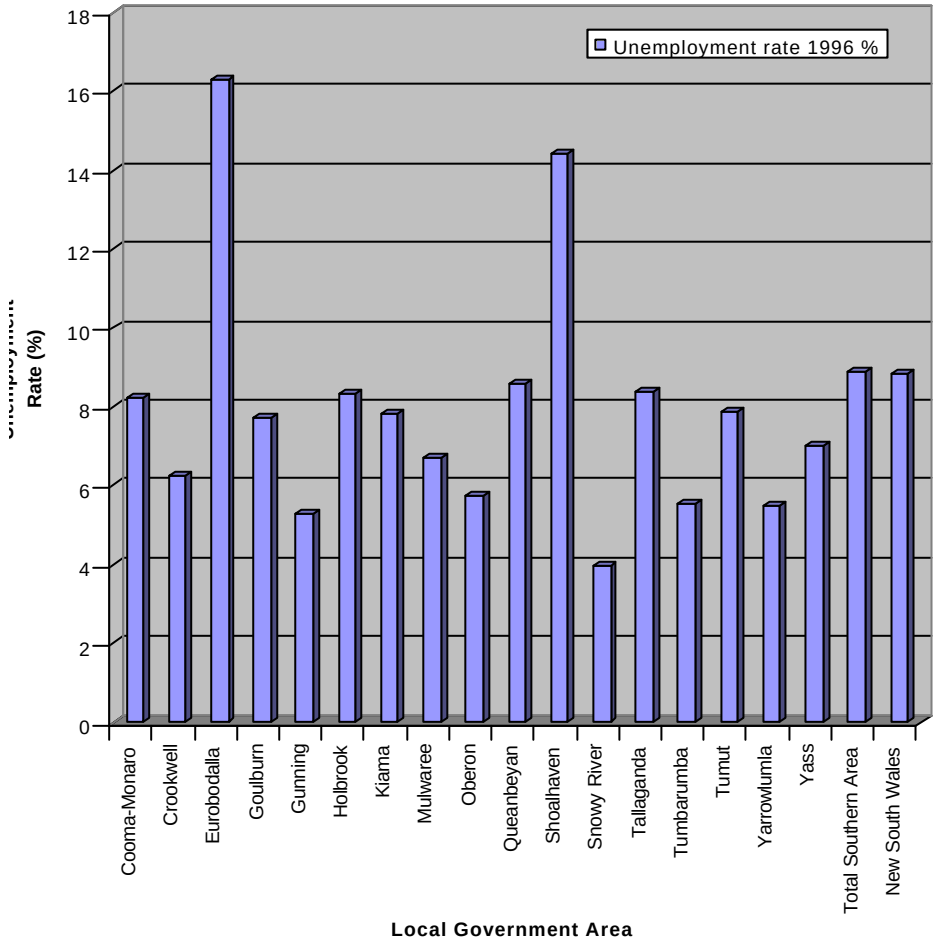
Unemployment

The 1996 census showed the Southern region study area had an unemployment rate of 9% (12 015 persons), almost equal to the NSW rate for unemployment. This was a fall of 2% since 1991 (11%). This reflected the trend in NSW generally during this period towards a decline in unemployment levels. Unemployment ranged from 4% in Snowy River LGA to 16% in Eurobodalla LGA, however, the low unemployment rate in Snowy River LGA could have been influenced by the coincidence of the census with the availability of seasonal employment in the ski fields and surrounding areas.

The two largest coastal LGAs in the Southern region, Shoalhaven and Eurobodalla recorded the highest unemployment rates (14% and 16%). These were significantly higher than the NSW unemployment rate (approximately 9%).

Five LGAs in the study area had workforce participation rates of more than 50%. Shoalhaven and Eurobodalla LGA had the lowest workforce participation rates (37% and 35%). Only Snowy River LGA (65%) had a higher participation rate than the NSW rate (59%)

FIGURE 4.4: UNEMPLOYMENT RATE, 1996 (PER CENT)



Income

In 1996 median weekly personal incomes for people in the Southern region aged 15 years and over ranged from $228 per week in Eurobodalla to $506 per week in Yarrowlumla. The rate for the Southern region was $266 per week, and $336 per week for the whole of NSW. Only three LGAs recorded median weekly personal incomes over $400 per week. These included Queanbeyan, Snowy River and Yarrowlumla LGAs. The lowest median weekly personal incomes were recorded at Eurobodalla and Shoalhaven LGAs.

The median weekly household income in the Southern area in 1996 was $561 per week. Median weekly household incomes in 1996 ranged from $431 in Eurobodalla to $983 in Yarrowlumla. Only three LGAs had median weekly household incomes above the NSW median of $660 per week. These were Queanbeyan ($683), Snowy River ($813) and Yarrowlumla ($983).

TABLE 4.4: LABOUR FORCE AND INCOME — SOUTHERN REGION LGAs, 1996

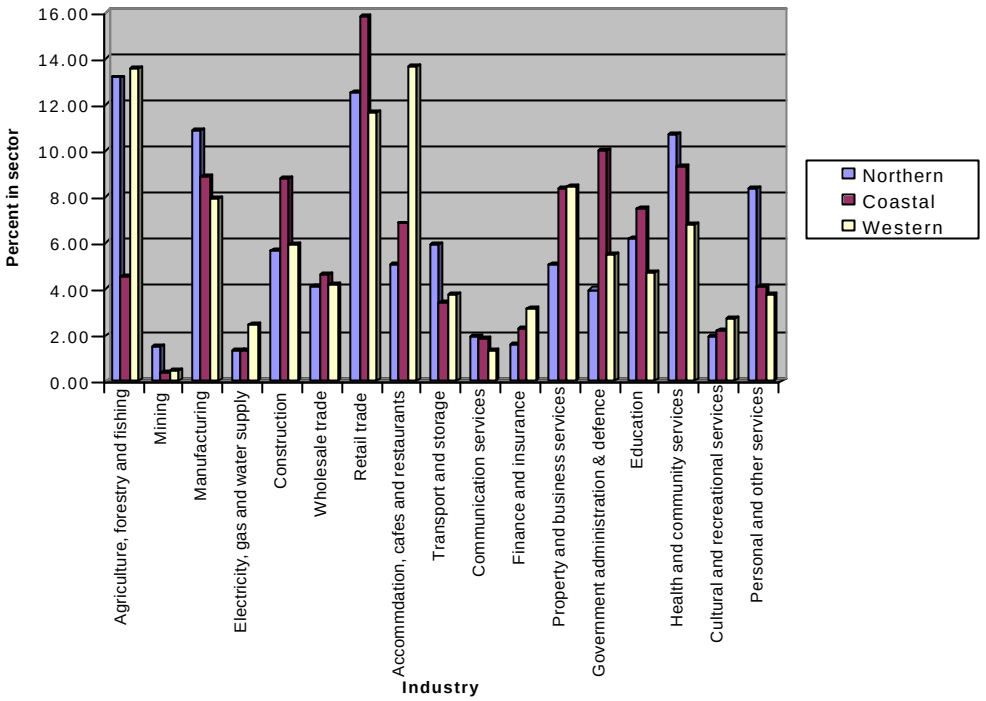
LGA	Unemployment rate 1996 %	Persons unemployed 1996	Persons in the labour force 1996	Workforce participation rate 1996	Median weekly personal income 1996 ($)	Median weekly household income 1996 ($)
Cooma-Monaro	8.24	362	4 465	46.13	304	559
Crookwell	6.24	120	1 918	45.13	264	488
Eurobodalla	16.29	1 758	10 787	35.43	228	431
Goulburn	7.72	750	9 790	45.98	331	587
Gunning	5.27	68	1 118	50.57	320	604
Holbrook	8.31	93	1 102	43.57	246	467
Kiama	7.81	596	7 674	43.35	314	645
Mulwaree	6.69	175	2 680	47.64	303	603
Oberon	5.75	131	2 263	49.11	365	641
Queanbeyan	8.6	1 230	14 265	52.04	401	683
Shoalhaven	14.43	4 134	28 633	37.32	236	447
Snowy River	3.95	459	11 592	65.5	496	813
Tallaganda	8.36	89	1 137	46.98	264	462
Tumbarumba	5.55	93	1 628	45.06	286	523
Tumut	7.88	391	4 951	45.21	290	535
Yarrowlumla	5.5	270	4 771	54.85	506	983
Yass	6.99	320	4 606	50.46	351	653
Total Southern Area	8.87	11 039	113 380	57.06	266	561
New South Wales	8.82	247 669	2 806 544	46.48	336	660

Source: ABS 1996 Census of Population and Housing and IRDB 1996.

Industries

In the Northern sub-region the major industry was agriculture, forestry and fishery (13%) reflecting the strong focus on softwood industries in the Oberon LGA and cattle and sheep grazing in the rural LGAs. In the Coastal sub-region the retail sector accounted for 16% of employment, government administration and defence sector accounted for 10%, and health and community services 9%. In the Western sub-region accommodation, cafes and restaurant sector accounted for 14% of the workforce and retailing12% reflecting the emphasis in this area on tourism and skiing. Agriculture, forestry and fishing contributed approximately 14% to employment reflecting the prominence of the softwood industry in this sub-region.

FIGURE 4.5: PER CENT OF WORKFORCE EMPLOYED IN EACH SECTOR BY SUB-REGIONS 1996



Agriculture, forestry and fishing contributed significantly to employment in the region with particularly high levels in Crookwell, Gunning, Holbrook, Mulwaree, Tallaganda, Tumbarumba, Tumut, and Yass LGAs. Retail trade also contributed significantly to employment especially in Cooma-Monaro, Eurobodalla, Goulburn and Shoalhaven LGAs.

The following table identifies the major industries in each LGA.

TABLE 4.5: EMPLOYMENT BY INDUSTRY — LGAs 1996

LGA	Major Industries
Cooma-Monaro	Retail trade 16.9%, agriculture, forestry and fishing 10.7%, health and community services 9.2%, property and business services 9.0% and accommodation, cafes and restaurants 6.7%.
Crookwell	Agriculture, forestry and fishing 39.9%, retail trade 9.2%, health and community services 7.9%, education 6.7% and construction 5.0%.
Eurobodalla	Retail trade 19.6%, health and community services 11.5%, accommodation, cafes and restaurants 10.7%, construction 8.6% and education 7.5%.
Goulburn	Retail trade 15.6%, health and community services 13.4%, personal and other services 11.8%, manufacturing 11.1% and transport and storage 7.1%.
Gunning	Agriculture, forestry and fishing 32.3%, government administration and defence 10.5%, property and business services 8.0%, retail trade 6.85% and health and community services 6.7%.
Holbrook	Agriculture, forestry and fishing 36.0%, retail trade 11.9%, health and community services 7.1%, government administration and defence 6.7% and transport and storage 6.6%.
Kiama	Education 13.4%, retail trade 13.2%, health and community services 10.8%, construction 9.8% and manufacturing 9.6%.
Mulwaree	Agriculture, forestry and fishing 22.0%, retail trade 10.9%, health and community services 10.8%, construction 9.8% and education 6.6%.
Oberon	Manufacturing 22.7%, agriculture, forestry and fishing 21.1%, construction 10.1%, retail trade 7.3% and accommodation, cafes and restaurants 6.2%.
Queanbeyan	Government administration and defence 17.2%, retail trade 13.6%, property and business services 10.6%, construction 8.9% and manufacturing 8.4%.
Shoalhaven	Retail trade 17.3%, manufacturing 10.8%, health and community services 10.0%, construction 9.3% and government administration and defence 8.9%.
Snowy River	Accommodation, cafes and restaurants 22.4%, property and business services 11.6%, retail trade 10.8%, construction 6.9% and health and community services 6.6%.
Tallanganda	Agriculture, forestry and fishing 30.3%, retail trade 10.0%, government administration and defence 9.9%, accommodation, cafes and restaurants 8.0% and health and community services 6.9%.
Tumbarumba	Agriculture, forestry and fishing 33.4%, manufacturing 11.4%, retail trade 9.2%, electricity, gas and water supply 6.9% and education 6.6%.
Tumut	Agriculture, forestry and fishing 21.6%, manufacturing 16.7%, retail trade 11.9%, health and community services 6.7% and education 6.6%.
Yarrowlumla	Government administration and defence 16.4%, property and business services 11.4%, retail trade 11.1%, education 9.1% and construction 8.1%.
Yass	Agriculture, Forestry and Fishing 15.7%, Retail Trade 14.4%, Government Administration and Defence 10.6%, Property and Business Services 8.4% and Health and Community Services 7.9%.

Timber industry employment

In this analysis, the 1996 Australian New Zealand Standard Industry Classification (ANZSIC) and the 1991 Australian Standard Industry Codes (ASIC) (shown in the table below) were used to define employment in sawmilling and timber harvesting. ANZSIC codes 2321 and 2322 and ASIC code 2533 were those used to define employment in the timber industry. These codes are indicative of the primary and first stages of wood processing. The decision to define the timber industry using these codes was supported by the work of Dargavel et al (1999) who considered inclusion of the first stage of processing to be indicative of employment in the forest sector.

NB: ABS census figures do not differentiate between hardwood and softwood figures, nor state agency or private personnel. It should be noted that most of the LGAs and sub-regions are softwood dominated.

TABLE 4.6: INDUSTRY CATEGORIES INCLUDED IN THE LABOURFORCE ANALYSIS

ABS ANZSIC	1996	ABS ASIC	1991
0300	Forestry and logging, undefined	0300	Forestry and logging, undefined
0301	Forestry	0303	Logging
0302	Logging	0304	Forestry and services to forestry
0303	Services to forestry	2531	Log sawmilling
2310	Log sawmilling and timber dressing, undefined	2532	Resawn and dressed timber
2311	Log sawmilling	2537	Hardwood chips
2312	Wood chipping		
2313	Timber resawing and dressing		
2321	Plywood and veneer manufacturing	2533	Veneers and manufactured boards of wood
2322	Fabricated wood manufacturing		

Sawmilling and log harvesting employed 1250 persons in the Southern region in 1996. This included persons employed in forestry, logging, services to logging, log sawmilling, woodchipping, and timber resawing and dressing. The majority of this employment was in the Western sub-region — a reflection of the high reliance of that area on softwood industries. The largest employment change in this sector between 1991 and 1996 was experienced in the Western sub-region where employment in sawmilling and log harvesting increased by 35%.

TABLE 4.7: PERSONS EMPLOYED IN THE HARVESTING AND MILLING OF TIMBER, 1991 AND 1996

Sub-region	1991	1996	Change 1991–1996
Northern sub-region	170	210	23.53%
Coastal sub-region	318	284	-10.69%
Western sub-region	558	756	35.48%
Southern region total	1 046	1 250	19.50%

Source: ABS customised tables from 1991 and 1996 Census of Population and Housing

The harvesting and milling sector of the timber industry employed 1250 persons in the Southern region in 1996, an increase of 204 positions in the 1991–1996 period. As a proportion of the total Southern region workforce there was a decline of only 0.2%.

Employment in the harvesting and milling of timber varied considerably over the region with the highest levels of employment occurring in Tumut, Oberon, Tumbarumba, and Eurobodalla LGAs. Except for the Eurobodalla LGA, these high employment levels can largely be attributed to employment in the softwood industry, although a reasonable proportion of employment in the timber industry in Tumbarumba LGA and Tumut LGA is hardwood related.

The following table identifies employment in the timber industry for each LGA for both 1991 and 1996, the percentage of change in employment levels during this period, and the percentage of change in relation to the region.

TABLE 4.8: EMPLOYMENT IN THE TIMBER INDUSTRY

LGA	1991	1996	Change	% change in relation to region
Northern				
Crookwell	0	0	0	0.00
Goulburn	9	9	0	0.00
Gunning	0	3	3	0.42
Mulwaree	3	7	4	0.56
Oberon	229	460	231	32.31
Total Northern	241	479	238	33.29
Coastal				
Cooma-Monaro	27	31	4	0.56
Eurobodalla	117	123	6	0.84
Kiama	10	3	-7	-0.98
Queanbeyan	45	51	6	0.84
Shoalhaven	88	128	40	5.59
Tallaganda	17	25	8	1.12
Yarrowlumla	16	16	0	0.00
Total Coastal	320	377	57	7.97
Western				
Holbrook	18	15	-3	-0.42
Snowy River	4	7	3	0.42
Tumbarumba	130	230	100	13.99
Tumut	485	810	325	45.45
Yass	8	3	-5	-0.70
Total Western	645	1 065	420	58.74
Total Southern area	1 206	1 921	715	100.00

Source: ABS 1996 and 1991 Census of Population and Housing — customised information.

4.3.4 Health

A wide range of health services are available within the Southern region. Generally the larger facilities are located in major population centres. The following table identifies the health services located within each LGA.

TABLE 4.9: HEALTH SERVICES

LGA	Health services	Aged care services	Child health services
Cooma-Monaro	Cooma Hospital, 40 beds	1 Nursing Home	1 Early Childhood Clinic
Crookwell	Crookwell Hospital, 27 beds	3 Nursing Homes	Crookwell District Hospital
Eurobodalla	Batemans Bay Hospital, 37 beds Moruya Hospital, 60 Beds	1 Respite Care Service 2 Community Health Centres 1 Home Nursing Service 3 Retirement Villages	4 Early Childhood Clinics 1 Special Needs Group 1 Child Dental Service 1 Mobile School Dental Service
Goulburn	Goulburn Hospital, 86 beds	5 Aged Care facilities St. Johns Hospital	1 Community Health Centre
Gunning	District Health Service	4 homes sponsored by Lions Club	1 District Health Service
Holbrook	Holbrook Hospital, 12 beds	Hospital, 16 Beds Hostel, 21 Beds	Hospital Child Health Services
Kiama	Kiama Hospital, limited in-patient services	2 Nursing homes 2 Retirement Villages 1 Hostel	Immunisation Clinic School Dental Service
Mulwaree	Nil	Nil	Nil
Oberon	Oberon Hospital, 8 beds	Health Service, 8 beds Council self care Units	
Queanbeyan	Queanbeyan Hospital, 71 beds	1 Nursing home	2 Health Centres 1 School Dental Service
Shoalhaven	1 Community Health Centre, Ulladulla Milton Hospital, 20 beds Nowra Hospital, 94 beds	2 Masonic Aged Persons Lodges 2 Nursing Homes 6 Retirement Villages	5 Early Childhood Centres 1 Dental clinic
Snowy River	Nil	1 Hostel	1 Community Health Centre
Tallaganda	Braidwood Multipurpose Service, 6 Beds	Multipurpose Hostel, 10 beds	Multipurpose Service includes:Baby Health, Clinic and Dental Services
Tumbarumba	Tumbarumba Multipurpose Service, 10 beds	Multipurpose Service Nursing Home, 10 beds Hostel, 16 beds	Multipurpose Service includes Community Health, Early Childhood Services and School Dental
Tumut	Tumut Hospital, 26 Beds	1 Lodge	Early Childhood Centre (Mobile Service)
Yarrowlumla	Nil	Nil	Assistance from Canberra Health Service
Yass	Yass Hospital, 26 Beds	4 Homes	Yass Hospital

There have been some developments in regional health services in the Southern region study area during the 1997–98 financial year. These are:

- completion and use of the Chisholm Ross Centre — an acute short-stay psychiatric assessment unit co-located in the grounds of Goulburn Base Hospital;

- development of Project Definition Plans for Multi-Purpose Health Services in Oberon;

- completion of major service reviews to guide the long-term development of service options and planning of resources in aged care, youth health, women's

health, pathology services, medical imaging services, mental health and Aboriginal health in the Greater Murray Health Area;

- commencement of the Greater Murray Accessline — a 1800 telephone triage, referral and information service which provides better access to services and helps support local health professionals in their patient care;
- addition of a new $8.4 million wing of the Shoalhaven District Memorial Hospital (Nowra) to allow improved medial, surgical and rehabilitation services for people living in the Shoalhaven;
- improved access to comprehensive community health services following the opening of the $2.8 million Nowra Community Health Centre;
- re-opening of in-patient services at Kiama Hospital after refurbishment.
- planning for Stage 2B of Shoalhaven District Memorial Hospital (Nowra);
- allocation of $162 000 to allow the Shoalhaven Body Image and Eating Behaviour Service to continue;
- establishment of Independent Pathology Business Units across the Southern Health Service Area;
- establishment of Prevention of Abuse and Neglect of Children services across the Southern Health Service Area; and
- commencement of 1800 centralised intake phone number for Mental Health Services in the Southern Health Service Area (available 24 hours a day, seven days a week).

[Southern Health Service Annual Report 1997–98]

4.3.5 Education

The 1996 census figures below show the Shoalhaven LGA has the highest proportion of persons attending educational institutions at all levels. Bega Valley and Eurobodalla LGAs also have relatively high proportions of persons attending educational institutions at all levels. The Queanbeyan and Snowy River LGAs both show high proportions of persons attending universities and places of advanced learning. Goulburn and Shoalhaven have large proportions attending other educational institutions (which include evening classes and special interest classes).

In all LGAs the proportion of people attending educational institutions was lower than the proportion not attending. The Coastal sub-region had the largest proportion attending educational institutions at all levels, however, the Western sub-region had a higher percentage of people attending post secondary education than other regions.

FIGURE 4.6: PROPORTION OF PERSONS ATTENDING EDUCATIONAL INSTITUTIONS IN SOUTHERN REGION SUB-REGIONS

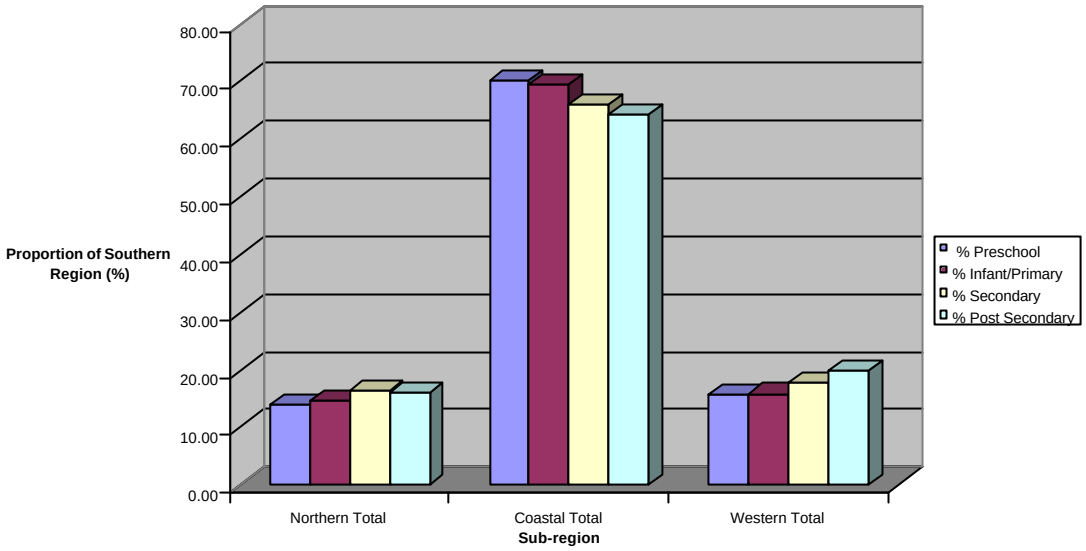


TABLE 4.10: EDUCATION — SOUTHERN REGION (GOVERNMENT AND NON-GOVERNMENT EDUCATION SECTORS)

LGA	Persons in pre-school	% Pre-school	Persons in infant / primary school	% Infant/ primary	Persons in secondary school	% Secondary	Persons in TAFE Coll	% TAFE	Persons in CAE / univ	% CAE/ uni	Persons in other educ instit	% Other educ instit	Total persons in post secondary	% Post secondary	Not attending	Not stated	O/S visitor
Northern sub-region																	
Crookwell	69	1.58	481	1.77	300	1.64	66	1.03	32	0.84	14	1.38	112.00	1.00	3 142	146	8
Goulburn	329	7.52	2 157	7.93	1 726	9.42	602	9.37	310	8.18	257	25.40	1169.00	10.41	14 413	1 459	43
Gunning	49	1.12	257	0.94	166	0.91	42	0.65	49	1.29	11	1.09	102.00	0.91	1 580	56	0
Oberon	68	1.55	512	1.88	345	1.88	82	1.28	75	1.98	16	1.58	173.00	1.54	3 196	292	26
Mulwaree	98	2.24	596	2.19	444	2.42	152	2.37	65	1.71	17	1.68	234.00	2.08	4 008	222	21
Northern Total	613	14.01	4 003	14.718	2 981	16.271834	944	14.70	531	14	315	31.13	1790.00	15.95	26 339	2 175	98
Coastal sub-region																	
Cooma-Monaro	154	3.52	1 202	4.42	622	3.40	323	5.03	158	4.17	39	3.85	520.00	4.63	6 549	536	90
Eurobodalla	442	10.10	2 995	11.01	2 009	10.97	468	7.29	189	4.99	66	6.52	723.00	6.44	22 692	1 476	108
Kiama	374	8.54	2 100	7.72	1 354	7.39	530	8.25	373	9.84	55	5.43	958.00	8.53	12 304	563	53
Queanbeyan	356	8.13	2 682	9.86	1 801	9.83	808	12.58	621	16.38	101	9.98	1530.00	13.63	19 703	1 271	68
Shoalhaven	1 562	35.69	8 405	30.90	5 296	28.91	1 915	29.82	705	18.60	229	22.63	2849.00	25.38	55 018	3 355	244
Tallaganda	44	1.01	260	0.96	173	0.94	26	0.40	25	0.66	6	0.59	57.00	0.51	1 769	115	6
Yarrowlumla	140	3.20	1 232	4.53	820	4.48	229	3.57	293	7.73	44	4.35	566.00	5.04	6 052	322	50
Coastal Total	3 072	70.19	18 876	69.40	12 075	65.91	4 299	66.94	2 364	62.4	540	53.36	7203.00	64.17	111 783	7 638	619
Western sub-region																	
Holbrook	49	1.12	319	1.17	181	0.99	34	0.53	19	0.50	14	1.38	67.00	0.60	1 793	113	8
Snowy River	222	5.07	1 363	5.01	1 422	7.76	531	8.27	547	14.43	90	8.89	1168.00	10.41	12 223	1 021	280
Tumbarumba	57	1.30	406	1.49	220	1.20	61	0.95	40	1.06	6	0.59	107.00	0.95	2 533	280	12
Tumut	171	3.91	1 213	4.46	761	4.15	335	5.22	104	2.74	20	1.98	459.00	4.09	7 877	460	9
Yass	193	4.41	1 018	3.74	680	3.71	218	3.39	186	4.91	27	2.67	431.00	3.84	6 546	243	16
Western Total	692	15.81	4 319	15.8798	3 264	17.816594	1 179	18.36	896	23.6	157	15.51	2232.00	19.88	30 972	2 117	325
Total Southern area	4 377	100	27 198	100	18 320	100	6 422	100	3 791	100	1 012	100	11225.00	100.00	169 094	11 930	1 042
% of NSW		4.65		4.74		4.31		3.71		1.91		2.72					
New South Wales	94 138		574 172		425 301		172 905		198 710		37 153						

4.3.6 Housing

In 1996, most Southern region LGAs showed home ownership was the dominant form of housing tenure. Home ownership rates ranged from 27% in Queanbeyan LGA to 49% in Crookwell LGA. In the Southern region, home ownership levels were 3% less than in NSW (39%).

The highest proportion of dwellings being purchased or rented was in Queanbeyan LGA (59%), which, together with Snowy River, Goulburn, Cooma-Monaro, Oberon, Tumut, Yarrowlumla and Yass LGAs recorded a higher proportion of dwellings being purchased or rented than owned. All these LGAs are inland NSW.

The proportion of unoccupied dwellings in the study area at the 1996 census (23%) was almost three times higher than that found in NSW (9%). The number of unoccupied dwellings in the Southern region varied by up to 23%, ranging from 9% of dwellings in Goulburn LGA to 32% of dwellings in Eurobodalla LGA. This may have been influenced by the large number of 'holiday homes' in Eurobodalla. Snowy River LGA had the third highest proportion of unoccupied dwellings — possibly indicating a late ski season or an oversupply of tourist accommodation. Goulburn was the only LGA with a lower proportion (8.79%) of unoccupied dwellings lower than NSW (8.92%) in the same period.

Median weekly rental rates ranged between $50 per week in Crookwell LGA and $178 per week in Snowy River LGA. The median weekly rent for the Southern region was $85 per week compared to the NSW figure of $142 per week.

The median monthly loan repayment for the Southern region in 1996 was $906 per month. Median monthly loan repayments ranged from $542 per month in Tumbarumba LGA to $1371 per month in Yarrowlumla LGA. All but one LGA had a median monthly loan repayment lower than that for NSW in 1996 ($906).

TABLE 4.11: HOUSING CHARACTERISTICS — SOUTHERN REGION 1996

	Fully owned	% of total occupied housing	Being bought	Rented (incl rent free)	% of total occupied housing	Other	Unoccup dwellings	Total dwellings	% unocc	Non-private dwellings	Median weekly rent	Median monthly loan repayment	Residential dwelling approvals (1997)
Cooma-Monaro	1 576	37.22	799	990	42.25	210	659	4234	15.56	28	100	650	37
Cwell	969	48.52	224	325	27.49	69	410	1997	20.53	7	50	650	13
Eurobodalla	6 348	34.99	2007	3283	29.16	632	5873	18143	32.37	62	110	656	342
Goulburn	2 973	36.01	1821	2440	51.62	295	726	8255	8.79	47	110	737	64
Gunning	409	40.62	227	158	38.23	36	177	1007	17.58	0	60	802	16
Holbrook	497	45.18	172	230	36.55	51	150	1100	13.64	8	65	563	9
Kiama	3 261	42.69	1531	1158	35.21	68	1270	7638	16.63	19	150	867	135
Mulwaree	1 103	37.15	490	386	29.50	103	887	2969	29.88	7	70	808	82
Oberon	673	34.69	349	500	43.76	79	339	1940	17.47	12	100	800	40
Queanbeyan	3 227	27.34	3009	3909	58.61	490	1169	11804	9.90	28	110	867	168
Shoalhaven	14 986	35.95	6006	7468	32.32	1268	11961	41689	28.69	88	110	715	833
Snowy River	906	22.34	387	1260	40.61	300	1203	4056	29.66	332	178	867	95
Tallaganda	541	38.86	185	227	29.60	52	387	1392	27.80	7	85	614	25
Tumbarumba	698	43.11	232	342	35.45	65	282	1619	17.42	16	75	542	7
Tumut	1 956	40.20	797	1234	41.74	169	710	4866	14.59	23	89	650	48
Yarrowlumla	1 285	37.16	1183	468	47.74	145	377	3458	10.90	9	124	1371	76
Yass	1 500	38.57	914	795	43.94	119	561	3889	14.43	18	100	844	55
Southern region	42 908	35.84	20333	25173	38.01	4151	27141	119706	22.67	692	85	674	2045
NSW	924 081	38.70	489538	651068	47.77	110230	212908	2387825	8.92	6384	142	906	

Source: ABS Census of Population and Housing 1996: Selected social and housing characteristics for Statistical Local Areas — New South Wales and Jervis Bay

5. SOCIAL CATCHMENTS AND SOCIO-DEMOGRAPHIC PROFILES

5.1 INTRODUCTION

This report identifies (a) specific social catchments within the Southern NSW CRA region, (b) the demographic profiles of each social catchment, (c) community sensitivity to change indicators for each social catchment and (d) profiles of the number of forest and timber industry employees within each social catchment.

The information used in the analysis is based primarily on 1996 census data and information on the location of licensed timber processing industries supplied by NSW State Forests.

5.2 DEFINITION OF SOCIAL CATCHMENTS

Social catchments represent geographically defined areas within the Southern NSW CRA region that contain a network of interdependent towns that are likely to be related in terms of industry location, employee residential locations, local industry expenditure, employee household expenditure and the use of social infrastructure services by industry employees. The social catchment will often include a regional or sub regional centre and many smaller towns and communities which are dependent on these centres for the supply of goods and services to industry and industry employees.

Social catchments can best be described using survey data collected from industries and employees within a region, which provides locational information about the

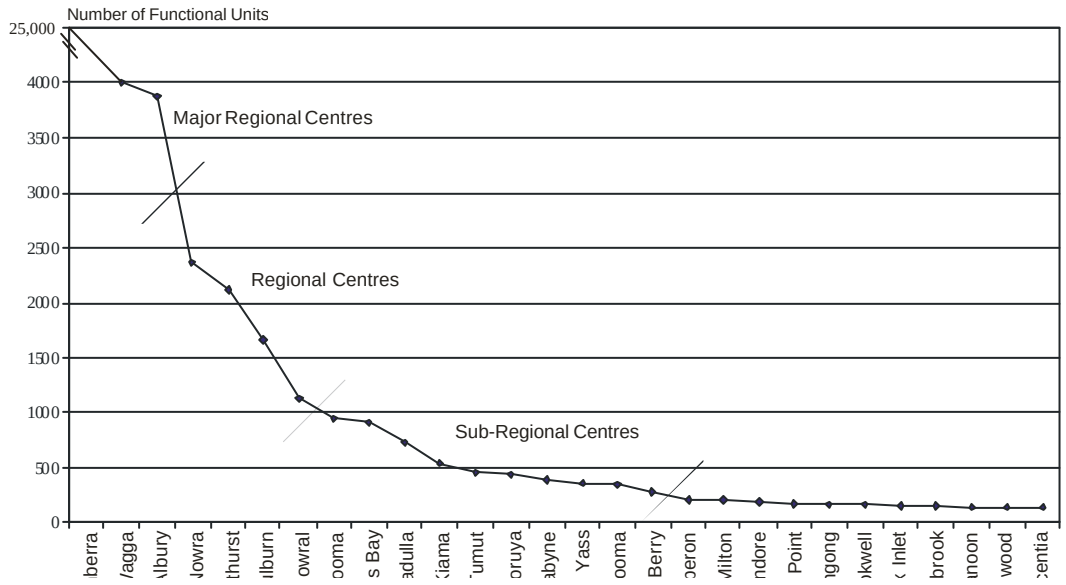
industries and industry expenditure and industry employees use of specific towns in the region (Fenton, 1998a, 1999). Without primary survey data to aid the definition and identification of social catchments, these catchments have to be defined through the use of other secondary information. In the following analysis, the social catchments for the Southern NSW CRA region were defined using information on (a) the number of businesses, industries and other service providers located within specific towns (the number of functional units), (b) an examination of the road network within the region, (c) distance between towns and (d) the density of towns and communities in the region.

5.2.1 Number of functional units in towns

The yellow pages directory was examined in order to identify the number of functional units within towns in the Southern NSW CRA region. While the use of this directory is likely to underestimate the number of units within specific towns, it nevertheless provides a relative indication of the number of industries, businesses and service activities within towns. In addition to towns within the boundary of the Southern NSW CRA region other large towns outside the boundary which may possible affect towns within the region were also included. This included, for instance, the towns of Albury, Bathurst, Bowral, Canberra and Wagga Wagga.

Figure 5.1 shows a plot of the number of functional units against specific towns located within the Southern NSW CRA region and for additional major centres located in close proximity to the boundary of the region. This figure, which shows towns with more than 150 functional units, suggests that a hierarchy of towns within the region exists, which consists of (a) major regional centres, (b) regional centres and (c) sub-regional centres. Towns with less than 150 functional units represent small micro catchments within the region and included 66 towns and localities with between 149 and 50 functional units, and 320 towns with between 49 and 5 functional units.

FIGURE 5.1: NUMBER OF FUNCTIONAL UNITS IN TOWNS



The cities of Canberra, Wagga Wagga and Albury, although all are located outside of the CRA boundary, are major regional centres located at the top of the town hierarchy, and represent major service centres to many other towns located in the region. It is likely that Wagga Wagga and Albury are the major regional service centres for towns and communities in the South West of the CRA region, while Canberra, given its central location, would service many towns and communities located throughout the region. Although not identified in Figure 5.1, the cities of Sydney and Wollongong would probably be the major regional service centres for town and communities in the North and North East of the CRA region. Regional centres include the towns of Nowra, Bathurst, Goulburn and Bowral. These towns have smaller catchments than the major regional centres, and service other smaller towns localised within the vicinity of each regional centre.

5.2.2 Identification of social catchments

The identification of social catchments is particularly important in defining a geographic area, which consists of communities and townships, which are inter-dependent and inter-related. The use of Local Government Areas or other geographic boundaries are often defined on the basis of specific administrative criteria and do not necessarily reflect the social and economic inter-dependencies at the local level. In addition, the use of larger administrative boundaries often masks important social and economic variation occurring within the region. In contrast to the use of existing administrative boundaries, such as local government areas, an analysis of specific towns is also often too narrow to be useful as again many towns will be socially and economically interdependent within a specific geographic region.

The use of social catchments provide a meaningful unit of social and economic analysis at the local level, which is not artificial as is the case when other administrative boundaries are used, and which accounts for much of the inter-town dependencies at the local level. The social catchments that have been identified for the Southern CRA region define approximate geographic regions at the local level which are likely to consist of towns or localities which include, (a) the employees place of employment, (b) the employees place of residence, (c) towns from which employees access social infrastructure services and facilities and (d) locations from which employees source their household expenditure on goods and services. At the industry level, social catchments also often consist of those towns in which localised industry expenditure occurs. Although at the industry level, major capital equipment purchases particularly in the timber industry, will often be sourced from the major regional centres.

Social catchments were defined through (a) an examination of the existing road network in the Southern CRA region, (b) the geographic distribution of towns, (c) the topography of the region and (d) the application of a gravity model to more accurately identify the boundaries of town catchments across existing road networks.

Where appropriate and when using the gravity model to identify the catchment boundary between two towns, the number of functional units within a town (Figure 5.1) was used to identify the attractive power of each town and the distance between each town was measured in relation to the number of road kilometres

between towns. The gravity formula given below was used to identify the catchment boundary between major regional, regional and several sub regional towns as identified in Figure 5.1.

$$D_{AB} = \frac{T_{AB}}{1 + \sqrt{(S_B / S_A)}}$$

Where: D_{AB} is the distance of the catchment boundary in kilometres from town A to town B

T_{AB} is the distance in kilometres between pairs of towns A and B

S_A, S_B is the attractive power of towns A and B measured in relation to the number of functional units found within each town.

While the gravity model identified the approximate catchment boundary between towns on the basis of the existing road network, each catchment was also to be described using demographic information derived from the 1996 census. As the smallest unit of analysis for census data is the census collector district (CCD), the boundaries of census collector districts were ultimately used to define the catchment boundary. As such each catchment consisted on the aggregation of a number of census collector districts which approximated the catchment boundary as defined by the gravity model.

Through this procedure, and as shown in Figure 5.2, 16 social catchments were defined. Again, as the boundaries of these catchments are based on census collector district boundaries the true social catchment may in some cases differ to the catchment boundaries as shown in Figure 5.2.

5.3 SOCIO-DEMOGRAPHIC PROFILES

Census information (1996) was used as the basis for identifying specific socio-demographic profiles. The 27 profiles selected are shown in Table 5.1. Several profiles were selected in order to provide descriptive information about the catchment. These profiles included population size, the number or occupied private dwellings, occupancy rate, employment in agriculture, forestry and fishing and employment in manufacturing industries. Other profiles were selected on the basis that they provided an indication of advantage or disadvantage within the community, or that they were indicators of community vulnerability or sensitivity to change. Such profiles included age dependency, unemployment rates, workforce participation and family, occupation, income and educational characteristics.

The value for each demographic profile was also transformed into a standard score using a Z-score transformation, with a mean equal to zero and standard deviation of 1.00.

FIGURE 5.2: LOCATION OF SOCIAL CATCHMENTS

FIGURE 5.3: CSI—UNEMPLOYMENT AND INCOME AGAINST FOREST INDUSTRY EMPLOYEES

FIGURE 5.4: CSI—UNEMPLOYMENT AND INCOME AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN FOREST INDUSTRIES

FIGURE 5.5: CSI—EDUCATION AND OCCUPATION AGAINST FOREST INDUSTRY EMPLOYEES

FIGURE 5.6: CSI—EDUCATION AND OCCUPATION AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN FOREST INDUSTRIES

FIGURE 5.7: CSI—FAMILY AND HOUSING AGAINST FOREST INDUSTRY EMPLOYEES

FIGURE 5.8: CSI—FAMILY AND HOUSING AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN FOREST INDUSTRIES

FIGURE 5.9: CSI—AGE DEPENDENCY AGAINST FOREST INDUSTRY EMPLOYEES

FIGURE 5.10: CSI—AGE DEPENDENCY AGAINST PERCENTAGE OF WORKFORCE EMPLOYED IN FOREST INDUSTRIES

TABLE 5.1: SOCIO-DEMOGRAPHIC PROFILES

Socio-demographic profile	Definition
Number of occupied private dwellings	
Resident population	
Occupancy rate	Resident population/Number of occupied private dwellings
Per cent rental accommodation	As a percentage of all private dwellings
Per cent public housing	As a percentage of all private dwellings
Per cent aged 14 and below	As a percentage of the total resident population
Per cent aged 15 to 64	As a percentage of the total resident population
Per cent 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 non-dependency age group when compared to the dependency age groups.
Unemployment rate	The number of all unemployed persons expressed as a percentage of the workforce.
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 males between 25 and 44 years of age expressed as a percentage of the male workforce aged between 25 and 44 years of age. This profile was included as the majority of timber industry employees are males between 25 and 44 years of age (EBC, 1997; 1998)
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	Percentage of all one family households with a weekly household income less than $299
Per cent separated or divorced	The number of all separated and divorced persons expressed as a percentage of all persons over 15 years of age.
Per cent 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.
Per cent 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.
Per cent aged 15 years and over	The number of persons aged 15 years and over with no qualification
With no qualifications	as a percentage of the number of people aged 15 years and over.
Per cent one parent families	The number of one parent families in occupied private dwellings as a percentage of all families in occupied private dwellings
Per cent 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
Per cent of labourers and related workers	The number of labourers and related workers as a percentage of all employed persons
Per cent Aboriginal and Torres Strait Islanders	The number of persons indicating Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander origin as a percentage of all persons
Per cent 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
Per cent employed in manufacturing	The number of persons employed in industries defined as manufacturing as a percentage of all employed persons.

Source: ABS (1996).
Prepared by: EBC (1999).

Profiles within plus or minus 1.00 standard deviation of the mean, and generally considered `average'. Scores less than 1.00 standard deviation below the mean maybe considered `below average' while scores greater than 1.00 standard deviation above the mean maybe considered `above average'.

Figure 5.11 shows the demographic profile for the Southern CRA region and also provides values on the demographic profiles for rural NSW as a whole. An inspection of the chart associated with Figure 5.11 indicates the percentage of rental accommodation and public housing is below average when compared to rural NSW. This indicates there is a significantly lower percentage of rental and public housing in this region when compared to all areas in rural NSW.

Figure 5.13 shows the demographic profile for the Northern sub-region within the Southern CRA region. A demographic profile has again been developed for this sub-region. However in this case the values of the demographic profile are shown relative to the Southern CRA region *and* relative to Rural NSW. For instance, within this region the percentage of public housing is above average (3.48%) when relative to the Southern CRA region as a whole (1.86%). However, when compared to rural NSW, which has 3.97% of the population in public housing, the Northern sub-region is actually below average in relation to the population in public housing.

Figures 5.15 and 17 also show the demographic profiles for the South Coast and Tumut sub-regions, while Figures 5.19 onwards show the demographic profiles for all 18 social catchments. Visual inspection of the bar charts of standard score transformations shown for each catchment clearly show which specific socio-demographic profiles are below or above the average relative the Southern CRA region and Rural NSW.

All figures also show the location and number of employees associated with licenced native timber processing industries within the region. The location in all cases is based on the nearest town. In addition, information is also provided showing the number of employees within four industry employment categories as identified in the 1996 census. Some caution should be used in the interpretation of employment in these industry categories as employment may have changed significantly since 1996 and employment is based on the aggregation of CCDs, some randomisation of the ABS counts may have occurred within specific CCDs.

5.3.1 Community sensitivity indices

In addition to describing specific socio-demographic profiles for each sub-region and social catchment, core indicators of community sensitivity to change or vulnerability were also identified.

Previous research based on the clustering of specific demographic profiles (Fenton 1998b; 1998c; 1998d) has shown that many of these profiles clustered into four distinct groups which included, (a) Unemployment and Income, (b) Education and Occupation, (c) Family and Housing and (d) Age Dependency. Table 5.2 identifies the four clusters and shows the specific demographic profiles that have been included within each cluster.

TABLE 5.2: FOUR CLUSTER SOLUTION OF DEMOGRAPHIC PROFILES

Cluster
Unemployment and income Total unemployment Unemployment (25–44 years) Weekly family income <$299
Education and occupation Left school before 15 Years Per cent over 15 years with no qualifications Per cent labourer or related workers
Family and housing Per cent dwellings rented Per cent families with no vehicle Per cent separated and divorced Per cent of one parent families
Age dependency Per cent aged 14 years or less Per cent aged 65 years or greater Dependency ratio

Source: EBC (1999).

The standard score transformation of each profile within each of the four clusters was summed and averaged which provided a single standard score for each of the four community sensitivity indices. Figures 5.11 to 5.50 show each of the four community sensitivity indices expressed as a standard score with a mean of zero and a standard deviation of 1.00. As was the case with the individual demographic profiles, Figures 5.11 to 5.50 also show each of the four community sensitivity indices for each social catchment relative to the Southern CRA 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 either the Southern CRA region or Rural NSW. Visual inspection of the bar charts for each sub-region and social catchment clearly shows which of the four indices are below or above the average

Figures 5.3 to 5.10 show each of the four community sensitivity indices plotted against the number of forest and timber industry employees within each catchment. It should be noted that the number of forest and timber industry employees is derived from the census classifications of (a) forestry and logging, (b) wood and paper product manufacturing undefined, (c) log sawmilling and timber dressing and (d) other wood product manufacturing. The use of these census classifications does not allow any discrimination to be made between employees involved in softwood or hardwood processing.

Figures 5.3 and 5.4 clearly show that the social catchments of Moruya, Narooma, Batemans Bay, Ulladulla and Nowra have higher rates of unemployment and low family incomes when compared to all other catchments. This occurs when the catchments are compared relative to the Southern CRA region and when compared to Rural NSW. Although Nowra and Ulladulla have over 100 forest industry employees (Figures 5.3a and 5.3b) these employees nevertheless represent less than five per cent of the workforce in these areas (Figures 5.4a and 5.4b). The catchments

of Bathurst and Tumut have high numbers of employees in forest industries, however when compared to the Southern region and rural NSW they are less sensitive to change in relation to unemployment and income when compared to other catchments in the region.

In relation to education and occupation, the social catchments of Bathurst, Tumut, Narooma and Goulburn are consistently most sensitive to change on this dimension (Figures 5.5 and 5.6) when comparisons are made relative to the Southern region and Rural NSW. These catchments are characterised by low school retention rates, low numbers of people with qualifications and high number of labourers and related workers. The Tumut and Bathurst catchments are particularly critical in the present case as both catchments are not only above average on this index but also have high numbers of forest and timber industry employees.

Figures 5.7 and 5.8 show each of the social catchments in relation to their score on the family and housing index. Typically catchments high on this index have higher than average percentages of one-parent families, persons separated and divorced and rental accommodation. When comparisons are made with Rural NSW, only the catchment of Narooma is above average on this dimension (Figures 5.7b and 5.8b). However when compared to the Southern region as a whole, catchments which are moderately high on this index and which also have high absolute numbers of employees in forest and timber industries include the catchments of Nowra, Canberra and Ulladulla.

In relation to age dependency, the catchments of Ulladulla, Moruya, Batemans Bay, Narooma, Nowra and Albury are all significantly above average on this index when compared to the Southern CRA region and Rural NSW. Amongst these catchments, Nowra and Ulladulla are particularly important as they have the high employment in forest and timber industries.

Across all four community sensitivity indices identified in Figures 5.3 to 5.10, Ulladulla, Narooma and Nowra are the three catchments which are consistently above average on these indices and at the same time have moderate levels of employment in forest and timber industries when compared to other catchments. Although the Tumut and Bathurst catchments have the highest employment in forest and timber industries, with the exception of the index of education and occupation, they are either average or below average in relation to the community sensitivity indexes.

FIGURE 5.11: SOUTHERN FOREST CRA REGION (CSI)

FIGURE 5.12: SOUTHERN FOREST CRA REGION (EMPLOYMENT)

FIGURE 5.13: NORTHERN REGION (CSI)

FIGURE 5.14: NORTHERN REGION (EMPLOYMENT)

FIGURE 5.15: SOUTH COAST REGION (CSI)

FIGURE 5.16: SOUTH COAST REGION (EMPLOYMENT)

FIGURE 5.17: TUMUT REGION (CSI)

FIGURE 5.18: TUMUT REGION (EMPLOYMENT)

FIGURE 5.19: ALBURY-WODONGA CATCHMENT (CSI)

FIGURE 5.20: ALBURY-WODONGA CATCHMENT (EMPLOYMENT)

FIGURE 5.21: BATEMANS BAY CATCHMENT (CSI)

FIGURE 5.22: BATEMANS BAY CATCHMENT (EMPLOYMENT)

FIGURE 5.23: BATHURST CATCHMENT (CSI)

FIGURE 5.24: BATHURST CATCHMENT (EMPLOYMENT)

FIGURE 5.25: BOWRAL CATCHMENT (CSI)

FIGURE 5.26: BOWRAL CATCHMENT (EMPLOYMENT)

FIGURE 5.27: CANBERRA CATCHMENT (CSI)

FIGURE 5.28: CANBERRA CATCHMENT (EMPLOYMENT)

FIGURE 5.29: COOMA CATCHMENT (CSI)

FIGURE 5.30: COOMA CATCHMENT (EMPLOYMENT)

FIGURE 5.31: GOULBURN CATCHMENT (CSI)

FIGURE 5.32: GOULBURN CATCHMENT (EMPLOYMENT)

FIGURE 5.33: JINDABYNE CATCHMENT (CSI)

FIGURE 5.34: JINDABYNE CATCHMENT (EMPLOYMENT)

FIGURE 5.35: KIAMA CATCHMENT (CSI)

FIGURE 5.36: KIAMA CATCHMENT (EMPLOYMENT)

FIGURE 5.37: MORUYA CATCHMENT (CSI)

FIGURE 5.38: MORUYA CATCHMENT (EMPLOYMENT)

FIGURE 5.39: NAROOMA CATCHMENT (CSI)

FIGURE 5.40: NAROOMA CATCHMENT (EMPLOYMENT)

FIGURE 5.41: NOWRA CATCHMENT (CSI)

FIGURE 5.42: NOWRA CATCHMENT (EMPLOYMENT)

FIGURE 5.43: TUMUT CATCHMENT (CSI)

FIGURE 5.44: TUMUT CATCHMENT (EMPLOYMENT)

FIGURE 5.45: ULLADULLA CATCHMENT (CSI)

FIGURE 5.46: ULLADULLA CATCHMENT (EMPLOYMENT)

FIGURE 5.47: WAGGA WAGGA CATCHMENT (CSI)

FIGURE 5.48: WAGGA WAGGA CATCHMENT (EMPLOYMENT)

FIGURE 5.49: YASS CATCHMENT (CSI)

FIGURE 5.50: YASS CATCHMENT (EMPLOYMENT)

6. SOCIAL VALUES

6.1 INTRODUCTION

The Community Case Study Report was undertaken as a joint Commonwealth/State Project. This document was initially released as a stand alone report. It is now presented as a chapter to provide a snapshot of six case study communities in the Southern RFA region NSW. These communities were selected in consultation with the Southern CRA Economic and Social Technical Committee and the Regional Forest Forum as communities likely to experience significant social impacts as a result of changes to forest management and land tenure. These communities are Narooma, Batemans Bay, Ulladulla, Wandandian, Tumbarumba and Tumut

The distribution of these communities within the Southern region study area is shown in Map 6.1.

6.1.1 Case study town—Narooma

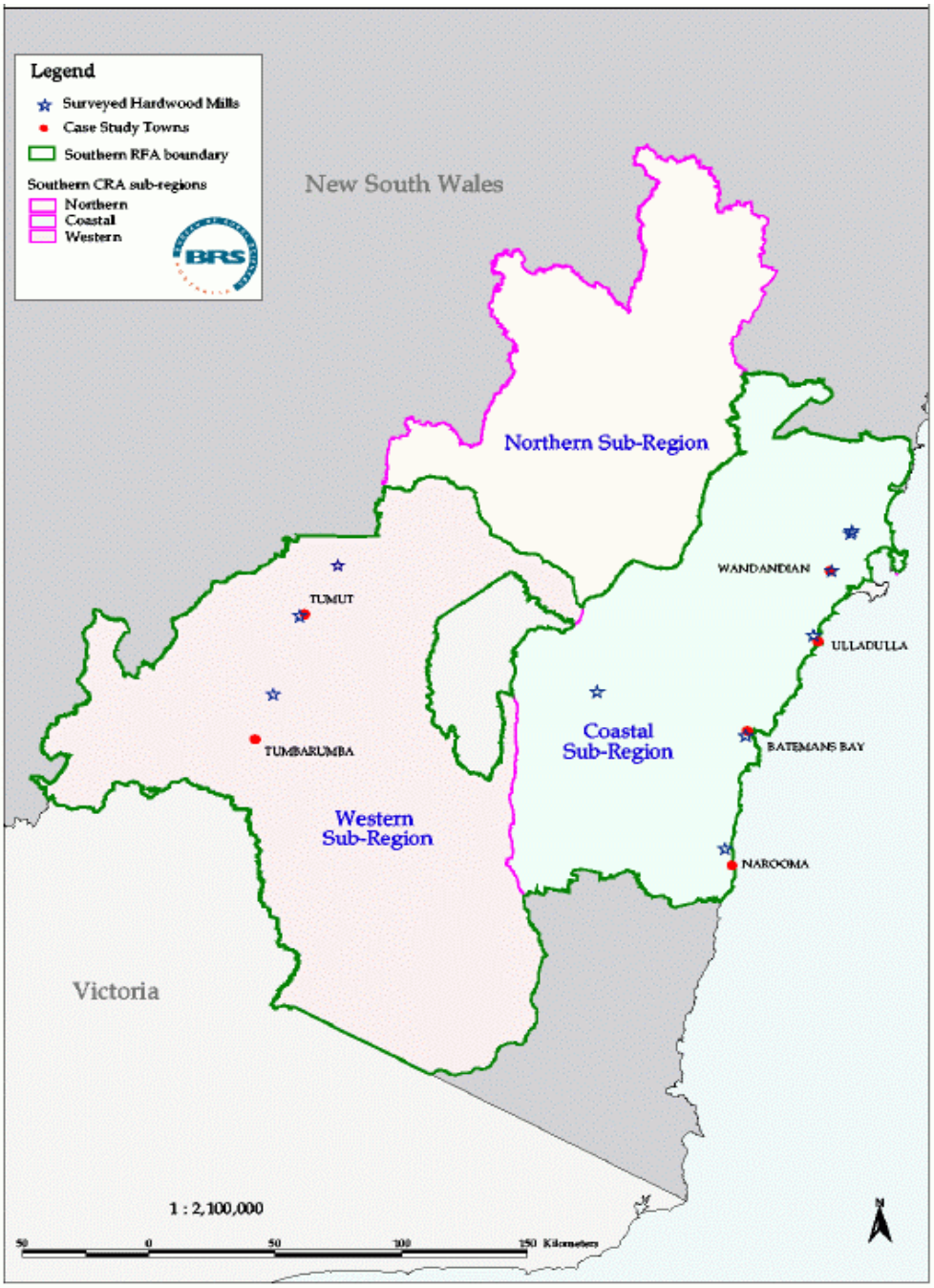
History of settlement

Narooma, is a coastal town that is almost completely surrounded by the waters of the Wagonga Inlet, the estuary and the Pacific Ocean. Until 1972 Narooma was known as ‘Noorooma’, an Aboriginal name meaning ‘blue water’ or ‘sacred stone’

In its early years, Narooma was a port for the transport of local produce, a ship building centre, and a timber cutting and sawmilling area. In 1906 Mitchell Brothers moved their sawmill operations from Port Stephens to Narooma leading to the establishment of a railway sleeper cutting industry in the area. A bridge built across the river in 1931 and the establishment of a steamship service along the south coast contributed to the development of Narooma as a holiday destination. Commercial fishing commenced in the 1930s and a fish cannery was established in 1940.

The town is now a popular tourist destination offering crystal clean water and beaches, and boating, aquatic sports, whale watching and big game fishing being popular activities. Surf beaches, golf courses and the Montague Island wildlife and marine life sanctuary and flora reserve are close by and offer a wide range of recreational choices.

MAP 6.1: CASE STUDY LOCATIONS WITHIN THE SOUTHERN CRA REGION, NSW



The timber, shipbuilding and oyster farming industries continue to be integral to the viability of Narooma.

Significant forests in the area include Bodalla Forest Park, Bodalla State Forest and the Gulaga Flora Reserve.

Major events

Annual events include the Great Southern International Blues Festival that is held in October each year. Whale watching attracts large numbers of visitors to the region between mid-September and mid-November.

Population

In 1996 Narooma's population was 3 389. Over the 1991–1996 period the population increased by approximately 1% (1991:3 443 persons). Of the total 1996 population, 82% were aged between 0–15 years and 28% were aged 65 or more. This equates to a dependency ratio of 47%[3]. The median age was 48 years, significantly higher than that of NSW (34 years).

TABLE 6.1: SELECTED CHARACTERISTICS—NAROOMA

Characteristics	Persons
Total persons	3 389
Aged 15 years and over	2 793
Aboriginal	73
Torres Strait Islander	0
Both Aboriginal/Torres Strait Islander	6
Australian born	2 851
Born overseas: Canada, Ireland, NZ, South Africa, and USA	283
Born overseas: Other country	144
Born overseas: Total	427
Speaks English only and aged 5 years and over	3 037
Speaks language other than English and aged 5 years and over	96
Australian citizen	3 180
Australian citizen aged 18 years and over	2 497
Unemployed	155
Employed	931
In the labour force	1 086
Not in the labour force	1 668
Unemployment rate	14.3
Enumerated in private dwelling	3 310
Enumerated in non-private dwelling	79
Persons enumerated same address 5 years ago	1 770
Persons enumerated different address 5 years ago	1 366
Overseas visitor	3

Source ABS 1996 census CDATA table

[3] Dependency ratios: the proportion of persons in the community not earning an income from participating in the labour force including those aged 0 to 15 years and those aged 65 years and over compared to the total population.

Employment and industry

The 1996 Census showed that 1086 people (32% of the total population) were in the labour force. The unemployment rate was approximately 14% with 155 people looking for work. This was 5% higher than the NSW unemployment rate (9%).

Major industries were retail trade (20%), accommodation, cafés and restaurants (14%), education (8%), health (8%), construction (7%), agriculture, forestry and fishing (6%) and manufacturing (6%).

Income

The median household income was $386 per week, much lower than the NSW median of $655 per week and the NSW rural household weekly median income of $573. The median individual income was $198 per week.

Health

The Narooma community does not have a hospital but is serviced by the hospital at Moruya which provides a range of outreach services. These include:

- geriatric services and the audiometry services (through Australian Hearing Services) on a weekly basis;
- sexual health;
- Aboriginal Corporation community health;
- a foot clinic has recently closed but is expected to reopen soon;
- an aged care team located in Moruya provides some outreach services; and
- a travelling school dental van visits irregularly.

A community health service provides physiotherapy, mental health, speech therapy, community nursing, occupational therapy, drug and alcohol counselling, dietary and diabetic education, day care, and early childhood services. The service level is currently stable with waiting lists for most services and an ambulance that provides transport for people requiring hospital treatment at Moruya. The service will be upgraded in the near future and relocated to a new building.

Education

A range of educational facilities is located in Narooma. These include a government high school, a government primary school, and a special unit that assists emotionally disturbed children. Educational facilities for disabled students at primary and high school level are located in Moruya.

The majority of persons in Narooma (86%) were not attending educational institutions. Of the 14% who were in educational institutions, 8% attended infants and primary schools, and 6% attended secondary schools. Forty-eight per cent of residents had left school at or before 15 years of age.

The following table identifies the number of people attending each educational sector during 1996.

TABLE 6.2: EDUCATION—NAROOMA

Educational sectors	Persons
Pre-school	42
Infants/primary school	283
Secondary school	206
Technical/further education	48
University or other tertiary institutions	19
Other	7
Not attending	2 650
Not stated	134
Overseas visitor	6
Total	3 395

Source: ABS 1996 Census CDATA tables

Housing

In 1996 approximately 50% of homes in Narooma were fully owned, 13% were being purchased, and 31% were being rented or occupied rent free or under a life tenure system. Thirty-one per cent of all properties were unoccupied. The high proportion of houses owned by non-residents may be a contributing factor to the relatively high home vacancy rate. The Eurobodalla Shire Council's 1997–98 Annual Report noted that 53% of general ratepayers lived in the Shire while a further 33% lived in the ACT, Queanbeyan or the Sydney metropolitan area. This may also explain the large number of uninhabited dwellings.

TABLE 6.3: HOUSING—NAROOMA

Housing	Total
Total occupied private dwellings	1 451
Fully owned	735
Being purchased	191
Being rented or occupied rent free or occupied under a life tenure system	454
Other/not stated	71
Unoccupied	445

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT.

The median monthly housing loan repayment in 1996 for Narooma was $639 compared to $780 for the whole of the Southern region and $906 in NSW. Median rent was $110 per week.

Communications

Narooma has no local radio station but is served by 2ER FM in Moruya and 2EC Power FM in Batemans Bay. The *Narooma Area News* is the local paper and *The Baypost Southern Star* also covers the region. The town has one Internet provider, Sci Net.

Community services

Narooma has a wide range of community services but some are shared with Moruya and Batemans Bay. These include library services, a transport service for the frail and disabled, an alcoholic rehabilitation service, meals on wheels, a nursing mother's association and a police station. The town has a hostel for disabled people.

The town also has an after-school care and vacation care centre in the local primary school and a public swimming pool. A new library is under development, and a visitors centre is located prominently on the Princes Highway.

6.1.2 Outcomes of Narooma community workshop

Held: Tuesday 22 June 1999

Groups represented: chamber of commerce, the timber industry, State Forests NSW, Narooma High School, community health, LSCCMC (Catchment Management), Whale Coast Realty, Eurobodalla Shire Council, Narooma Taxi Service, Eurobodalla Riding for the Disabled, the Catholic Church and the Narooma Visitors Centre.

What have been the significant events in your community since 1980?

Date	Event
Early 70s – 1985	Major dislocation—cannery closed, closure of sawmills and spot mills.
late 70s	Golf course doubled.
late 70s	Breakwater built.
1980–85	Significant building activity.
1981–82	Construction of the High School.
1982	Narooma Plaza built. Dislocated the town into 3 centres of activity—ultimately a bad planning decision.
1982	Harris Daishawa extended processing of head and butt residues which doubled employment in the industry.
1983–84	Nursing home built.
1984	Catholic church built—old one relocated, affected development in the main street since shops erected on the old site (Anglican Church also built) — new carpark at old church.
1985–86	300 site caravan park built.
1987	High school destroyed by fire.
1988	Tourist Information Centre built.
Late 80s	Rejection of developments for major international hotel like St Kilda or Oaklands.
1989	Lawlers Creek Sawmill burnt down—rebuilt soon after.
1990+	Slump in building activity—no real growth in 10 years
1990-	Eurobodalla Council had a policy of not providing financial support for development.
1990	Parklands development (Villas) People selling previous houses (1/2 way through development). This is affecting the building industry as there's only one developer. Declining interest rates affected disposable income of retirees in turn affecting business (70% are retired). Young people are leaving town because of a decline in the building industry.

Date	Event
1991	School rebuilt.
1991	Whale watching and tours to Montague Island began. Now up to 6000 tourists per year.
1991	A more structured and coordinated approach to development began to take place across the Eurobodalla Shire.
1993–94	Olympic pool covered and heated—community raised money for it.
1993	Oaklands' conference centre development proposal rejected.
1995–96	Commenced Aboriginal cultural tours to Gulaga Mountain—Umbarra Cultural tours.
1996	State Forests office downgraded and new regional office established at Batemans Bay—reduced staff from 7 to 4.
1997	Established an Aboriginal dental service for the whole area.
In process	Foreshore development and beautification with input from the community.

How did the community manage these events?

Positive event—change of focus in community: opening of High School, cultural tours, whale watching and foreshore development

It began as a rates equity issue. (Why are funds being spent elsewhere?). Needed a quick solution to Council embarrassment. The Community supported it.

Narooma was a popular tourist area in the 1950s. Charter companies and the community promoted whale watching and kick-started the movement. Foreshore development has been driven by the Chamber of Commerce with lots of community consultation. It has also included input from Aboriginal groups. They have provided sponsorship of sites etc. The Narooma Tourist Association provided a framework for success.

Now Narooma is adjusting to change in tourist habits. People are coming for shorter stays but are seeking better quality accommodation. Narooma can't offer 4–5 star accommodation.

The Aboriginal community in Narooma has promoted tours seeing it as a way of promoting the identity of the community and Aboriginal culture. National Parks and State Forests have cooperated on the ventures. It provides an education to city kids.

Negative event—intention to develop the St Kilda and Oaklands site and rejection of proposal

It's a manifestation of the problem that surrounds Narooma. Narooma is perceived as a sleepy seaside town. It's not seen as a 'node for tourism' in the Shire. There is a perception that there is a negative representation on Council.

The development was rejected on environmental grounds because of the building height and because the proposed site was on a steep slope. A group of business people objected to the development, and some significant landholders were reluctant to be involved in the development also. The land was sold a few years ago but still nothing happened.

Families have voted with their feet and have moved out as it is a tough place to generate wealth. Most are working for low rates or working in other towns. There are minimal prospects for youth to gain employment. More of the 17–24 year age group leave than in other rural communities, but they return at a later date.

There is an inherent resistance to change in the community as a result of the aged population. We import resistance to change.

Community feelings about Narooma

- It's a great place. We need more people and more money.
- The place needs a rev up. It's stagnating.
- It lacks intellectual capacity and drive.
- It's a difficult place to do business in.
- I love it but I am concerned that it's perceived to be a retirement town.
- It has pristine waters, clean air, low noise pollution and I'm glad my children can grow up in this environment.
- I thoroughly enjoy living here. I get positive comments from visitors.
- It has a distinct lack of community spirit.
- It's factionalised into interest groups.
- We need to generate a stronger sense of unity, community and identity.
- We get little support from the Council to get things moving in Narooma but lots of support from the community. Council even voted against the five year management plan as it involved spending money.
- There's a general feeling in the community that they can't change things but they could if they got together.
- A drawback is the lack of employment for young people. We educate them then export them. It's a drain on the community.
- It's a lovely place to live. We need a little more industry and development in the place.

Visions for Narooma

- It's a lovely place to live. We need to preserve the best of the environment, but you've got to make a living.
- I'd like to see more tourists all year round. Not so seasonal.
- More development to attract more tourists and encourage more kids to stay here.
- Support for small business development which is community led. Big business is not community oriented.
- Sensitive development to provide more opportunities for young people.
- We need social/economic/environmental development to attract people 35–50 years old.
- There are no deep family roots here as most aren't born here. We need to encourage better community balance, age range and industry development.
- I want community to look at the reasons why we CAN do things.
- A more united community where people think of others rather than themselves. We also need environmentally friendly development and industry.
- The community needs to become great hosts and ambassadors for the town.
- Leadership for the community.
- A small number of people who 'can do' and a collective common vision with commercial experience and skills. The different towns in the area compete with each other. The clubs are currently the biggest employers.

Responses to forest use options

Workshop participants were asked to look at three broad scenarios for forest management. The tables below have been structured to reflect the group's priorities.

Scenario A—What would be the social impacts in Narooma if areas currently deferred are reserved for conservation and other uses?

Positive impacts	Negative impacts
• Less disturbance in the catchment leading to change in water quality and less disturbance of flora and fauna. Timber cutting disturbs the environment. • Will have more comprehensive National Park and reserve system. • Promote the identity of the area as a key National Park area in a country which has only 6 per cent of forested land. • Preservation of some Aboriginal sites. • May bring tourists.	• There would be a loss of direct jobs in the timber industry. • People would lose jobs and leave town. • There will be a flow-on effect from losses of jobs in the timber industry to other areas of employment in the town—a threshold effect. • Reduction in potential for industry and development. • Reduction in Aboriginal employment in the timber industry. • Possible increased risk of large fires. • If not sufficient funding, the access to parks may not be maintained and may have a negative impact on tourism development. • If the area is taken away, the resource from State Forests won't be available for town's needs (timber for building etc). • Potential loss of 20% in forests might cause flow-on of 80% in town employment—helps another town up the road.

Scenario B—What would be the social impacts in Narooma if areas currently deferred become available for the timber industry and other uses?

Positive impacts	Negative impacts
• Things the community can do while forests are under State Forests hands that you can't do under National Parks (such as horse riding and four wheel driving). • Gives us potential to value add (and associated employment). • Forestry is a wealth creating industry whereas National Parks are not. • Would create confidence in the timber industry to invest in the future. • Maintenance or increase in employment in the timber industry. • Forest will last longer. • Forestry can be managed as a proper and better forest. Proper management = sustainable forestry.	• We wouldn't reach the objectives for a reserve system set by the governments (15% of each forest type pre 1750).

Scenario C—What would be the social impacts in Narooma if 50% of the forest areas currently deferred become available for timber and other uses and 50% of the forest areas currently deferred become available for conservation and recreation?

- There was no community response to this scenario.

6.1.3 Case study town—Batemans Bay

History of settlement

Batemans Bay is located at the mouth of the Clyde River and was named by Captain James Cook in 1770 after Nathaniel Batemans the Captain of the *Northumberland*.

The sale of land in 1841 allowed settlement to begin and by 1859 the township of Batemans Bay was laid out. The timber trade was an important and profitable industry from the start. Initially Nelligen, upstream on the Clyde River, was the focus of activity and prior to 1870 the Bay settlement grew slowly.

The opening of the Princes Highway in 1920 and the increased use of the car in the 1920s and 1930s laid the foundations for post war growth largely based on holiday and tourist traffic. By the time the bridge over the Clyde was opened in 1956, the town had become the centre of the local dairying and fishing industries, and was particularly renowned for its oysters and crayfish.

Major events

Annual events in Batemans Bay include ‘Bayfest’ the Clyde River Festival held in November, the Boating Expo and family fishing carnival held in March and the Carroll College Art and Crafts Show held in June.

Population

In 1996 Batemans Bay population was 9 568. During the 1991–1996 period the population increased by 15% (1991:8 320). Of the total population 80% were aged between 0–15 years and 24% were aged 65 or more. This equates dependency ratio of 45%. The median age was 42, significantly higher than that of NSW (34 years).

TABLE 6.4: SELECTED CHARACTERISTICS—BATEMANS BAY

Characteristics	Persons
Total persons	9 568
Aged 15 years and over	7 647
Aboriginal	287
Torres Strait Islander	0
Both Aboriginal/Torres Strait Islander	11
Australian born	7 846
Born overseas: Canada, Ireland, NZ, South Africa, and USA	784
Born overseas: Other country	527
Born overseas: Total	1 311
Speaks English only and aged 5 years and over	8 300
Speaks language other than English and aged 5 years and over	388
Australian citizen	8 858
Australian citizen aged 18 years and over	6 785
Unemployed	508
Employed	2 804
In the labour force	3 312
Not in the labour force	4 159
Unemployment rate	15.3
Enumerated in private dwelling	9 149
Enumerated in non-private dwelling	419
Persons enumerated same address 5 years ago	4 180
Persons enumerated different address 5 years ago	4 427
Overseas visitor	46

Source: ABS 1996 census CDATA table

Employment and industry

The 1996 Census showed that 3 312 people (approximately 35% of the total population) were in the labour force. The unemployment rate was 15% with 508 persons looking for work. This was approximately 6% higher than the NSW unemployment rate.

Major industries were retail trade (22%), accommodation, cafes and restaurants (13%), construction (8%), manufacturing (7%), and property and business services (7%).

Income

The median household income was $413 per week much lower than the NSW median of $655 per week, and the NSW rural household weekly median income of $573. Median individual income was $218 per week.

Health

Batemans Bay has a 37 bed hospital which has an emergency service, a four bed intensive care facility, a 3 bed children's ward, a maternity ward and a combined surgical, medical, rehabilitation and general ward. Physiotherapy services are also available. This hospital is part of the Eurobodalla Shire medical service. The main hospital is at Moruya. All doctors and specialists are visiting medical officers.

The Batemans Bay Community Health Centre operates outside the hospital infrastructure and provides early childhood, podiatry services, a social worker, Aboriginal health, speech therapy, occupational therapy, women's health, counselling and mental health services.

Education

A range of educational facilities are located in Batemans Bay. These include one government and one non-government secondary school, three government and one non-government primary school, and one government and one non-government post secondary facilities.

The majority of persons in Batemans Bay (76%) were not attending educational institutions. Of those who were, 51% attended infants and primary schools and 41% attended secondary schools. Attendance at government schools was almost three times that of persons attending non-government primary and secondary schools. Forty-five per cent of residents left school at or before 15 years of age.

The following table identifies the number of people attending each educational sector during 1996.

TABLE 6.5: EDUCATION—BATEMANS BAY

Educational sector	Persons
Pre-school	127
Infants/primary school	901
Secondary school	552
Technical/Further education	109
University or other tertiary institutions	54
Other	22
Not attending	7 340
Not stated	416
Overseas visitor	46
Total	9 567

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT

Housing

In 1996, 49% of houses in Batemans Bay were fully owned, 15% were being purchased, and 32% were being rented or occupied rent free or under a life tenure system. Approximately 42% of all houses were unoccupied which probably reflects their status as a holiday home.

TABLE 6.6: HOUSING—BATEMANS BAY

Housing	Total
Total occupied private dwellings	3 865
Fully owned	1 900
Being purchased	575
Being rented or occupied rent free or occupied under a life tenure system	1 227
Other/not stated	163
Unoccupied	1 614

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT

The median monthly housing loan repayment in 1996 was $702 compared to $780 in the Southern region and $906 in NSW. Median rent was $110 per week.

Communications

The *Bay Post* and the *South Coast Register* serve Batemans Bay. In addition *The Canberra Times* covers the Batemans Bay area. Batemans Bay also has a radio station—radio 2EC/Power FM, and two local Internet service providers.

Community service

Batemans Bay has a range of community services including respite/neighbour aid services, children's disability respite, family day care, out of school hours care, community transport, community options program, post school options program, attendant care scheme, and supported accommodation. An Aboriginal consultative committee has been established and a self-help community grants scheme has been received.

Other services include a library which is part of the Eurobodalla Shire Library network, a public hall and community centre, swimming pool, a visitor information centre and numerous sports grounds and public reserves.

The Ageing and Disability Department will be moving to the Southern Highlands in the near future.

6.1.4 Outcomes of Batemans Bay community workshop

Held Monday 21 June 1999

Groups represented: forest users, education, chamber of commerce, emergency services, senior citizens, NSW Farmers Association, Forest Protection Society, CFMEU, environmental groups, State Forests NSW, communications, catchment management, landcare, local government and health services.

What have been the significant events in your community since 1980?

Date	Event
1956	Batemans Bay Bridge opened. Previously crossing the river had to be done by punt.
1964	Bridge opened over Nelligen (no more punts).
1978	First year sewerage in Shire—$13m in early 1990s in north Batemans Bay. Further $11m investment soon.
1980–90	Greater awareness of community issues by the Council.
1980s	Opening of Carroll College and other schools.
1980s	Landfill and recycling upgraded
1980	1st deputation from community to Council
1981	Opening of Broulee link road.
1981	Deep Creek Dam construction. Moruya River had dried up. It overcame water restrictions.
1983	First mall type shopping centre built (Woolworths).
1986+	Increase in population by 41%. 24% of population is aged over 65yrs. 23% are aged less than 15 yrs. This has put pressure on the Shire. The number of persons aged 18–24 has been constant and is expected to remain constant until 2000.
1986+	Higher level of unemployment and welfare.
1988	Building of Batemans Bay High School.
1988	Opening of Sunshine Bay Primary.
1988	Dismantling of Perry's Handle Factory. It closed in 1980. Formerly employed 50 people.
1989?	Batemans Bay recognised as a regional centre.
1990+	Growth in the number of retirement villages.
1990	All Crown land in area committed for 'purposes'. ie Crown, National Park, State Forest.
1993 & 1997	Major rural restructuring in health administration.
1995+	Clubs undertook renovations—around $14million.
1995	Opening of Police Station.
1996–97	Formation of Eurobodalla NP and addition of Diamond Catchment area to National Park.
1996	Hospital upgraded—major upgrade to include operating theatre, nursery and new wards.
1997	Decision to relocate Batemans Bay Primary School.
1994	Bushfires on the whole of the southern edge of town, affecting the (timber) resource and the town.

How did the community manage these events?

Positive event—population growth and school openings and Batemans Bay being considered a regional centre

It was a small close-knit community. Half the people came from Canberra and it became a retirement area. They came from Victoria also. The opening of the bridges was critical. In the 1940s and 50s it took two days to get here from Sydney.

There was some impact from the building boom in the 1980s.There was also an impact from public servants taking redundancies, mostly early retirees, but the new settlers were not all old. There was also an increase in the number of people coming to the area to service retirees. They opened shops, had families and stayed after building boom. The town was a bit overwhelmed. It had no choice but to expand.

There has been a ribbon development along the coast. It's a great place to live and its recognised as a place to come. It had original families but new settlers made the community what it is.

Dynamic development is still under way and predicted to continue until next century. The town has a population of around 50 000 around Christmas.

Negative event—unemployment and population growing pains

There's been a fragmentation and decline of social structure in the community. There's been scapegoating of the youth and marginalisation of 'Aboriginals'. The town has a massive drug problem related to a lack of opportunities. The age of 'users' is getting younger. It's no longer just surfies. Kids come home from school and there's nothing to do. Parents don't know what the kids are doing as they're both working.

The community values older people. It still has a village atmosphere, especially in some of the outlying villages.

The number of people aged 18 to 24 years has remained fairly static because there's not a great deal of post-secondary education and training. They need to go to Sydney, Melbourne or Canberra to get jobs and training. There are lots of casual jobs but there's no major industry. The young leave if there's no employment. Parents often disagree on opportunities for kids.

Moruya TAFE was rebuilt in the last couple of years. There will be new library access soon at Hanging Rock. It will be part of Wollongong University. Batemans Bay is a country town. Young people are slightly discouraged from correspondence courses as they're still in the same routine if they stay.

Community feelings about Batemans Bay

- Alive.
- Developing.
- It's got a lot of future.
- It's an ideal place to retire to.
- It's a positive and honest community.
- A great place to retire.
- I was born in Batemans Bay and I loved it with a small population—it's too big now.
- There's a lack of community cohesion
- I've got mixed feelings. It's sad because of things going on—unemployment.
- I feel positive about it.
- The potential is exciting.
- The centrepiece of Batemans Bay is the natural environment.
- Its service centre is fragmented. It doesn't have a central heart and development is in a fragmented, multi-faceted way.
- It's good but it needs more focus on younger people—even 18 to 24 year olds. More encouragement is needed.
- The place has great potential because it's got location, environment, and technology. I'm worried about the fragmentation
- I see three separate communities—Batemans Bay, Moruya and Narooma. Would like to see more emphasis on the rural aspects of the area—not just retirement and tourism.
- We need not be left behind. We need to return to rural values.

Visions for Batemans Bay

- Clean and green.
- Sustainable development we can all share.
- Need to tie community more closely—bring old and young together.
- Clean and green with a heart—too much fragmentation now.
- Greater self-sufficiency—too dependent on Canberra.
- Accentuating the positives (the town).
- Sustainable development tied to employment.
- A trend for increase in employment rather than unemployment. If this was the case, there'd be potential for 100 more years.
- Accentuate the rural farming heart. Development is unavoidable. We have had tourism boom and growth and now we need to go back to a sense of community and rural lifestyle—the things that made Batemans Bay attractive in the first place.
- Healthy industry to encourage employment.
- Focused and cohesive community with an emphasis on the future.
- Balance on environmental attitude of the Batemans Bay city area—not one type of growth overpowering the other.
- Employment for the young and not so young.
- More recreational facilities for youth.
- With population increase predicted we need to walk the fine line—we mustn't emulate the Gold Coast. We need to keep a balance between the density of growth with consideration of encroachment on the country areas.
- To live in a 'belonging' community that values each other's differences and where everyone has a sense of belonging (no-one's left out).

Reactions to forest use options

Workshop participants were asked to look at three broad scenarios for forest management. The tables below have been structured to reflect the priority each point was assigned by the group.

Scenario A—What would be the social impact on Batemans Bay if the forest currently deferred became reserved for conservation and recreation?

Positive	Negative
• Public perception of ecotourism in Batemans Bay will increase. People feel that if there's a reserve system, the value is high. • Increase in other industries and increased employment opportunities, eg ecotourism. • Some increase in possibility of timber industry value-adding. • Re-employment of forest workers in other fields.	• A high risk that Batemans Bay sawmill mill will close. • 64 jobs will be directly affected. There'll be spin offs (impacts) in the region as well. • Increase in imports. It will affect timber price, national debt and the global environment. • Will see resource doing nothing while we import resource. Not keeping money in the town and community—a waste of good timber resources. • Families of people directly involved would be under stress—possible increase in divorce and suicide. • Hard to find alternate employment for timber workers. • Changing emphasis in community away from rural industry to ecotourism—stand to lose historic identity of the forestry industry. • Possible increase in Aboriginal unemployment. The mill employs a significant number of Aborigines. Forestry workers are terribly hard to find jobs for. • Possibility that ecotourism might close/suffer because the area could be closed to camping and tourism.

Scenario B—What would be the social impacts on Batemans Bay if the forest areas that are currently deferred become available for timber and other industries?

Positive	Negative
• Increased opportunities for timber employment, especially in value adding component. • Increased employment and prosperity. • If forest open then roads will be maintained and available to community The forest road network is valuable especially if community access is given • Can showcase the older rural industries, where we have come from as a community, ie Eden Forestry Centre shows value-adding and shows what we can do for the community and the area.	• Timber workers may conflict with campers as logging activities may shut off access. • Possible loss of employment opportunities in other industries, eg ecotourism could be compromised.

Scenario C—What would be some of the social impacts in Batemans Bay if 50% of the forest areas currently deferred become available for timber and other uses and 50% of the forest areas currently deferred become available for conservation and recreation?

- There was no community response to this scenario.

Other issues

Other issues raised in the workshop that were not included as responses to the scenarios were:

- management of bushfire risk under any scenario (litter left on forest floor);
- lack of value-adding facilities in an area adds to unemployment—wood resource shipped away;
- local timber getters should be given a fair amount of timber. Local people should get the benefit of decisions—can use a more sustainable method of harvesting—more selective logging;
- concerned about the amount of area available; and
- change in paradigm and culture to include re-skilling of forest workers in ecotourism and to incorporate increased employment and minimisation of forest impact although forest workers are terribly hard to find jobs for.

6.1.5 Case study town—Ulladulla

History of settlement

Ulladulla is a seaside resort located 227 km south of Sydney on the Princes Highway. The name Ulladulla originally applied to the area which ‘the settlement’, now Milton, and ‘boat harbour’, now Ulladulla, were located. There are a number of theories about the origin of the name Ulladulla. It is thought the name is a corruption of the Aboriginal word ‘Woollahderrah’ recorded by the first surveyor in the area, or ‘Null-ladolla’ used by an early settler in 1828. A further interpretation suggests the name is that the name is derived from the Aboriginal word meaning ‘safe harbour’.

Holey Dollar was another name once given to the settlement after the colony's unofficial currency.

Settlement of the area by timber harvesters began early in the 19th century and by 1840 Ulladulla was known as a timber port that transported red cedar. Ship building also commenced during the 1840s. The harbour became increasingly important to shipping and in 1879 a lighthouse, later removed to Warden Head, was built.

Other early industries included dairying, wheat growing (destroyed when 'rust' hit the south coast in the 1860s), pig rearing, honey production, maize and vegetable cultivation, tanning, and mining of silica and quartzite.

Tourism was first promoted late in the nineteenth century but did not become a major industry until the Princes Highway was built and the use of cars made the area accessible to the average worker. Along with tourism, commercial fishing has developed as an important industry with many of the fleet operated by descendants of the originators, the Puglisi family.

Major events

Markets are held at the Ulladulla wharf on the second Sunday of each month and each Easter there is the Blessing of the Fleet. A Scarecrow Festival is held in Milton the first Sunday after Easter. The annual Game Fishing Tournament is held late in January each year and the Sport Fishing Convention in late February or early March. In August the festival of Food and Wine by the Sea is held.

Population

In 1996 Ulladulla's population was 8 384. Over the 1991–1996 period the population increased by approximately 14% (7381 persons). Of these, 79% were aged between 0–15 years and 23% were aged 65 and over. This equates to a dependency ratio of approximately 46%. The median age was 42, significantly higher than that of NSW (34 years).

Employment and industry

The 1996 Census showed that 2 799 (approximately 33% of the total population) were in the labour force. The unemployment rate was over 16% with 455 people looking for work.

Major industries were retail trade (20%), accommodation, cafes and restaurants (11%), health and community services (9%), manufacturing (8%) wholesale trade (8%), and education (7%).

TABLE 6.7: SELECTED CHARACTERISTICS—ULLADULLA

Characteristics	Persons
Total persons	8 384
Aged 15 years and over	6 623
Aboriginal	108
Torres Strait Islander	16
Both Aboriginal/Torres Strait Islander	8
Australian born	7 093
Born overseas: Canada, Ireland, New Zealand, South Africa, UK and USA	596
Born overseas: other	407
Born overseas: total	1 003
Speaks English only and aged 5 years and over	7 280
Speaks language other than English and aged 5 years and over	307
Australian citizen	7 863
Australian citizen aged 18 years and over	5 902
Unemployed	455
Employed	2 344
In the labour force	2 799
Not in the labour force	3 708
Unemployment rate	16.3
Enumerated in private dwelling	8 310
Enumerated in non-private dwelling	74
Persons enumerated same address 5 years ago	4 086
Persons enumerated different address 5 years ago	3 450
Overseas visitor	25

Source: ABS 1996 census CDATA table

Income

The 1996 Census showed the median household income for Ulladulla was $406 per week, significantly less than the $655 per week for NSW, and the NSW rural household weekly median income of $573. The median weekly individual income was $202.

Health

The Milton-Ulladulla Hospital has 21 beds. The hospital provides casualty, medical and maternity services as well as minor surgical and physiotherapy services.

The Ulladulla Community Health Centre provides a range of services on either a full time, part-time or casual basis. These include a general community nurse; early childhood services; a social worker; a psychiatrist; women's health, sexual assault, mental health; podiatry; dietary; aged and palliative care, hearing, meals on wheels, dental, and drug and alcohol. Due to space constraints these services are disseminated within a number of buildings.

Patients requiring rehabilitation are sent to the David Berry Hospital in Carinya. Children are sent to Nowra or Wollongong. The Shoalhaven Hospital at Nowra (about 70 km north of Ulladulla) also provides intensive care services.

Ulladulla has an ambulance station that operates 24 hours a day. It has three ambulances and six personnel.

Education

A wide range of educational institutions is located in Ulladulla. These include one government and one non-government secondary schools and two government and one non-government primary schools. Technical and further education facilities are also located in Ulladulla. University students usually attend the University of Wollongong.

The Budawang School for Specific Purposes caters for students between the 4 and 20 years old with severe to moderate disabilities and employs four teachers and three other staff. The School is one of two for disabled people in the Shoalhaven LGA, the other is in Nowra. The school accepts students from throughout NSW provided they have accommodation. Most students reside with their families.

The majority of persons in Ulladulla (75%) are currently not attending educational institutions. Of those who are, 49% attend infants and primary schools and 29% attend secondary school.

The following table identifies the number of people attending each educational sector during 1996.

TABLE 6.8: EDUCATION—ULLADULLA

Educational sector	Persons
Pre-school	159
Infants/primary school	853
Secondary school	504
Technical or further education institution	150
University or other tertiary institution	44
Other	24
Not attending	6 268
Not stated	356
Overseas visitor	25
Total	8 383

Source: ABS CDATA 1998

Housing

In 1996, 56% of houses in Ulladulla were fully owned, 15% were being purchased, and 25% were being rented or occupied rent free or under a life tenure system. Approximately 42% of all houses were unoccupied which probably reflects their status as a holiday home.

TABLE 6.9: HOUSING—ULLADULLA

Housing	Total
Total occupied private dwellings	3 473
Fully owned	1 957
Being purchased	513
Being rented or occupied rent free or occupied under a life tenure system	875
Other/not stated	128
Unoccupied	1 559

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT

The median monthly home loan repayment was $693. Median weekly rent was $120.

Communications

Ulladulla is served by the *Shoalhaven and Nowra News* and the *Milton-Ulladulla Times*. Reception is available for radio stations 2ST AM, 2ST FM, Power FM, ABC FM Illawarra and 2UUU FM as well as community radio. The area is served by regional television stations Prime, Ten Capital and Win (based in Wollongong). Ulladulla has two local Internet service providers.

Community services

In 1998, Ulladulla provided a range of support services for people with disabilities, including employment, housing, transport and respite services. A range of services for the elderly including homecare, meals on wheels, social clubs and transport services were also available.

Other services located in Ulladulla include a youth centre; an Aboriginal Educational Consultative Group; the Mollymook Surf Life Saving Club; the Royal Volunteer Coastal Patrol; State Emergency Service; NRMA road service; various sport clubs; a skateboard complex; a BMX track; three swimming pools; 10 churches; twin cinemas, police, fire brigade and ambulance stations, and a library.

6.1.6 Outcomes of Ulladulla community workshop

Held: Wednesday 23 June 1999

Groups represented: Shoalhaven City Council Visitors Centre, Ulladulla Lions Club, Ulladulla High School, Australia Post, Ulladulla Sport and Game Fishing Club, Ulladulla Harbour Task Force, State Forests NSW, Shoalhaven City Council, local government representative, farmers, Romney Park Sawmill, Leo's Club Ulladulla, The Advertiser (Newspaper), senior citizens, Community Resource Centre, National Parks and Wildlife Service, Forest Protection Society, Horse Riders.

What have been the significant events in your community since 1980?

Date	Event
1951+	Blessing of the Fleet Production—Annual event that returned after a 20-year break.
1963+	Demise of dairy industry (74 dairy farms in 1963, now 9 as a result of quotas becoming negotiable).
1970s	Subdivision of former farms led to bigger farms becoming more viable.
1980s	Building of Sarah Claydon retirement village.
1983	State Surf Titles held in Ulladulla.
1984	TAFE moved from Milton.
1984	Ulladulla Civic Centre rebuilt.
mid 1980s to late 1990s	Growth in tourist industry (including various types of tourism and cultural activities)
mid 1980s	Increase in area managed by National Parks and creation of Wilderness areas in the region. Wilderness Legislation introduced
late 1980s	Closure of Boral/Alan Taylor Mill
late 1980s	Closure of Davis and Herbert Mill (both mills—2 to 3 shifts then 1 shift then closure)
Late 1980s	Influx of retirees impacted on property prices and social balance. Interest rate drop led to decline in spending power. This had an impact on health services due to the aging population. This was followed by an exodus of people because of the lack of medical services and inadequate hospital
1989	Introduction of NHT and Landcare funds into the region.
1990	Shoalhaven Anglican School started as a Primary School and evolved into a High School.
1990–91	Fishing quotas introduced (including bicatch quota). This increased profitability.
1993+	Increased activity of Aboriginal community and land grants to community. Development of land into walking tails etc.
1995	Introduction of Coastcare funds into region.
1995–96	Police station moved from Milton.
1995+	Problems getting development projects through leads to frustration in local area due to problems with land availability and legislation. Aggravated by indigenous land claims and coverage of Crown Land—have to go through very complex processes to get development.
1996	Milton/Ulladulla vision structure plan and community consultation which led to the decision for a by-pass.
1997	Building of skate park
1997	Endangered species of frog found.
March 1998	Opening of Coles Supermarket.
1998	Construction and building of leisure centre and heated pool.
1998	Skate frenzy—national skateboarding event.
1998	Warped tour of Milton—bands/BMX/Skateboards.
1998	Renovation of Milton Theatre.
1998	Grant of $300 000 to address pollution in Ulladulla Harbour including education component. A big improvement in the harbour.
1998	Reconciliation Festival.

How did the community manage these events?

Positive event: Increase in tourism

It was triggered by marketing, promotion and early retirees. More people came from Sydney than Victoria. There has been lots of marketing of the area since 1985. The area is the new alternative to the North Coast NSW. It has lower land prices, quieter lifestyle, natural beauty and surf.

The community has mixed feelings about tourism. Tourists are called ‘terrorists’ by some locals. The Council analysed the reasons for these mixed feelings. They assigned more community funds for programs, ie tourism association, festivals, food and wine festival, scarecrow festival, settlers fair. Locals also do some promotion of

the area, but it comes to the point where tourism is spoiling the values promoted. This is a concern.

The big problem is the short season. The town is trying to encourage all year round tourism. Tourism comes at cost to services and infrastructure. We need to flatten this peak.

The town needs a five star hotel. There was uproar over proposals for developments of three or more storeys. We need to questions the limits of how far we want to go.

Negative event: Increased development protocols for development of community facilities

This is limiting development. The community is involved in bigger picture projects.

We've been seeking appropriate land for sporting facilities etc. but projects have been held up.

The community supports community development and has demonstrated this by being involved in lobbying, meetings, taskforces, and advisory committees. The problem is that there are too many stakeholders so it's hard to get consensus on a project. Someone always has objections. For example we've been trying to get a Go Kart facility, and keep running into problems associated with getting a parcel of land that answers legislative barriers.

The convoluted and lengthy process for approvals leads to frustration. It's hard for the community to address this. The Skate Park development was successful after 17 years (from the initial stage of development to a current larger complex).

Development can be seen in the negative. It's mostly on Crown land but some land is privately owned. Crown land is now limited. There's no level playing field. It's government agencies versus community interest. Although accessing funding access has not been a problem. It seems that State Government has no problem getting roads approved but local industry has problems.

Community feelings about Ulladulla

- Happy. It's changed a lot—not always for the better but I'll stay. It's the best of both worlds (farm and city).
- There are problems with the skateboard ramp. I'm happy in the community.
- It's good for young people, the youth facilities are here.
- It's a fascinating community. I absolutely love living here.
- It provides a good environment for the young. The pluses outweigh the minuses if you can generate your own fun.
- I think it's pretty good but it's not recognised that we need to provide for growth and recognise the needs of young and old.
- The climate etc, lends itself to an influx of a range of different types of people. There's an impact on the community as growth is ahead of resources.
- The size and spread of the community is good. It's small enough so it's not impersonal but large enough for privacy.
- I've been here 40 years. I couldn't imagine a better place to live. Not all changes have been for the better. There's not enough work for kids. They have to leave paradise for work.
- It's a great place. I left 40 years ago and returned. It's a beautiful area. The services need to be better and faster.
- I'm proud of this community. I wasn't happy 15 years ago. Development is better now. The community is working together on things like planting projects and there's a sense of community. Will be worthwhile. We're getting somewhere now.
- I love the place. I've been here 16 years. I'm worried about the pressures of development. It's coming too quickly. Employment is a problem. The town needs bread and butter industry here as tourism is seasonal and not full time employment.
- Community groups are all having a go without seeking recognition. They're putting in a lot of work.
- There's been an enormous amount of energy from the community channelled into making the city a better place. It's a privilege to live here. I can't imagine a better place. There's a spectrum of people and values but still a balance. Blessed to be here.
- I'm lucky. There are beaches, bush, proximity to cities. People are supportive and friendly.

Visions for Ulladulla

- A bigger library.
- Sensible, sensitive, sustainable development.
- Increased awareness and protection of the environment.
- Decentralisation of city commercial activities to Ulladulla and flow on to employment.
- I see forestry as a great provider for employment opportunities and a viable industry with a long-term future.
- Care of forestry. A sustainable, renewable industry and replanting.
- A limit placed on development of the area, ie as in the Byron Bay area. No more development in some places.
- Continuation of sustainable development including involvement of community and local government.
- A turn around so community relies less on service organisations (ie Lions Clubs etc) and volunteers.
- Maintain clean, green environment. Maintain sensible planning and growth in youth employment. I would like to see a community that demonstrates tolerance not selfishness.
- For people to use the harbour as an asset instead of as a tip and enhance approaches to the town from the north and south.
- Preservation of beaches and natural environment for health lifestyle.
- More employment and TAFE courses for young people so they don't have to move away.
- A final environment plan that caters for all values—and with an end!
- Ulladulla has benefited from the demise of Milton (There has been a closure of Westpac bank and the police station in Milton). I'd like to return Milton to its former glory.

Reaction to forest use

Workshop participants were asked to look at three broad scenarios for forest management. The tables below have been structured to reflect the priority each point was assigned by the group.

Scenario A—What would be the social impacts in Ulladulla if areas currently deferred (set aside) are reserved for conservation and recreation?

Positive	Negative
• Increase in ecotourism and associated facilities • Areas conserved so our children can go into the bush and see it as it is in its natural state. • Possible increase in value-adding (what is lost will be made up) • Increased protection of endangered species • Protect water quality in catchment • Increased number of jobs in land management • Increased protection of area from activities such as landfill • Increased number of jobs in ecotourism • Utilise existing forest roads so no extra impact on environment • Nil impact	• More money needed from public purse to administer National Parks • Could lead to increased imports of timber and loss of employment and loss of decision to live in a timbered house • Close down timber industry—more pressure on environment through use of other building materials • Everyday users could be locked out, ie 4WD, walkers and horse riding • Likelihood of more feral animals • Increased bushfire activity when areas are 'returned to nature' • Loss of grazing leases in the new National Parks • Increased risk for safety of bushfire brigade • Closing of deferred areas of State Forests means people have to travel further to get resource ie firewood • Nil Impact

Scenario B—What would be the social impacts on Ulladulla if areas currently deferred (set aside) become available for the timber industry and other uses?

Positive	Negative
• Benefit if locally produced, processed and sold here • Land for community may be more easily accessible • Huge impact on employment and security	• No benefit to local community if timber shipped out without value-adding. • Loss of incentives for value-adding • Visual scarring of forests and clear felling close to roads and urban areas

Scenario C—What would be the social impact on Ulladulla if 50% of areas currently set aside are reserved for conservation and recreation and 50% become available to the timber industry and other uses?

Positive	Negative
• Possible increase in ecotourism	

6.1.7 Case study town—Wandandian

History of settlement

Wandandian is a small village on the Princes Highway, around half an hour's drive south of Nowra. The name Wandandian means 'home of lost lovers'.

Wandandian was first settled by Europeans in the 1850s and settlement became more pronounced in the 1880s with extensive clearing of land for farms occurring at

this time. Farming, timber cutting and then dairying were the initial industries in the town.

In the late 1880s, a sawmill was built at Wandandian and at Basin View, however the Basin View mill burnt down in 1909 and operations moved to the Wandandian mill. By the 1920s up to 30 bullock teams operated in timber harvesting operations in the surrounding forests cutting logs, sleepers, girders, wharf poles, and boat building timbers. Sawmilling is still a major industry today, although timber is now hauled-in from other areas rather than being cut locally.

At the peak of Wandandian's population in the 1950s, 57 children attended the local school. In 1969, the community developed a hall and extended this facility to include a sports complex in the 1980s. The school, the post office and the church were closed in the 1970s.

Subdivision of a number of larger properties in the early 1990s has meant hobby farms have replaced dairying in importance. Arts and crafts and automotive services are important retailing sectors.

Wandandian is close to the Yerriyong, Jerrawangala and Conjola State Forests.

Major events

Wandandian has an annual woodchopping event which is held on the October long weekend.

TABLE 6.10: SELECTED CHARACTERISTICS—WANDANDIAN

Characteristics	Persons
Total persons	309
Aged 15 years and over	237
Aboriginal	9
Torres Strait Islander	0
Both Aboriginal/Torres Strait Islander	0
Australian born	263
Born overseas: Canada, Ireland, NZ, South Africa, and USA	21
Born overseas: Other country	9
Born overseas: Total	30
Speaks English only and aged 5 years and over	267
Speaks language other than English and aged 5 years and over	6
Australian citizen	284
Australian citizen aged 18 years and over	204
Unemployed	17
Employed	127
In the labour force	144
Not in the labour force	85
Unemployment rate	11.8
Enumerated in private dwelling	309
Enumerated in non-private dwelling	0
Persons enumerated same address 5 years ago	169
Persons enumerated different address 5 years ago	99
Overseas visitor	0

Source: ABS 1996 census CDATA table

Population

In 1996 the Wandandian's population was 309. Over the 1991–1996 period the population increased slightly by 2% (1991:309). Of the total 1996 population more than 76% were aged between 0–15 years and 7% was aged 65 and over. This equates to a dependency ratio of approximately 46%. The median age was 38 years. This was higher than that of NSW (34 years).

Employment and industry

The 1996 Census showed that 114 people (almost 37% of the total population) in Wandandian were in the labour force. The unemployment rate was approximately 12% with 17 people looking for work. This was considerably higher than the NSW rate (9%).

The major industries were retail trade (16%), manufacturing (13%), construction (12%), agriculture, fishing and forestry (10%) and property and business services (8%).

Income

The median household income for Wandandian in the 1996 Census was $620 per week, less than the NSW median of $655 per week, but higher than the NSW rural household weekly median income of $573. Median individual income was $233 per week.

Health

No health services are located in Wandandian. Some medical and related services can be accessed from Sussex Inlet, St George's Basin, Vincentia or Huskisson. Hospital services are offered at Nowra (Shoalhaven District Hospital) and Milton (Milton-Ulladulla Hospital).

Education

There are no longer any schools in Wandandian. Primary school children attend school at Basin View, around 5kilometres north of Wandandian or at St Georges Basin. Secondary students travel to Nowra, Vincentia or Shoalhaven High. A small Technology High School in Nowra, and a small university annexe outside Berry provide some post secondary educational opportunities for Wandandian students.

Less than 30% of Wandandian residents were attending educational institutions. Thirty-five per cent (109 persons) had left school at 15 years of age or earlier. The majority of those holding qualifications hold a skilled vocational qualification in the broad fields of engineering, architecture and building or business and administration.

The following table identifies the number of people attending each educational sector during 1996.

TABLE 6.11: EDUCATION—WANDANDIAN

Educational sector	Persons
Pre-school	3
Infants/primary school	32
Secondary School	22
Technical/Further Education	11
University or other Tertiary Institutions	6
Other	0
Not attending	224
Not stated	17
Overseas visitor	0
Total	315

Source: ABS CDATA tables

Housing

In 1996, 48% of houses in Wandandian were fully owned, 16% were being purchased, 16% were being rented or occupied rent free or under a life tenure system. Approximately 17% of all houses were unoccupied.

TABLE 6.12: HOUSING—WANDANDIAN

Housing	Total
Total occupied private dwellings	143
Fully owned	68
Being purchased	23
Being rented or occupied rent free or occupied under a life tenure system	23
Other/not stated	5
Unoccupied	24

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT

To preserve confidentiality in this small sample, median monthly home repayments and median weekly rent payments have not been identified for Wandandian

Communications

Wandandian is served by the *Inlet-Basin and Bay Times*, the *Shoalhaven Chronicle* and the *Shoalhaven and Nowra News.* Other papers that include Wandandian in their coverage include the *Milton-Ulladulla Express Newspaper* and the *Ulladulla Times*.

Radio station Power 94.9FM, Radio Station ABC Illawarra FM 97.3, Radio 2ST and Radio 2UUU 104.5FM are received in Wandandian.

Ten Capital, Win Television, Prime Television and ABC Television cover this area as well.

Community services

Wandandian has a hall, a rural fire brigade, a tennis court and a tennis club, but no other community services. Some services are accessed from Sussex Inlet and other nearby towns. The majority of services are accessed from Nowra.

6.1.8 Outcomes of Wandandian community workshop

Held: Thursday 24 June 1999

Groups represented: Forest Protection Society, State Forests NSW, senior citizens, apiarists, other forest users, timber transport, farmers, Wandandian Progress Association, community events organiser, small business, youth, housing, rural fire brigade, logging contractors, timber industry.

What have been the significant events in Wandandian since 1980?

Date	Event
1987	Larger sawmill in the area bought by Herbert family from Boral (now D & P Timbers)
1980	World championship woodchopping event
1970	School closed (had 36 children enrolled)
mid 1980	Church closed
mid 1960	Progress Association Hall built by volunteers and owned by the community
mid 1970	Tennis Court built on Progress Association land
1986	Fire Brigade building built
mid 1980s	Post Office closed and incorporated as agency into general store
1980	Big bush fire. From the top of mountain to Sussex Inlet
1983	Town water introduced
Mid 1990s	More students catching High School bus
1982	Cleary Bros came to town (cement industry)
1997	Cleary Bros closed because they were required to contribute to road construction
late 1980s to early 1990s	Demographic profile changed although population remained stable or slightly increased. Blocks are being subdivided bringing lot of families to the area. There has been some farm subdivision. Wandandian has become an area for commuters who work in Nowra Active Progress Association, Fire Brigade and Sport and Recreation Association. These groups are active but small
1993	Red Cross Branch closed—Had been active for more than 50 years
1993	Small farms network and Bush Fire Brigade field day (previously held in 1980s)
1999	Threatened closure of fire brigade. Overcome by community lobbying

How did the community manage these events?

Positive event—development of Wandandian recreational reserve

(Discussion on the development of the Wandandian recreational reserve included grounds beautification and the development of fire brigade, tennis court, cricket nets and woodchop arena sites).

A grant was obtained with the help of Councillor Paul Bland. There was broad community support for the initiative. Community members were on the Committee and approached Council for assistance. The community raised funds from woodchops, frog races, endurance rides and cake stalls etc. A cabaret was held which raised funds for the Progress Association.

Community is less close now. The tennis court is hired on a regular basis, but there is no local competition. There is also social tennis Tuesdays and Wednesdays as well as night and weekend hire, but there is a move to centralise sport—a lot of it has now moved to Nowra.

Negative event—loss of services

When school closed due to declining enrolments, parents had to transport kids elsewhere because there were no bus services then. There have been buses introduced to Sussex Inlet and Tomerong in recent years. The Church was closed and sold due to lack of attendance. Some families moved at the same time. The church centralised and became bigger (and better).

Post Office statistics showed business had declined a bit so Australia Post services were downgraded, and we now have a franchise. Now the community can't pay their bills etc at local post office.

The community couldn't do much. We held a big public meeting with the Schools Authority who said the school wouldn't close for 6 months but it closed before the six months was up. Declining enrolments were linked to mill employment and other changes. The school was taken away on a truck.

People used to rely on the bush for jobs. The mill used to have 22 employees. There were seven houses attached to the sawmill. When people lost their jobs at the mil lots of younger families moved out.

It's a formula for killing the town. As it became harder for people, they started to move and access services in Nowra. Some people moved to get employment.

Despite the gloom the town is growing. It is attracting different people. Some are commuters who want rural five acres. Recently two families moved in.

Community feelings about Wandandian

- I'm not terribly involved. I was initially, but business has taken a lot of time. I'm still prepared to help the community.
- I don't consider myself a local. I've been here 20 years. The town and population have grown. I can see a future here.
- The mill is still operating. It's a good little community.
- I'm a Nowra girl and I live at Cambewarra. I work at the mill but I'm not part of the community. People are busier now.
- It's a lovely community. I've been here since 1989. It's close knit. I feel I've been made to feel part of the community. What affects one part of the community flows onto others.
- I don't mind living here but I feel isolated from my friends (in Vincentia).
- It's not a bad spot. I've been here all my life. The community doesn't pull together as much as it used to. Everyone goes off to work these days.
- It's a nice friendly community. I'd like it to stay as it is.
- It's home.
- It's a good community to live in. It's close knit. People look after each other.
- I could call on others any time of day or night. There's a good community spirit. We had Neighbourhood Watch before they even thought about it. There's not much for kids and they have to travel for sport, entertainment etc.
- Tennis is good but there's not a lot else here. You've got to travel for other sport. We need a decent walking track, not the highway; it's dangerous walking out there.
- I've lived here for more than 50 years and there have been a lot of changes since then. It's a close community but it's different now. I accept the modern change.
- When I came here it was like one big family but the school operated then and that made a difference. There were picnics, concerts and entertainment. Everyone knew one another. Time passed. The biggest problem now is to encourage newer residents to join in with the community and get involved in the Hall and other things.
- I'm not from Wandandian. I'm from Nowra but I've worked around here. I've met a lot of friendly people. I hate to think of there being no Wandandian.
- I sleep in a nearby community but I'm closer to the Wandandian community than my own town. I'm one of the last bush workers. There's a good feeling in Wandandian for the (timber) industry.
- As elected Captain of the emergency service I'm responsible for life and property. I think the people of Wandandian are brilliant. They always pull together. We're a bit fearful of a bushfire. The community can overcome anything.
- It's a good place to live. I'm scared about the for sale signs. We need more business here.

Visions for Wandandian

- To stop tourists driving through and get them to pull in instead.
- I'm committed to it. I opened up a welding shop. We should keep Wandandian going. It'll grow. But at what speed?
- I'm committed and dedicated to keeping a sustainable timber industry in this town.
- It's always been a timber area. It has to go on.
- As above. We need a sustainable timber industry. I wouldn't like to see the area closed to National Parks. It's a fire risk. I want a reason for the family to come back.
- The timber industry is very important. To keep access to logs would be good. I'll still be here regardless.
- The community has to stick together.
- There'll be a great prang here soon. We need to slow down the traffic to 60 km (or enforce the 80 km zone)
- For all people in the district to continue to make a living.
- For all people in the district to have full employment.
- For everything to stay. For the mill to stay open and the timber industry to stay.
- State forests need to look into things like replanting and better practice. Now they're taking smaller logs. The Council should get off people's back and let people have a go.
- It's good the way it is. We should keep going the way it is.
- For all aspects of the community (business and jobs) to improve. We need jobs. We depend on each other.
- It would be a shame if the quotas were taken any lower. Expertise will be lost. Hardwood logs are different to pine. We need to keep the skills—from cutting to sawing.
- We need to keep quotas and keep the town expanding. We need to process timber in town.
- Leave the timber industry alone. We should encourage small business. I'd like to see the youth develop their own activities and employment and bring kids here. Maybe do a Mogo town (curiosity shops etc).
- We should leave the timber industry alone. Families have had to move. We lost two adults and three children in one family. We need to generate more business around here. We depend on each other.

Reaction to forest use options

Workshop participants were asked to look at three broad scenarios for forest management. The tables below have been structured to reflect the priority each point was assigned by the group.

Scenario A—What would be the social impacts in Wandandian if areas currently deferred (set aside) are reserved for conservation and other uses?

Positive impacts	Negative impacts
• National parks will end up with the best bushes.	• There will be no timber industry. People working in the timber industry will lose their jobs • Closure of sawmill. We will have to import timber and this will affect balance of trade and foreign debt • Will kill off sawmills in areas other than Wandandian. Loss of other employment opportunities for workers • Loss of access to forest product. Will limit business and employment options • Danger to Wandandian community due to increased fire risk • Less agile people won't have access to more remote areas • Increased pressure on compartments left open. Poorer quality logs will lead to poorer quality product, and impact on sales and the ability to compete against pine • Increased fire risk will spread to other areas also • Fires management regime endangers flora and fauna because of the risk of wildfire. • Increased costs to use forests

Scenario B—What would be the social impacts in Wandandian if areas currently deferred (set aside) become available for the timber industry and other uses?

Positive impacts	Negative impacts
• More jobs, more logging crews working (selective logging) • Still able to be used for recreation. Can get access by car for aged and disabled • Decreased pressure on forest resource because larger area available for harvesting • Workers in bush maintain bridges and roads for access. Good for emergency access • There will be timber extraction and will pay royalties for timber. Funds go to State and people will be paid and spend their money in Wandandian • Can still ride horses and take dogs in forest • Workers in bush can monitor state of bush for fire etc (early warning)	

Scenario C—What would be the social impacts on Wandandian if, 50% of the forest areas currently deferred become available for timber and other uses and 50% of the forest areas currently deferred become available for conservation and recreation?

Positive impacts	Negative impacts
• Achieve a balance between the need to look after native species and look after jobs • Increased protection of native flora and fauna	• Loss of opportunities for healthy activities for youth • Increased pressure on compartments left open leading to poorer quality logs. Won't be able to put out quality products and this will impact on sales and ability to compete against pine • Limited area means radical people from outside the area will want the area that's left for timber. They will demonstrate against workers and stop them working. This will lead to job loss and have a dramatic affect on community

6.1.9 Case study town—Tumut

History of settlement

Tumut, 434 km southwest of Sydney and 120 km west of Canberra, is located at the northern gateway to the Australian Alps. Sited on the Tumut River, Tumut is in the hub of a valley. In 1996 the population was 5915, over half the population of the Tumut Shire. The town is 275 metres above sea level and enjoys a temperate climate.

The name Tumut was derived from the Aboriginal word meaning 'a quiet resting place by the river'.

The first white settler to the area was Thomas McAlister who founded Darbralara Station in the early 1830s. This station subsequently produced the Darbralara Shorthorn breed of cattle. The discovery of gold at Kiandra in 1859 provided a market for Tumut's primary products and established the town as a service centre for the rural surrounds. Some miners settled in Tumut after the gold rush and later gold mining at Adelong kept the population in the district fairly stable for some time. By 1887, Tumut was a municipality and by 1928 it had become the focal point for the Tumut Shire, which incorporated the towns of Adelong, Batlow and Talbingo.

The tourism potential of nearby features, such as the Buddong Falls and the Yarrangobilly Caves was recognised in the early 1900s, and a small tourist industry, based largely on the natural beauty of the area and outdoor pursuits such as canoeing, fishing and skiing, began.

The softwood industry, trialed in 1921, overtook dairying as the primary industry in the area and a large proportion of Tumut workers moved into this industry. Three large softwood processing plants and several hardwood mills developed in and around Tumut. A trout hatchery was constructed in 1928.

The postwar period saw an injection of people and development into Tumut with the development of the Snowy Mountains Hydro-Electric Scheme and the construction of the Blowering Dam, Talbingo Dam, and Tumut Ponds Dam upstream the Tumut

River. Access to Tumut's scenic attractions was improved through the development of roads associated with the Snowy Mountains Scheme.

Major events

Annual events in Tumut include the Tumut Show, the Easter Art Exhibition and the ten-day 'Festival of the Falling Leaf'.

Population

In 1996 the Tumut's population was 5915, a slight decrease (–0.67%) from 1991 (5955 persons). Twenty-four per cent of the population were 15 years and under and 15% were over 65 years or more. This equates to a dependency ratio of 38%. The median age was 34 years which equals that of NSW.

TABLE 6.13: SELECTED CHARACTERISTICS—TUMUT

Characteristics	Persons
Total persons	5 915
Aged 15 years and over	4 520
Aboriginal	193
Torres Strait Islander	10
Both Aboriginal/Torres Strait Islander	6
Australian born	5 339
Born overseas: Canada, Ireland, NZ, South Africa, and USA	227
Born overseas: Other country	151
Born overseas: Total	378
Speaks English only and aged 5 years and over	5 156
Speaks language other than English and aged 5 years and over	128
Australian citizen	5 609
Australian citizen aged 18 years and over	4 040
Unemployed	216
Employed	2 332
In the labour force	2 548
Not in the labour force	1 868
Unemployment rate	8.5
Enumerated in private dwelling	5 738
Enumerated in non-private dwelling	177
Persons enumerated same address 5 years ago	3 101
Persons enumerated different address 5 years ago	2 158
Overseas visitor	6

Source: ABS 1996 census CDATA table

Employment and industry

The 1996 Census showed that 2548 people (43% of the total population) were in the labour force.

The unemployment rate was over 8% with 216 people looking for work.

Major industries were manufacturing (21%), retail trade (15%), agriculture, forestry and fishing (11%), health and community services (7%), and education (6%).

Tumut is at the centre of one of the fastest growing softwood areas in Australia. Almost 30% of the district's workforce are employed in the establishment, harvesting, haulage or processing operations of the timber industry. A paper pulp mill is to be established in the area in the near future.

Tourism is another industry that is becoming increasingly important to the town.

Income

The median household income was $527 per week, almost $50 less per week than the $573 for rural NSW, and less than NSW median of $655. The median individual weekly income in Tumut was $346 per week approximately $50 per week less than the $408 for New South Wales.

Health

Tumut has a 26 bed, level 2 multi-purpose hospital with a 24-hour emergency service. Services provided by the hospital include acute care, maternity, medical, surgical, operating theatre and limited paediatric services.

There are 17 doctors using Tumut Hospital including six general practitioners and one surgeon. There is also a visiting surgeon and a visiting obstetrics/gynaecology specialist who visits from Wagga Wagga. The Wagga Wagga hospital is the referring hospital. Dental and chiropractic services are well covered with 3 dental surgeries and 2 chiropractic surgeries.

Tumut also has a community health centre and an early childhood centre. Aged care services incorporate a nursing home, an aged persons facility, 2 aged home care services, an aged minding service, meals on wheels, and a community transport service.

Education

A range of educational facilities is located in Tumut. These include a community based pre-school, day nursery and a kindergarten. There are two government and one-non government primary school, one government and one non-government secondary schools, and a special school that incorporates primary and secondary students. Post School Options supports people with disabilities who have recently left school. There is also a campus of the Riverina Institute of TAFE which offers a range of programs including a forest industries training centre. Additionally, Sefton House operates as a private provider of vocational education.

The majority of people in Tumut (72%) were not attending educational institutions. Of those who were, 46% attended infants and primary schools and 28% attended secondary schools. Attendance at government schools was more than four times that of persons attending non-government primary and secondary schools. In 1996, 1822 (46%) residents of Tumut left school aged 15 years or less.

The following table identifies the number of people attending each educational sector during 1996.

TABLE 6.14: EDUCATION—TUMUT

Educational sectors	Persons
Pre-school	92
Infants/primary school	639
Secondary school	385
Technical/further education	189
University or other tertiary institutions	53
Other	15
Not attending	4 257
Not stated	281
Overseas visitor	6
Total	5 917

Source: ABS CDATA tables

Housing

In 1996, 42% of houses in Tumut were fully owned, 22% being purchased, and 33% were being rented or occupied rent free or under a life tenure system. Approximately 10% of all houses were unoccupied.

TABLE 6.15: HOUSING—TUMUT

Housing	Total
Total occupied private dwellings	2 274
Fully owned	951
Being purchased	493
Being rented or occupied rent free or occupied under a life tenure system	747
Other/not stated	83
Unoccupied	222

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT and ABS CDATA tables.

The median loan repayment was $650 per month. The median payment for rent was $100 per week.

Communications

The *Tumut and Adelong Times* is the local newspaper in Tumut. The development of a community radio station is currently under discussion. There are two main Internet providers in Tumut and there is an information technology centre for small businesses managed by the Tumut Shire Library.

Community services

Tumut has a wide range of community services. There are 5 counselling and support services, an employment service, and 5 services to assist people with a disability including ‘Riding for the Disabled’.

The town has several emergency services. Community organisations include Apex, Lions, Rotary, Men’s and Ladies’ Probus, Country Women’s Association, Red Cross, Tumut Arts Society and Camera Club, Community Theatre group, Bridge Club, Gardening Club, and two ecology groups. There are also 19 non-religious

community groups including the Rivercrest Christian Education and Camp Centre, and 20 sporting and recreational groups.

Tumut also supports a swimming pool, library, museum, courthouse, and a meeting hall (Tumut Shire Community Directory 1998).

6.1.10 Outcomes of Tumut community workshop

Held: Tuesday 29 June1999

Groups represented: education, Southern Highland Legacy, environmental groups, National Parks and Wildlife Service, Forest Industry Council, landcare, local government, health services, Forest Protection Society, timber industry, logging contractors, communications, Country Women's Association.

What have been the significant events in your community since 1980?

Date	Event
1975	Water speed record was set at Blowering Dam
Early 80s	Tumut Electricity building opened (TRCC)
1981–82	A&N and Laminex took pulp
1982	CSR Softwood bought APM
1984	Closure of the Montreal theatre
1985	Big flood on Gilmore Creek
1985	Hardwood production from State Forests trebled
1986	Red Hill station bought for softwood plantations
1988	First export of roundwood out of the region
1990	Riverside orchards established
1990	Doubling of production at CSR
1990	ACI bought by CSR
1992–93	Talbingo bus crash
1994	Forestry faculty at TAFE opened
1995	Declaration of Wilderness areas
1995	'Naningroe' property purchased by State Forests
1995	Community raised money and reopened the Montreal theatre with a grant from NSW Government
1996	Butter Factory closed
1996	Proposed closure of the old bridge was opposed by community
1996	New Library and Shire complex opened
1996	Kentucky Fried Chicken opened on former Masonic Hall site
1997	Talbingo Shire taken over by Tumut Shire
1997	Community saved the Talbingo petrol station so it could be sold as a going concern
1997	Mine reopened at Adelong
1998	Visy Paper Mill proposal
April 1999	Community meeting to lobby for new hospital
Jan 1999	Plans to relocate maternity ward within the hospital
1999	Council moved to TRCC building
1999	Vision 2020 Plan released. First year the Shire had a development plan for the area

How did the community manage these events?

Positive event—Visy mill

The foundation for this change was set 40 years ago when State Forests planted pine. It led to the current oversupply of pulpwood. Generally the community supports the development of the mill. However neighbours from near the site formed a committee

to monitor environmental concerns about water quality and air pollution. Another committee, the Community Consultative Committee, is broader based. The mill is seen as a major employment opportunity. An EIS and social assessment was undertaken. Some stakeholders are concerned about the rural landscape. Lobbying for the new hospital is part of trying to make sure that health infrastructure will be able to cope with the expected increase in population and demand for services.

Negative event—purchase of private property, 'Red Hill' (10 000 hectares) and 'Naningroe' stations by NSW State Forests for pine plantations

Previously Red Hill employed 10–12 men plus seasonal labour, but they lost their jobs when the land was bought. Some redundant workers were offered jobs with forestry. The local community got involved and committees were formed, however this effort was not sustained.

Naningroe had three families. The previous owners will move soon, and we will lose more families from the area. The flow-on effect will primarily have an impact on the local school. Under the Visy proposal, State Forests is committed to plant a further 20 000 hectares.

Community feelings about Tumut

- I came here three years ago for the lifestyle. The natural assets that are worth preserving. There's also a good economic base with employment opportunities.
- I've only been here a month.
- I was born here and I've seen two sides of Tumut. My husband is a faller, and I work in the hospital. I love spring, summer and autumn. It's close to a city and a safe place.
- I came here in '52 and I'll never leave.
- It's beautiful in spring and autumn. Catering for all sports, great health care. The people have heart.
- I came in 1952 to be a football coach when it was a one horse town. It's now a three horse town and we have prospered here.
- I came in 1975 and people are kind and friendly. It's a bit cold.
- I've been here 4 months, I chose the job here, and I enjoy it.
- I like the people, spirit of community, and being near to Kosciusko.
- My wife and I came down for a spell. It's unreal. We won't move for quite a while.
- We chose to bring up the family in a rural community. Tumut has a five star rating.
- Came here two and a half years ago for work, and the pine resource base. There's 6 banks operating in town. The sponge city effect may have an impact in the future and decrease opportunities for those who become unemployed.
- It's a thriving self-sustaining town. We have a resource base.
- It's close to Wagga and Canberra while still being rural. The best of both worlds.
- I came here for employment. It still has a lovely country feeling. It has beautiful dams and mountains.

Visions for Tumut

- In ten years it will be the size of Bathurst. I'd like it to be the same size it is now but keep the kids in town.
- An increase in population without losing its sense of community and involvement.
- The Visy mill will be a big plus. There should be no major Canberra access, and no 'overwilderness-ising' of the surrounds.
- All the benefits of rural Australia, and the same educational benefits for my children as for metropolitan people.
- Better access to education and an increase in employment growth and economic stability for the town.
- People stay together and stay close knit. Economic growth as long as it doesn't affect community spirit.
- Education facilities rank highly.
- Keep infrastructure, banks, post office and hospitals. So we will need Visy
- A new hospital, better education and employment opportunities, and keep the rural atmosphere.
- Don't worry about the Tumut to Canberra road. We were talking about it in 1950.
- Visy plus infrastructure.
- Good health care including aged care. A low crime rate and reduced drug abuse. More childcare facilities. We need a men's halfway house.
- More facilities to keep the 15–20 year olds in town.
- Moderate but steady economic growth. Rural community and service provision equal to metropolitan areas.

Reaction to forest use options

Workshop participants were asked to look at three broad scenarios for forest management. The tables below have been structured to reflect the priority each point was assigned by the group.

Scenario A—What would be the social impacts in Tumut if the areas currently deferred become available for conservation and recreation?

Positive impacts	Negative impacts
• Will reserve yellow box forests previously depleted by agricultural use • Increased community self-esteem because the forests are highly valued and meet world class criteria • People like the natural beauty. Conservation will enhance our natural lifestyle • Possible increase in ecotourism jobs • People like wilderness areas around Tumut • No negative social impacts in Tumut if all the IAP areas are set aside for conservation • No increased risk from feral animals, fire etc	• Wilderness limits people's use of an area because people have to walk in • Possible increased risk from fire, noxious weeds, feral animals

Scenario B—What would be the social impacts in Tumut if the areas that are currently set aside become available for the timber industry and other uses?

Positive impact	Negative impact
• Will maintain access for apiarists (beekeepers) • Increased employment in the timber industry and ecotourism and maintenance/increase of services in the town	• RFA process only targeting forests. Won't include impact on farming • People around Holbrook will be more concerned about fire control etc

Scenario C—What would be the social impact on Tumut if 50% of areas are reserved for conservation and recreation and 50% become available to the timber industry and other uses?

- There was no community response to this scenario.

6.1.11 Case study town—Tumbarumba

History of settlement

Tumbarumba is a rural town situated on the western slopes of the Snowy Mountains. The name Tumbarumba is Aboriginal for 'sounding ground', and was used to describe the booming sound that the kangaroos made bounding over certain areas of the hills.

Settlement commenced in 1836 by pastoralists who were attracted to the area for its fertile pastures and abundance of water. Gold was discovered in the 1860s and provided a steady yield for settlers, however by the 1870s most of the gold resource was exhausted.

Local attractions in and around Tumbarumba include skiing, camping, bushwalking, fossicking, fishing, boating and nearby Kosciusko National Park.

The eastern part of the Tumbarumba Shire is covered by 45 000 hectares of State eucalypt forests. There are also 20 000 hectares of pine plantations, 80% of which are owned by NSW State Forests and 20% by private forestry companies.

Major events

The Tumbarumba Rodeo is held on New Years Day every year. The Tumbarumba Show is held a fortnight before Easter. Tumbafest is held in late February, a Mountain Bike Festival in March and a Polocrosse Carnival in April/May. In late April they host Autumn Glory and finish the year off with Heritage Week in November.

Population

The 1996 Census showed a population of 1502 persons in the Tumbarumba township. Twenty-three per cent of the population were aged 15 years or under and 16% were aged 65 years or more. This equates to a dependency ratio of 38%. The median age was 37. This was higher than that of NSW (34 years).

TABLE 6.16: SELECTED CHARACTERISTICS—TUMBARUMBA

Characteristics	Persons
Total persons	1 502
Aged 15 years and over	1 168
Aboriginal	7
Torres Strait Islander	0
Both Aboriginal/Torres Strait Islander	0
Australian born	1 341
Born overseas: Canada, Ireland, NZ, South Africa, and USA	69
Born overseas: Other country	48
Born overseas: Total	117
Speaks English only and aged 5 years and over	1 301
Speaks language other than English and aged 5 years and over	40
Australian citizen	1 405
Australian citizen aged 18 years and over	1 034
Unemployed	51
Employed	593
In the labour force	644
Not in the labour force	499
Unemployment rate	7.9
Enumerated in private dwelling	1 444
Enumerated in non-private dwelling	58
Persons enumerated same address 5 years ago	837
Persons enumerated different address 5 years ago	492
Overseas visitor	3

Source: ABS 1996 Census CDATA

Employment and industry

The 1996 census showed that 644 people (almost 43% of the total population) were in the labour force. Of these 590 people (approximately 92%) were employed. The unemployment rate was 8% with 51 people looking for work. This was 1% lower than that of NSW, and the lowest unemployment rate for all case study communities.

Major industries were manufacturing (19%), agriculture, forestry and fishing (14%), retail trade (13%), government administration and defence (7%), transport and storage (6%), and health and community services (6%).

Forestry, sawmilling and related services are major employers in Tumbarumba. There is a large softwood mill located in Tumbarumba and a hardwood mill located in Laurel Hill a few kilometres to the north.

Income

The median weekly household income was $484 per week. This was below the median weekly household income for NSW ($655 per week), and of the NSW rural median household income ($573). The median individual weekly income was $245.

Health

There is one multi-purpose hospital that has 36 beds. Of these 16 beds are in the aged care hostel, 10 are nursing home beds, and 10 beds are designated for acute care. There is no provision for theatre or obstetrics. Other services supported by the

hospital include Meals-on-Wheels, radiology, a school dental clinic, and a day care centre that provides day activities for the elderly.

There are two ambulance officers based at the hospital. A dietician and an occupational therapist visit on a fortnightly basis, and a physiotherapist visits 2 days per week. A women's health nurse visits monthly and an optometrist comes in from Tumut once a week. A private paediatrician visits every second month. Parenting classes are held during the evenings with 3 sessions throughout the year. A Diabetics Association office and a Cancer Research office are also located in Tumbarumba.

Education

A range of educational facilities is located in Tumbarumba. These include one government and one non-government primary school and one government secondary school.

Tumut TAFE (located 70 km away) provides vocational courses. An alternate learning centre has been set up as a joint school program between the Tumut TAFE and the Tumbarumba High School. This program is designed for adults who have learning needs and for children with learning difficulties.

The majority of persons in Tumbarumba (65%) were not attending educational institutions. Of those who were, 47% were attending infants and primary school, and 33% were attending secondary school. More than 42% of residents left school at aged 15 years or less.

The following table identifies the number of people attending each educational sector during 1996.

TABLE 6.17: EDUCATION—TUMBARUMBA

Educational sector	Persons
Pre-school	23
Infants/primary school	136
Secondary school	94
Technical/further education	18
University or other tertiary institutions	13
Other	3
Not attending	1 140
Not stated	71
Overseas visitor	3
Total	1 501

Source: ABS CDATA tables

Housing

In 1996, 48% of houses in Tumbarumba were fully owned, 20% were being purchased, and 28% were being rented or occupied rent free or under a life tenure system. Approximately 15% of all houses were unoccupied.

TABLE 6.18: HOUSING—TUMBARUMBA

Housing	Total
Total occupied private dwellings	593
Fully owned	287
Being purchased	118
Being rented or occupied rent free or occupied under a life tenure system	164
Other/not stated	24
Unoccupied	86

Source: ABS 1996 Census of Population and Housing: Selected Characteristics for Urban Centres and Localities: NSW and ACT and ABS CDATA tables.

Communications

There are a number of radio stations serving Tumbarumba and the Riverina Region—ABC Radio Riverina 92.5FM, Radio 2RG, DMG Regional Radio 2WG, Rich Rivers Radio 102.5FM, Riverina Broadcasters 93.1FM and 2AAA FM107. The local newspaper is the *Tumbarumba Times*.

Community services

Tumbarumba offers a range of services to the community including community transport, an aged care day care centre, meals-on-wheels and a Nursing Mothers Association. A library, a number of churches, a Rotary and Lions Club, a Masonic Lodge, a Neighbourhood Centre, a fire station, ambulance station, and police station are also located within the town.

6.1.12 Outcomes of Tumbarumba community workshop

Held: Wednesday 1 July 1998

Groups represented: State Forests NSW, local government, timber industry, CFMEU, tourism, housing, education, transport, Forest Protection Society, NSW Farmers, apiarists, emergency services, elected representative, health.

What have been the significant events in your community since 1980?

Date	Event
1979	Private and State pine aforestation intensified.
1981	Australian Newsprint Mills opened.
1984	Enlargement of softwood mill—Boral employment trebled from 76 to 180 people.
1988	Grape industry was established.
1980s	Increase in employment.
1980s on	Roads infrastructure study done for the timber industry. Better roads since 1980s.
1980s on	Local shops expanded.
1984	Laurel Hill Mill expanded.
1988	Enlargement of corrective services unit.
1990s	Expansion of tourism
1995	Local control of electricity (employed 8 people) went to Great Southern Energy. Telstra downsized and 8 people lost their jobs. The Snowy Mountain Authority downsized. State Forest relocated from Batlow to Tumbarumba.
1996	Bank Closed.
1996	The Tumbarumba Motel was built.
1996 on	Sydney Olympics has run rural towns dry.

Date	Event
1997–98	Hospital lost maternity facility. Now has 24 aged care units with an emphasis on Multi Purpose Services encompassing acute, nursing and hostel care.
1998	Changes at Laurel Hill Mill.
1999	Rural Fire Service obtained more funding for plant equipment and management.
1990s	Decline in livestock industries. Decreased wool prices. Decline in commodity prices.
1990s	Decline in both primary and secondary school population.
1990s	Competition Policy put pressure on provision of services.
1990s	Racecourse rescued by community effort.

How did the community manage these events

Positive event—timber industry growth

In 1954 the Commonwealth and NSW State governments developed a Softwood Agreement. Forestry planted trees, which led to more jobs. In 1974, 300 people were employed in harvesting. Better technology led to increased volume of output.

In 1985 private plots were encouraged. This led to Boral expanding. They employed 60 extra people. The Australian Newsprint Mills started taking thinnings. Tumbarumba was well positioned, close to Albury so plantations could be thinned on time. New houses were built, and there was great community optimism. In the 1990s the Australian Newsprint Mills introduced joint ventures. The feelings about this in the community were mixed.

Improved roads also took money to Wagga Wagga as people went there for the variety shopping and services.

Laurel Hill mill was bought by a community collective. Now it employs between 7 and10 people.

More women are employed since technology changed. Nearly all the married women in town are working. There is currently almost a 50:50 women/men ratio employed at the mill.

The Australian Newspaper Mill is not able to take thinnings now.

Negative event—decline in commodity prices

The kids have left town and the population is aging. Farmers and their wives are looking for off-farm earnings; the women have all gone out to work. There is less expenditure in town, and a decline in asset development.

There are also fewer people in town to use infrastructure but it is still necessary so it costs government more to provide services. Mobile phone access has only been possibly recently and there are lots of dead spots in town. Banks and businesses are closing and this has an effect on the main street. Also there is not sufficient access to Internet to take advantage of the changes. People have to go to Wagga Wagga for services such as dentistry, so they do their shopping while they’re there. This means a further drain on the town’s business earnings.

The ANZ Bank closed so the community moved accounts to NAB to support the local bank, but NAB is now closing. The community feels disempowered by these

changes. They feel that the Government is encouraging 'regional' services at expense of 'small rural' communities.

Despite the setbacks, the community organised and succeeded in saving the racecourse, the timber mill, and the golf club

Community feelings about Tumbarumba

- I've been here 8 months and haven't formed an opinion yet. I came from a country town and this is big for me.
- I love living here. There's room for value-adding. Then young people may stay and it might bring tourism and visitors.
- I've got four children, and I'm optimistic. We need to attract industry and value adding.
- I don't feel optimistic about the job situation at all. I've got four kids and three are out of work and it's disheartening. They can't get the dole and I'm supporting them. Apparently I've got too many assets. The kids can't afford to leave.
- It's a magic spot. We need to take control of our destiny, be more vocal, earlier and develop timber, grapes etc.
- I've been away twenty years and returned five years ago. I love it. I just wish the community would start fighting before we start losing things.
- Transport to jobs is a real issue for unemployed people looking for jobs. I sympathise with anyone young and unemployed. There's no understanding of transport problems. It's a form of discrimination. Their only transport options are a train or bus to Cootamundra.
- I'm proud of Tumbarumba. It's a lovely place to live. But I'm pessimistic about continuing loss of services and population and scared the bureaucrats and politicians will rationalise more and decrease the viability of the community.
- I'm quite optimistic. We've got a low unemployment rate. The timber industry is a great employer and we need to work with them. Also we need more value adding. We need to build local industries. The town seems to be attracting a few from the city who are coming here to retire.
- I'm optimistic. You couldn't get more local than me. My business would fail without the timber industry.
- I love living here. I rely on the timber industry. Without it we'd be in trouble.
- I love living here. The town's always had a great future. But they're starting to rethink the idea of government rationalisation and the lack of encouragement by governments for small communities. It's sapping the life out of the community. People have reservations about coming here. It seems 'big is good' and the small communities are losing out.
- It's the only place to live. I've seen a lot of Australia and this is the prime spot. I took a redundancy from the Snowy Scheme. I started my own business doing carpentry and there's more than enough work. I often can't find employees though. As a beekeeper I've noticed a huge amount of stuff left in the bush.
- Aesthetically it's one of the best places in Australia. Socially it's one of the best. The community has many generations and it's very cohesive. I love living here but I'm faced every day with the realisation that access to services such as education, health, jobs has become harder. It sometimes seems it was a mistake leaving the public service in the 1970s. It's a self reliant and cohesive community. I'm worried about the way rural communities are being treated by the government. There's less time now for voluntary work and a decrease in community services and cohesion.
- I haven't been unemployed. There's work there if you want it. I hope our hardwoods don't go to closed access for our bee keeping business.
- I'm optimistic about the future. Lots of things are changing but it's no different in other communities. It's much better than other country towns—we've got low unemployment. We've lost some services but gained others. It's all part of change. We lost the maternity unit but got the community transport. The development of aged units was a big plus. It reflects our aging population. I think it's just part of the process of change.
- We need to work on getting more people into the area.
- I love Tumbarumba. I've been here 15 years and probably won't get out. There's room for improvement for value-adding. That might encourage the young people to stay. If others come it might increase the tourism.
- It's a magic spot. I firmly believe we need to take control of our community. The do nothing approach is leading to the destruction of our community. We need to be more vocal and determine our own future, our own industries, bring in expertise and make it happen.

Visions for Tumbarumba

- The town becomes more proactive, determines its future and the community has more drivers.
- Timber and grape value-adding and making better use of the visitors who come to town as tourists.
- Educating farmers about better ways of doing things to make a profit.
- That we stick together as a community. If the government wants to take something away, say either yes or no.
- Value-adding is important. I'd like to see the area not decline further in terms of shops and services.
- We've got prospects for tourism and value-adding but we need some sort of subsidy to encourage industry in town and investment in population. I dream of it every night.
- I'd like to 'chase' tourism and see the heritage buildings valued. We need to repair them rather than knock them down.
- We need a subsidy to value-add. Small players don't get enough encouragement. We need to look at penalty rates and tourism. It's a disincentive for tourism.
- Attract other industries to town and provide more in town for everyday needs so people don't have to go to Wagga Wagga and Tumut.
- It's a pretty active community but we could probably consult more.
- I'd like a local bank, like Bendigo Bank. The writing's on the wall for National and Westpac Bank. I'd like to see the money stay in town. No amalgamation into other Shires either Wagga or Albury. We can say good-bye to our community if that happens.
- It's one of the most beautiful parts of the country with great potential for tourism. We could equal places like Kangaroo Valley. We need to develop a road to Canberra.
- The banks need to have different lending policies for towns with less than 2000 people.
- Direct public transport to Wagga and Albury.

Reaction to forest use options.

Workshop participants were asked to look at three broad scenarios for forest management. The tables below have been structured to reflect the priority each point was assigned by the group.

Scenario A—What would be the social impacts in Tumbarumba if areas currently deferred are reserved for conservation and recreation

Positive impacts	Negative impacts
	• Less capacity for fire management. It's now a State Forest and we need to protect both pine and private property • Access to National Park is part of heritage so it will mean a loss of heritage. State Forest is part of us. Kosciusko National Park is 60% of the Shire • Apiarists-will lose access. Tumbarumba will lose their economic contribution • National Park needs to control feral animals and noxious weeds • Access denied to those who aren't able to walk in • Costs to access forest • May impact on firewood

Scenario B—What would be the social impacts in Tumbarumba if areas currently deferred become available for the timber industry and other uses?

Positive impacts	Negative impacts
• Enable stabilisation and maintenance, maybe • Second shift at the mill and jobs for 5–7 more people. Community can then plan and can look at value-adding—May lead to the employment of up to 30 people • Maintain community access to public forests for • tourism, horses, 4WD, walking, picnics, collecting firewood. Good for families, social heritage (old houses) • Access to wider species mix for timber (for value-adding) • Flowering necessary to maintain hives over seasons • Few social impacts from loss of deferred area	• No unacceptable harvesting

Scenario C—What would be some of the social impacts in Tumbarumba if 50% of the forest areas currently deferred become available for the timber industry and other uses and 50% of the forest areas currently deferred become available for conservation and recreation?

- There was no community response to this scenario.

Additional issues

Additional issues raised by the workshop were not directly related to forest scenarios were:

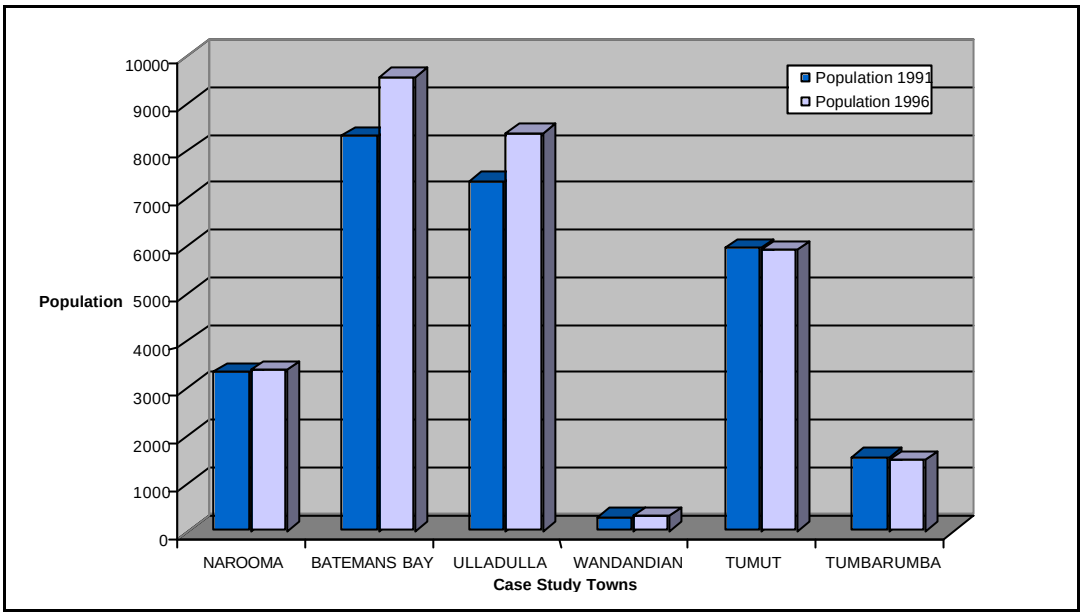
- native vegetation overlay;
- costs of access to National Park; and
- worry that increased resources may be exported out of Tumbarumba.

6.2 ANALYSIS OF DEMOGRAPHIC CHARACTERISTICS

6.2.1 Population

The 1996 Census populations of case study communities ranged greatly in size—the largest being Batemans Bay (9 568) and the smallest Wandandian (309).

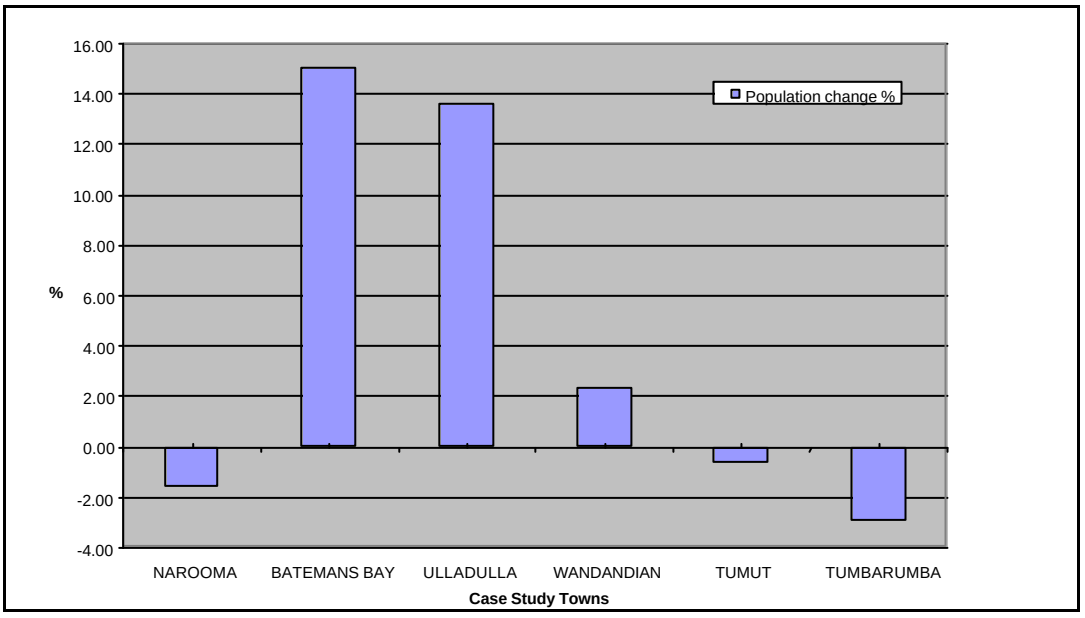
FIGURE 6.1: CENSUS POPULATION 1991 AND 1996



6.2.2 Population change

The population change between 1991 and 1996 Census generally was greater in the coastal retirement centres than in inland centres. Batemans Bay had the largest population increase over this period (15%) and experienced above average growth rates when compared to the change in population in the Southern region (7%) and NSW (5%) over the same period. Narooma, Tumbarumba and Tumut had a declining population over the 1991 to 1996 period, with the greatest decline occurring in Tumbarumba (–3%).

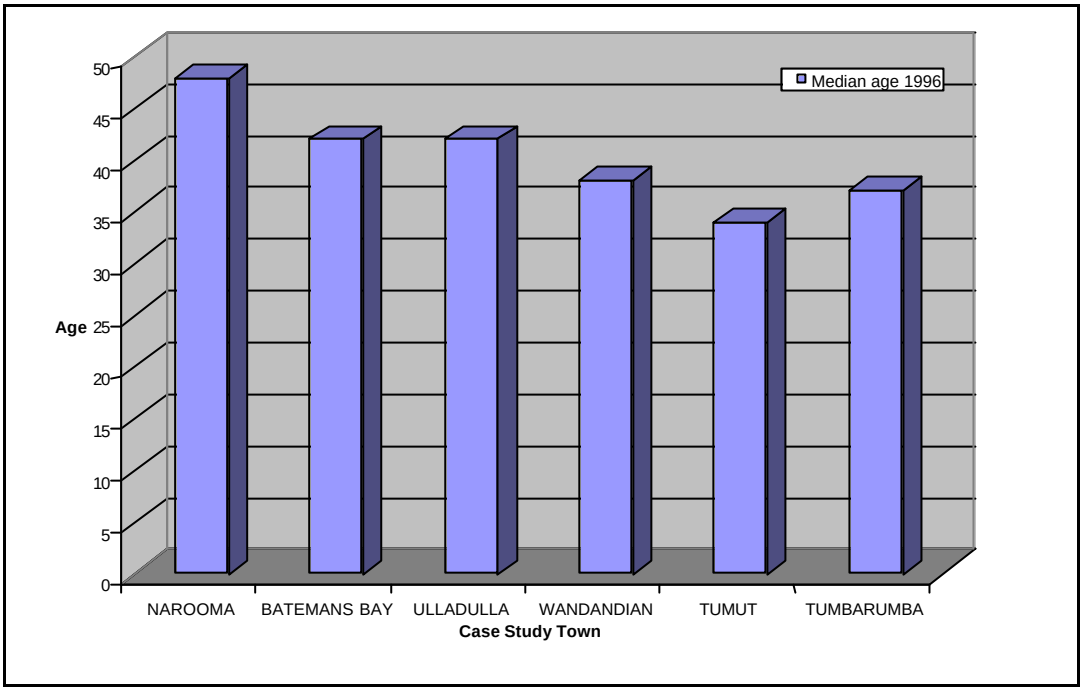
FIGURE 6.2: POPULATION CHANGE



6.2.3 Median age

The median age in coastal communities is higher than for inland communities. In addition the median age in Narooma is disproportionately high compared with other coastal communities, and reflects Narooma's popularity as a retirement location. Overall Tumut community has the lowest median age of the case study communities.

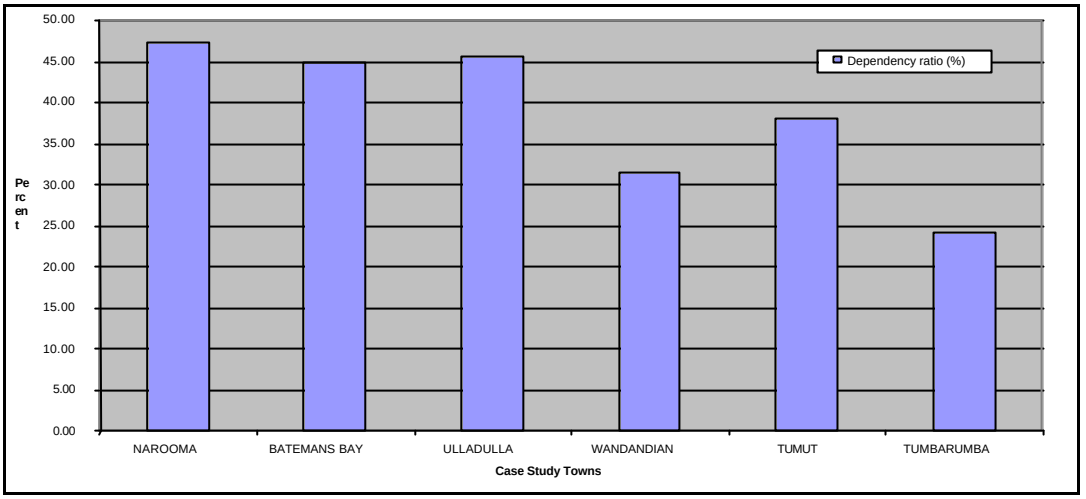
FIGURE 6.3: MEDIAN AGE, 1996



6.2.4 Dependency ratio

There is a wide variation in dependency rates between the case study communities. Narooma has the highest rate (47%) and Tumbarumba the lowest (24%) dependency ratio. In 1996 Narooma, Ulladulla, Batemans Bay and Tumut all had a higher dependency ratio than that recorded for NSW in 1996 (33.92%) and the Southern region (37.21%).

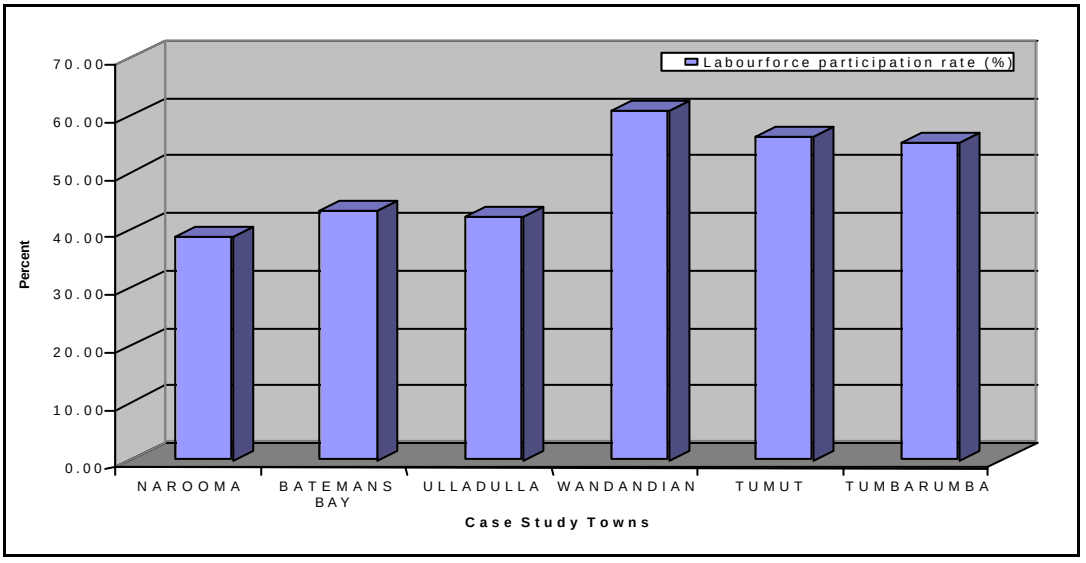
FIGURE 6.4: DEPENDENCY RATIO, 1996



6.2.5 Labour force participation

Labour force participation rates reflect the number of persons in the workforce compared to the population of persons aged 15 years or more in the community. The highest participation rate (61%) occurred in the smallest community—Wandandian. The lowest participation rate occurred in Narooma (39%).

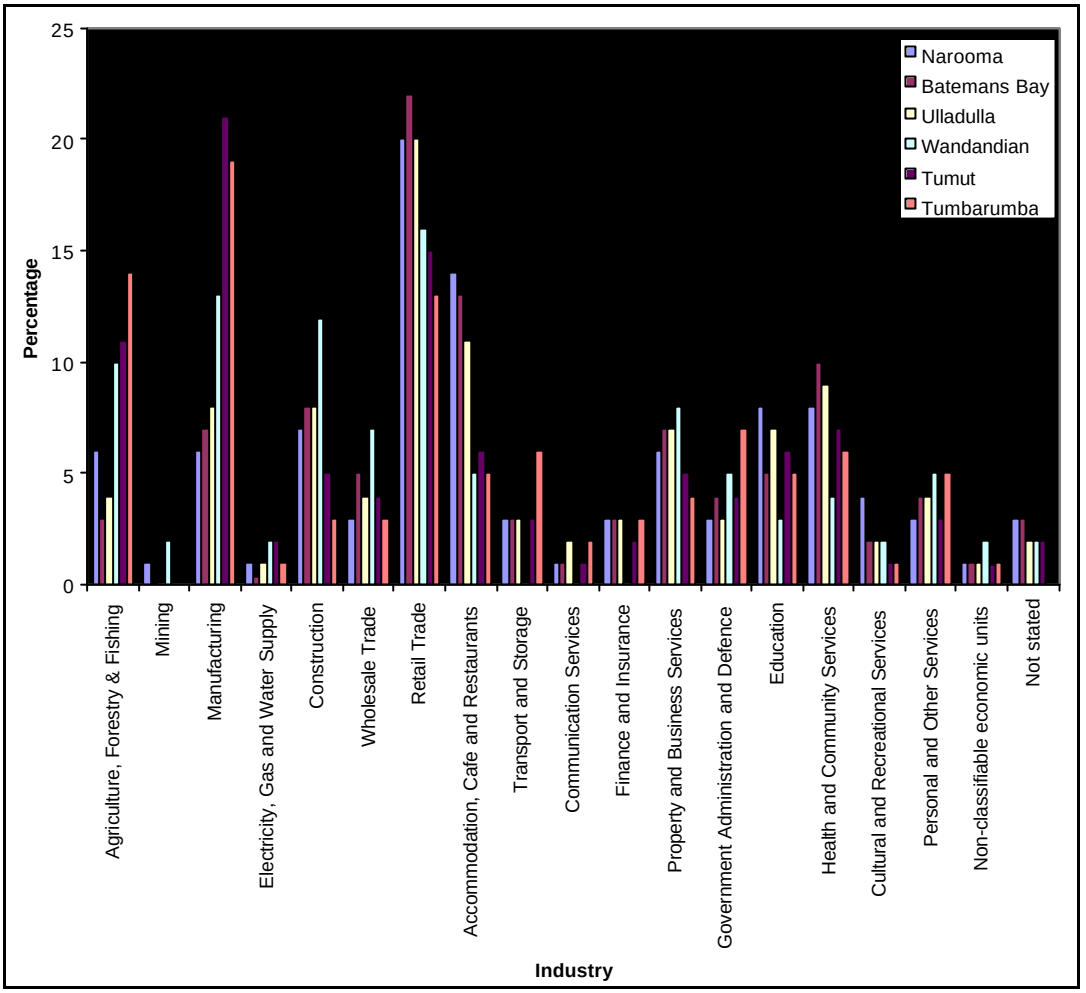
FIGURE 6.5: LABOUR FORCE PARTICIPATION RATE



6.2.6 Industry employment

Retail trade was the major industry in Narooma (20%), Batemans Bay (22%), Ulladulla (20%), and Wandandian (16%). Manufacturing was the major industry in Tumut (21%) and Tumbarumba (19%). Agriculture, forestry and fishing were also major industries in Tumbarumba (14%) and Tumut (11%). All coastal area towns, except Wandandian, have a higher reliance on retail and accommodation industries, reflecting a focus on tourism.

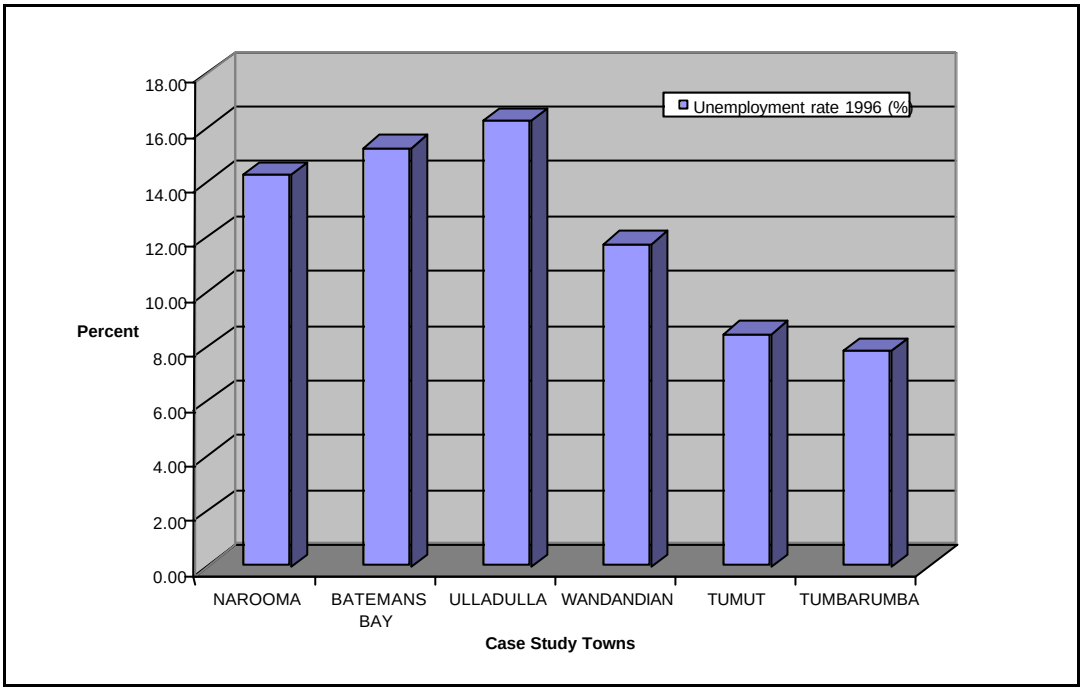
FIGURE 6.6: EMPLOYMENT BY INDUSTRY, 1996



6.2.7 Unemployment rate

All case study communities on the coastal fringe had unemployment rates higher than the NSW rate for 1996 (9%) This would reflect the focus of these towns on tourism and its seasonal nature, the high level of retirees, and the lack of industry diversity in the coastal area. Ulladulla (16%), Batemans Bay (15%) and Narooma (14%) had the highest unemployment rates. Ulladulla's unemployment rate was almost double that of NSW. The relatively low unemployment rates in Tumut and Tumabarumba reflect the high reliance on the more stable (less seasonal) industries such as manufacturing and agriculture, forestry and fishing.

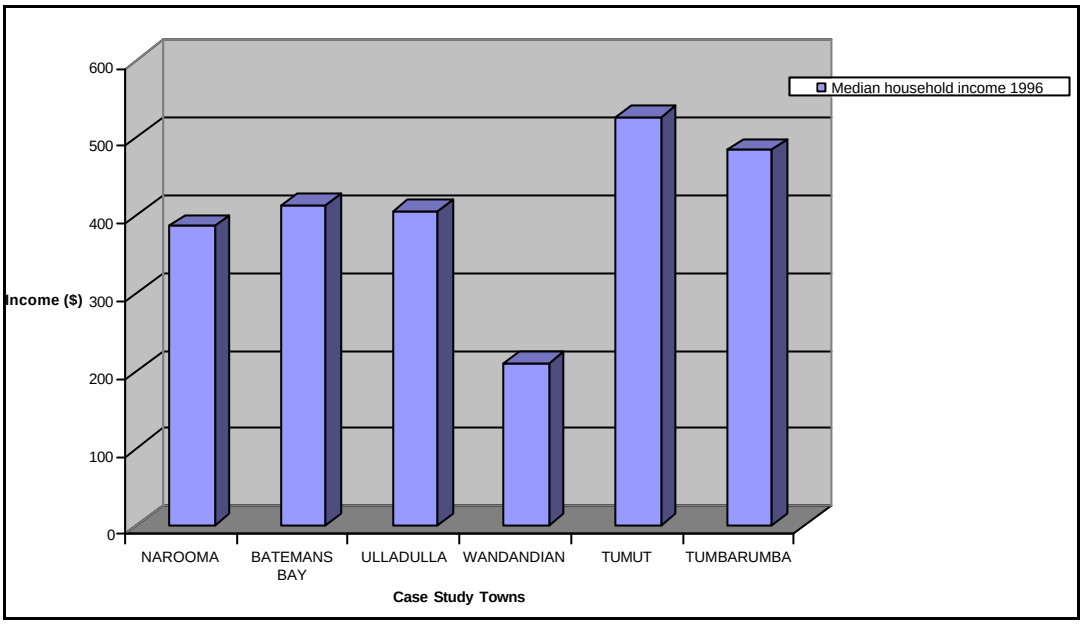
FIGURE 6.7: UNEMPLOYMENT RATE, 1996



6.2.8 Median weekly household income

The median weekly household income in all case study communities is less than the NSW median ($655). Medians range from $620 in Wandandian to $386 in Narooma. Low household incomes in the coastal areas are likely to reflect the popularity of these areas as retirement centres. The higher workforce participation rates in Tumut and Tumbarumba possibly contribute to the higher household income rates in these centres. The relatively high weekly household incomes in Wandandian may reflect the recent land sub-divisions and the emergence of Wandandian as a commuter residential area for people who work in Nowra.

FIGURE 6.8: MEDIAN HOUSEHOLD INCOME, 1996



6.3 COMMUNITY ATTITUDES

6.3.1 Introduction and aims

The central aim of this report is to present and analyse the results of a community attitudes survey that focused upon forest uses and values. The survey was conducted as part of the current RFA process being negotiated in NSW. Five separate reports were commissioned, one for each of the four key CRA regions, and a final report summarising trends throughout the State. Three thousand randomly selected households were targeted to participate in the telephone survey, with a minimum of 380 phone calls to each CRA region. This report details the responses from participants in the South CRA region.

The main aims of the survey were to assess social values relating to forest use and to provide the data in a form that could be geographically referenced and entered into a GIS program. The following five key subject areas were explored:

- demographic attributes of the respondents
- employment details of the respondents
- respondents opinions towards social and environmental issues
- respondents current personal uses and desired future uses of forested land
- the values respondents invest in forested land.

6.3.2 Multiple use forestry

Australia, along with the majority of Western nations, is progressively developing into what has become known as a post-industrial society. Both the economy and

levels of employment have become increasingly dependent upon growth in the information and service industries with a corresponding decline in the relative reliance upon primary sector employment and income. The majority of the population resides in urban areas and has become removed from the needs and practices of primary producers. It is predominantly from within these urban centres that new attitudes and appreciations of Australian landscapes and environments have been developed (see Bolton 1992).

This growing interest in conservation has put tremendous pressure on some primary producers, leading to well publicised and often colourful conflicts between resource managers and environmentalists. The public has become interested in environmental matters and it has been well documented that environmental concerns and policies have been vital in influencing the result of at least one Federal election (see Bean et al 1990). The move away from purely utilitarian perspectives of nature to more romantic and symbolic appreciations of nature have had tremendous impacts upon the forestry industry. Forests now need to be managed to satisfy the symbolic values society invests in forested land as well as their more obvious commercial value. Multiple-use forest management needs to incorporate social, environmental, and economic considerations if it is going to continue to satisfy and serve the Australian population (see Koch and Kennedy 1991). This report aims to investigate how the people of the South perceive and value these three primary areas of forest management.

6.3.3 Related surveys

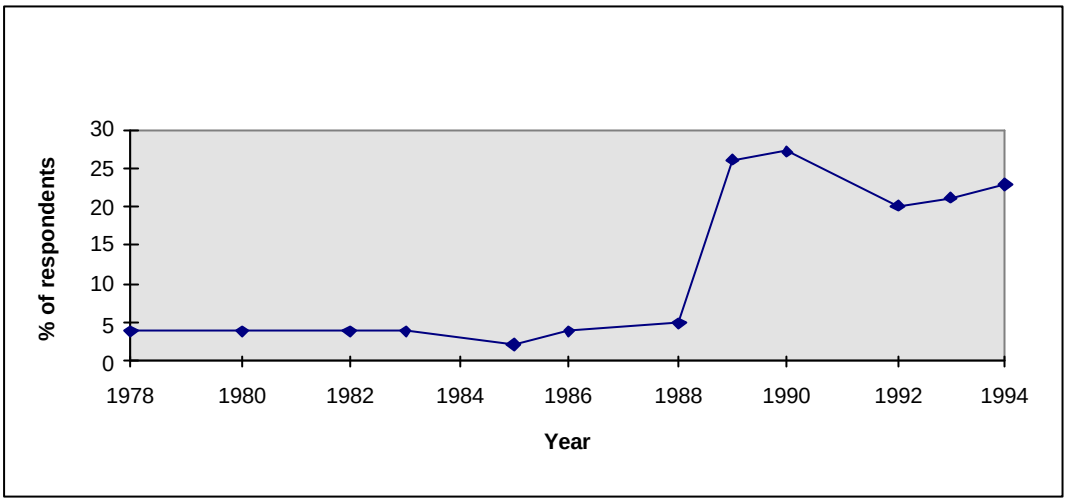
The popular rise of environmental interest in the wider community has attracted the attention of politicians and academics and resulted in a number of environment oriented surveys being conducted. Whilst these surveys invariably concentrate upon different dimensions of people's attitudes towards the environment, making comparison difficult, there are normally two sections that may be compared and are useful for this report. These sections are the overall ranking of economic, social and environmental values, and the structure of people's environmental concern.

Ranking social, economic and environmental values

A standard question in past surveys has been to ask people to indicate from a list of issues which issues they are most concerned about. The environment forms a single category and is contrasted with competing economic and social values. Figure 6.9 shows the results of national surveys investigating the importance of environmental values. Slight changes in wording occurred after the 1986 survey but cannot be attributed to the rapid upsurge of concern in 1989 onwards. It is more likely that the massive media coverage given to global issues such as the greenhouse effect and the ozone 'hole' during this period raised the profile of the 'environment' as an important issue amongst the community (Crook and Pakulski 1995, Bell 1994). Whilst media attention has dropped since then, public interest and concern for environmental issues has not. What Figure 6.9 shows is that almost 25% of the Australian population believe environmental issues are of more concern than other purely social or economic issues, symbolising the rise in importance of environmental values. However it should be noted that traditional concerns like

health, education and employment still tend attract more responses than the environment.

FIGURE 6.9: ENVIRONMENT AS ISSUE OF MOST CONCERN



Adapted from: Crook and Pakulski 1995 and EPA 1994[4]

Structure of environmental concern

Researchers have tried to establish the structure of community concern. Two methods have been used, the first is a closed format question that asks respondents to indicate from a set list which environmental issues they are most concerned about. Table 6.19 shows national trends found through this type of surveying which identifies issues relating to forests to be of equal importance as greenhouse/ozone type issues, being second only to pollution as the community's main concern. It should be noted that comparing surveys in this way is problematic due to changes in wording and research techniques.

TABLE 6.19: PRIMARY ENVIRONMENTAL CONCERN

(percentage of respondents)

Environmental issue	AES[5] 1990	ANOP[6] 1991	AES[2] 1993	ANOP[3] 1993
Pollution	40	51	38	56
Industrial waste	10	8	9	12
Greenhouse/ozone	19	10	16	9
Forest-related issues	*10*	*19*	*12*	*19*
Wildlife destruction	5	n/a	7	n/a
Land degradation	9	8	7	12

[4] 1994 figure derived from NSW population only. 1975–86 question was about the problem of most concern, 1988–94 question was about the most important issue the government should do something about.
[5] AES - Australian Electoral Studies - source Crook and Pakulski 1995
[6] ANOP - Australian National Opinion Polls - source Lothian 1994
[7] ABS - Australian Bureau of Statistics - source Lothian 1994

Alternatively, surveys can allow respondents to make more than one choice, indicating whether respondents were concerned about the issue at all, rather than having to establish which is the most important issue (see Table 6.20). Again forest issues ranked highly, being ranked as the second most important issue in a national 1992 poll.

TABLE 6.20: MULTIPLE ENVIRONMENTAL CONCERNS

Issue	ABS National 1992[4]
Air pollution	40
Forest-related issues	*33*
Ocean pollution	32
Freshwater pollution	30
Ozone	29
Industrial waste	21
Loss of species	19
Greenhouse	17
Land degradation	15

Forests rank highly in the structure of people's environmental concerns. It is within this context, that the following community attitudes survey results will be analysed.

6.3.4 Methodology

Questionnaire design

The questionnaire was divided into five sections to investigate the five original aims of the report:

- demographic attributes of the respondents
- employment details of the respondents
- respondents opinions towards social and environmental issues
- respondents current personal uses and desired future uses of forested land
- the values respondents invest in forested land

The questionnaire design consisted of four main phases.

- Comments submitted by members of the Social and Economic Technical Committee were collected and a brief literature review was carried out. Basic questions were considered and tested through a focus group interview session. The results of these three procedures were used to draft the base questionnaire which took the consultancy aims as its rationale for including or excluding questions.

- The base questionnaire was circulated amongst committee members for review and comments. A modified questionnaire was designed to incorporate the committee's comments

- The modified questionnaire was recirculated amongst the committee and a meeting was held on 15 July 1997 where further changes were made.

- Twenty New South Wales residents were interviewed on 15 July 1997 and problem spots identified. Final adjustments were made to the questionnaire liaising with representatives from RACAC and the SAU.

The final questionnaire covered standard demographic variables whilst investigating the economic, environmental and social dimensions of people's opinions about forest use and values. Restrictions were placed upon the questionnaire structure due to the telephone interview format, the main restrictions being on the time taken to conduct the survey which was limited to fifteen minutes, and a restriction in the complexity of the questions due to the verbal communication medium.

Site selection

In order to generate phone numbers and enter results into a GIS program standard geographic units were required to indicate the boundaries from which the phone numbers could be drawn. Whilst the South CRA region overlaps standard geographic units, postcode boundaries were found to be the most accurate method of delineating the South region. Whilst there is some overlap with other regions it was not thought that this would alter the results of an attitudinal survey in any significant way.

The postcodes delineating the boundaries of the south sample are as follows:

2535–2538, 2540, 2541, 2545, 2446, 2579–2583, 2621, 2622, 2626–2628, 2630, 2631, 2633, 2642, 2653, 2720, 2730, 2787 (see Map 6.1).

Telephone number selection

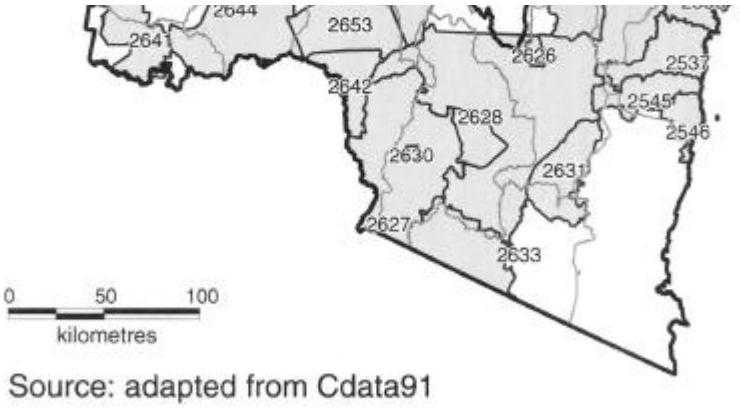
Three hundred and eighty domestic telephone numbers were randomly selected using an electronic White Pages database from the postcodes comprising the South CRA region. Using 1991 Census data this conforms to approximately one call to every 467 people living in the South CRA region.

Interview procedure

Thirty interviewers were employed in this study. Each interviewer was allocated a list of randomly generated phone numbers which they were to call between 6:00 pm and 9:00 pm on weeknights and between 10:00 am and 9:00 pm on weekends. Phone calls were carried out between 17 July and 2 August 1997. If no-one answered the telephone at the first attempt, the phone number was called two more times with a minimum interval of two hours between the calls. If after the third call no-one answered, the call was considered a rejection.

If an answering machine was operating the interviewer read out a standardised statement informing members of the household about the objectives of the interview and indicated that the household would be called again in the next few days. No more messages were left on subsequent calls and the number was considered a rejection after three calls.

MAP 6.1: SOUTHERN RFA REGION — POSTCODES IN SURVEY SAMPLE AREA



Source: adapted from Cdata91

If the call was answered but the respondent did not wish to participate, interviewers asked whether it would be appropriate to call back at another time, or alternatively if anyone else in the household would be interested in participating. As asking other members of the house to participate potentially compromises the random selection criteria interviewers recorded the amount of respondents located through this technique.

The only criteria for successful phone calls was that the respondents be 17 years of age or over. For ‘closed’ questions interviewers were instructed to indicate on the questionnaire which of the selected options the respondent had chosen. For open-ended questions the interviewer recorded the response of the respondent by entering one of the preselected codes on the questionnaire sheet, or if the response did not fit any of these codes the response was written into the question sheet for later coding and analysis. If the respondent was unwilling to answer any of the questions they were not required or encouraged to do so.

Response rate

Of the 380 phone calls made to the South CRA region 117 successful interviews were carried out. This is a response rate of just over 30%. Very few contacts were made with secondary respondents and their responses were not thought to effect the results in any significant way.

6.3.5 Demographic characteristics of sample

Introduction

The demographic section of the questionnaire investigated general characteristics of the group being interviewed and was contrasted with 1991 Census material for the post-code delineated South CRA region. This allows judgements to be made about the extent to which the South sample represents the South CRA region.

Demographic distribution of sample group

Table 6.21 summarises the results of the key demographic questions.

TABLE 6.21: KEY DEMOGRAPHIC VARIABLES

Sample profile (n=117)

	Frequency[8]	Percentage[9]		Frequency	Percentage
Gender			Children		
Male	55	48.7	Yes	90	76.9
Female	58	51.3	No	27	23.1
Age groups			Language spoken at home		
17–24	10	8.5	English	114	97.4
25–34	20	17.1	Non-English	3	2.6
35–44	25	21.4	Aboriginal or Torres Strait Islander identity		
45–54	18	15.4	Yes	11	9.4
55–64	24	20.5	No	106	90.6
65+	20	17.1			

Gender

The percentage of female respondents was slightly higher (51.3%) than the percentage of male respondents (48.7%). Compared to the 1991 census data for the postcodes covered in the South CRA region our sample has a slightly higher representation of females than males**.** In the 1991 Census 49.6% of the South region recorded female compared to 50.4% male.

[8] Frequencies do not necessarily add up to 117 due to incomplete values in some responses.
[9] All percentages given in this report are valid percentages.

Age of respondents

The age profile of the South sample adequately reflects 1991 Census data although there is a significant over-representation of people in the 55–64 years age bracket. Apart from the 55–64 age bracket the three highest categories of respondents were those aged between 25 and 34, 35 and 44 and those over 65 years of age, reflecting the Census distributions.

FIGURE 6.10: AGE OF RESPONDENTS

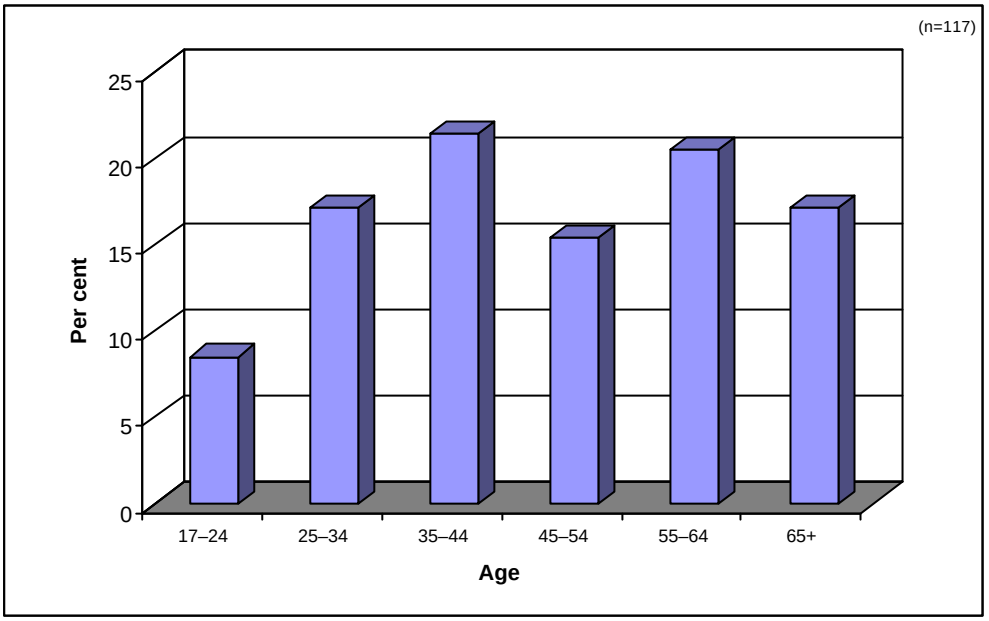


TABLE 6.22: COMPARISON OF AGE BETWEEN 1991 CENSUS DATA OF THE SOUTH REGION AND SOUTH CRA SAMPLE[10]

Age in years	1991 census	South CRA sample (n=117)
17–24	9.5	8.5
25–34	14.8	17.1
35–44	14.7	21.4
45–54	10.5	15.4
55–64	10.6	20.5
65+	13.7	17.1

Parents

As Table 6.21 shows, of the respondents surveyed 76.9 per cent of the sample were parents. This variable could potentially affect people's opinions on subjects involving intergenerational equity.

[10] Census data includes whole South CRA population whilst report data represents only those over 16 years of age.

Language spoken at home

Ninety-seven per cent of the respondents indicated that they spoke English at home, whilst only 3 people (2.6%) indicated that they spoke other languages at home reflecting 1991 Census figures (3.4%).

Aboriginal and Torres Strait Islander status

A relatively high percentage of respondents identified themselves as Aborigines or Torres Strait Islanders (9.4%) when compared to 1991 Census figures (1.7%).

Proximity to forest issues

Figure 6.11 indicates the sample's responses to three key questions gauging their proximity and awareness of key issues relating to forests, such as: their concern for, and awareness of, environmental/conservation issues represented by their membership of or subscription to environmental/conservation groups; their awareness of forest-related industries represented by their employment in forest-related industries; and their concern for, and awareness of, labour related issues represented by their membership of a trade union.

FIGURE 6.11: PROXIMITY TO FOREST-RELATED ISSUES

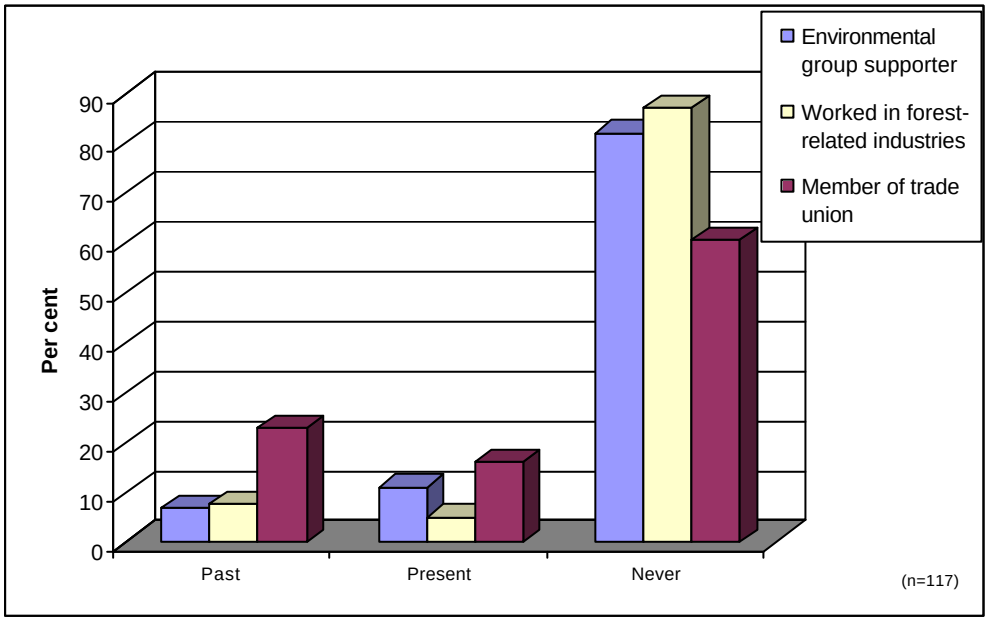


TABLE 6.23: PROXIMITY TO FOREST-RELATED ISSUES

(n=117)

	Past		Present		Never	
	f	%	*f*	%	*f*	%
Member of or subscriber to environmental or conservation group	8	6.8	13	11.1	96	82.1
Worked in forest-related industries	9	7.7	6	5.1	102	87.1
Member of a trade union	27	23.1	19	16.2	71	60.7

The data presented in Table 6.23 and Figure 6.11 indicate that 82.1 per cent of respondents have never been members or subscribers to environmental or conservation groups, with 17.9 per cent of people reporting that they have been (6.8%) or are presently (11.1%) members or subscribers to environmental or conservation groups.

Eighty-seven per cent of people reported that they have never been employed in forest-related industries, with 13 per cent of people in the South CRA region reporting that they had been (7.7%) or are presently (5.1%) employed in forest-related industries. No specification was supplied about the term 'forest-related industries' with positive respondents potentially being employed in the economic, social or conservation sides of these industries.

Sixty-one per cent of respondents reported that they have never been a member of a trade union. Thirty-nine per cent have been (23.1%) or are presently (16.2%) members of a trade union.

6.3.6 Education and employment

Introduction

Respondents were asked about the level of education they attained, their income level, and their occupation. The level of education was compared to 1991 Census data.

Level of schooling

Figure 6.12 and Table 6.24 indicate the responses to a question regarding the highest level of schooling attained by each respondent. Close to 77% of respondents had either attained the Year 10 school certificate (or equivalent) or higher, with the remainder of the respondents achieving lower levels of schooling.

FIGURE 6.12: LEVEL OF SCHOOL EDUCATION

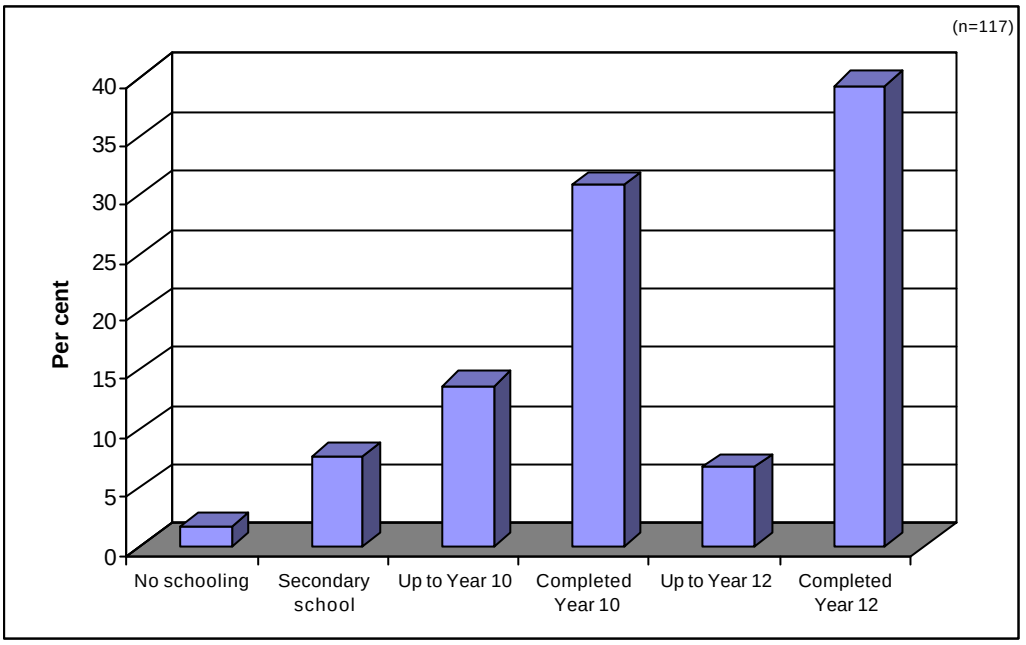


TABLE 6.24: LEVEL OF SCHOOL EDUCATION

(n=117)

Level of education	Frequency	Percentage
No schooling	2	1.7
Secondary school	9	7.7
Up to Year 10	16	13.7
Completed Year 10	36	30.8
Up to Year 12	8	6.8
Completed Year 12	46	39.3

Tertiary education and other qualifications

Respondents were asked about other tertiary, trade and industry qualifications they had attained, the frequencies and percentages are given in Table 6.25. Figure 6.13 shows the responses, indicating 28.7% of all respondents had not attained any formal qualifications other than schooling. This is substantially lower than 1991 Census figures for the same region that indicated 59.3% of the population had no formal qualifications after schooling. Census data also revealed that only 10.6% of the South population had University qualifications whereas in the sample group 22.2% had University degrees or diplomas. This indicates that our sample is biased towards the more educated segments of the community with a disproportionate amount of less educated people declining to be interviewed.

FIGURE 6.13: TERTIARY EDUCATION AND OTHER QUALIFICATIONS

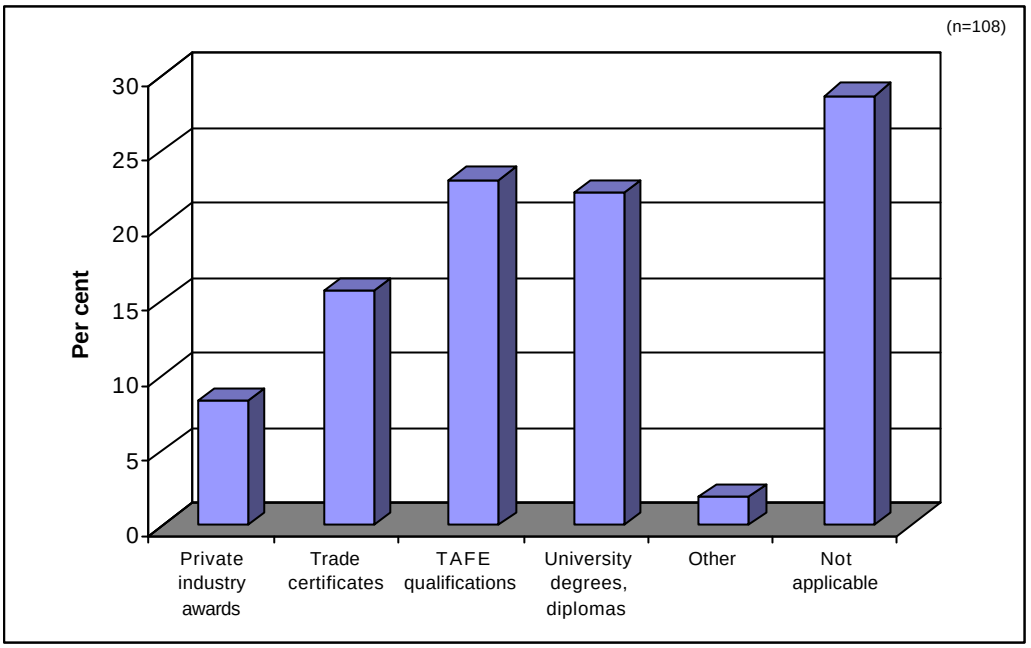


TABLE 6.25: TERTIARY EDUCATION AND OTHER QUALIFICATIONS

(n=108)

Qualification	Frequency	Percentage
Private industry awards	9	8.3
Trade certificates	17	15.7
TAFE qualifications	25	23.1
University degrees, diplomas	24	22.2
Other	2	1.9
Not applicable	31	28.7

Employment and occupations

A high percentage of respondents who participated in the survey (41.4%) were not currently employed. This reflects 1991 Census data that shows 39.5 per cent of the South CRA region are not currently within the labour force, and a further 10.9% of the labour force are unemployed.

FIGURE 6.14: EMPLOYMENT PROFILE OF RESPONDENTS

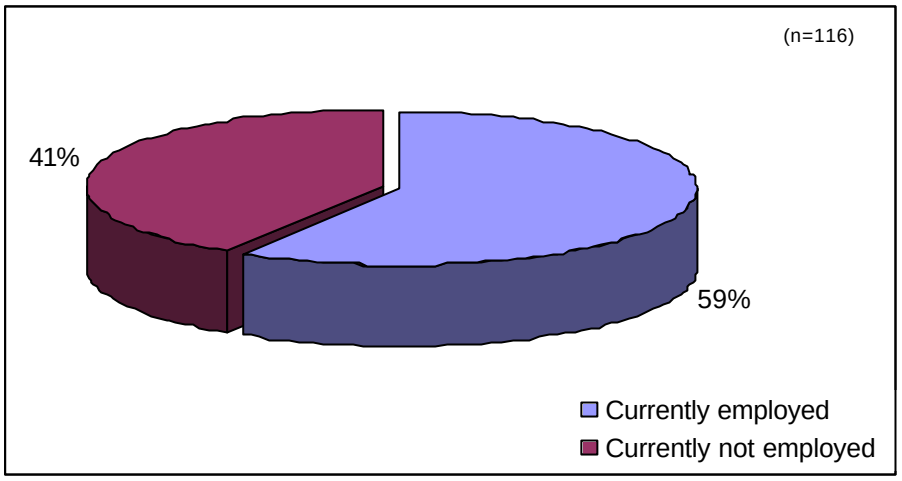


Table 6.26 and Figure 6.15 show the distribution of employed people according to the Australian Bureau of Statistics occupation categories[11]. A high percentage of people surveyed (20.6%) fall into the occupation category of 'professional' which is significantly higher than the average across NSW in the 1991 Census (12.1%). Also over-represented were 'managers and administrators' (17.6%, NSW 12.1%) and 'para-professionals' (17.6%, NSW 6.6%). 'Clerks' (5.9%, NSW 15.8%) and 'labourers/machine operators (4.4%, NSW 19.1%) were under-represented. The 'self employed' category (10.3%) is not a Australian Bureau of Statistics category but was recorded as such when stated.

The debate about the effect of socio-economic status and educational levels upon people's environmental attitudes has led to little consensus amongst researchers (see for example Papadakis 1993, Cotgrove and Duff 1981). However it is possible that those who are highly educated, or of a high socio-economic status (both of whom are disproportionately represented in this survey) may show more concern for environmental issues than the general public.

[11] The category 'self employed' was included although it is not an ABS category. The ABS category 'plant and machine operators and drivers' was incorporated into 'labourers and related workers' in this survey.

FIGURE 6.15: TYPE OF OCCUPATION OF THE RESPONDENTS

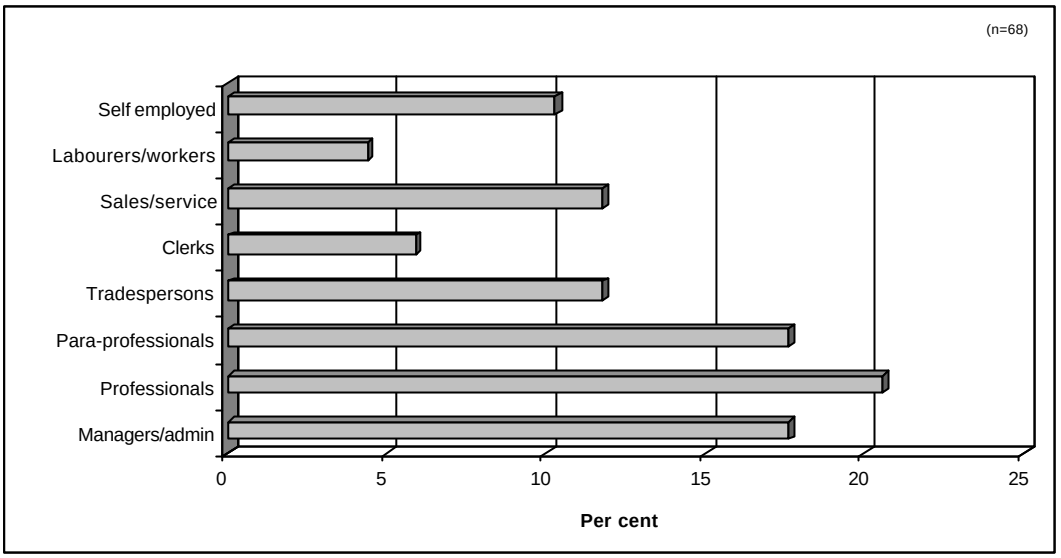


TABLE 6.26: OCCUPATION TYPES OF RESPONDENTS

(n=68)

Occupations	Frequency	Percentage
Managers and administrators	12	17.6
Professionals	14	20.6
Para-professionals	12	17.6
Tradespersons	8	11.8
Clerks	4	5.9
Salespersons and personal service workers	8	11.8
Labourers and related workers	3	4.4
Self employed	7	10.3

Income

We can see from Table 6.27 and Figure 6.16 that a large percentage of respondents can be classified as medium to low income earners. Almost a quarter of the respondents reported earning less than $15000, reflecting the high number of respondents who were not currently employed. One quarter of the respondents indicated they earned more than $35000, whilst the reminder earned between $15000 and $35000 per year.

FIGURE 6.16: INCOME LEVEL OF THE RESPONDENTS

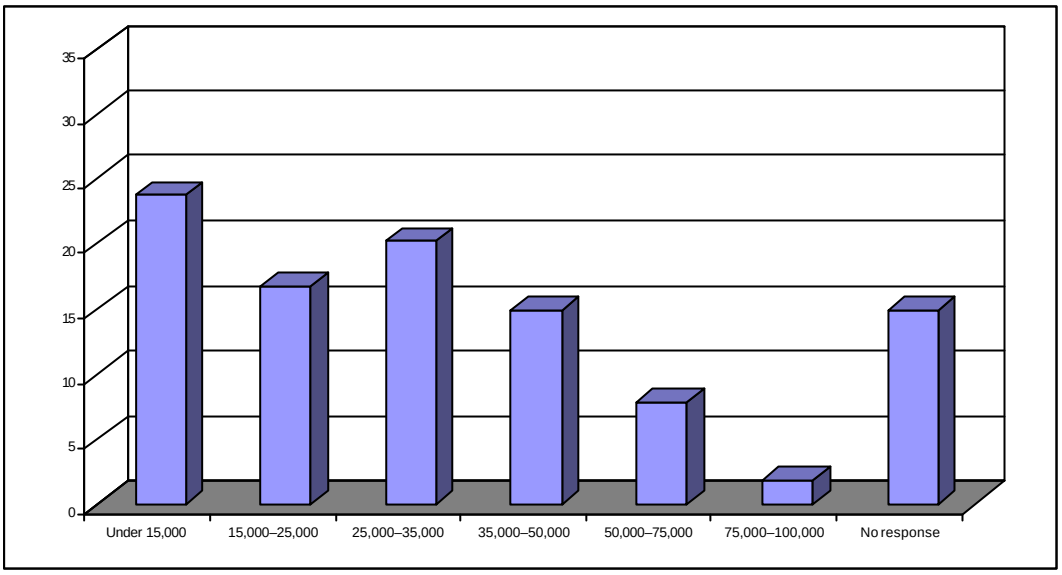


TABLE 6.27: INCOME LEVELS OF RESPONDENTS

(n=114)

Income level	Frequency	Percentage
Under $15 000	27	23.7
$15 000–25 000	19	16.7
$25 000–35 000	23	20.2
$35 000–50 000	17	14.9
$50 000–75 000	9	7.9
$75 000–100 000	2	1.8
No response	17	14.9

6.3.7 Social and environmental issues

Introduction

In order to investigate how people think about general environmental issues four questions were asked investigating the extent and structure of their concern. The first question asked people to rank the importance of environmental issues when compared with other broad social and economic issues at an abstract level. The second question investigated the strength of people's concern for environmental issues as a whole, whilst the third question investigated the structure of people's concern for the environment. The last question looked at the strength and commitment people have for environmental issues by seeing how concern has been translated into behaviour.

Contemporary social issues

A list of seven contemporary social issues were read out to participants in the survey and they were asked to indicate which two issues they felt were of most importance to Australia at the present time. The list included: education, environment, the health system, unemployment, crime, promotion of economic growth, and discrimination.

Figure 6.17 and Table 6.28 indicate that 'unemployment' (ranked as one of the top two issues by 44% of people surveyed), education (38%), 'the health system' (36%), and 'the environment' (35%) were the issues of most concern for respondents from the South CRA region. When compared to a recent face to face survey commissioned by the New South Wales Environment Protection Authority (EPA 1994) which asked a similar question for the whole of NSW some differences become apparent. The EPA study found unemployment (50.4%), education (30.9%) and health (29%) as the three highest ranked issues but only 22.8% mentioned environment as one of their primary concerns. This shows that people in the South region are concerned about social (health, education) and economic issues (unemployment) but are also more concerned about environmental issues than is normal in previous studies.

FIGURE 6.17: IMPORTANT ISSUES FACING AUSTRALIA

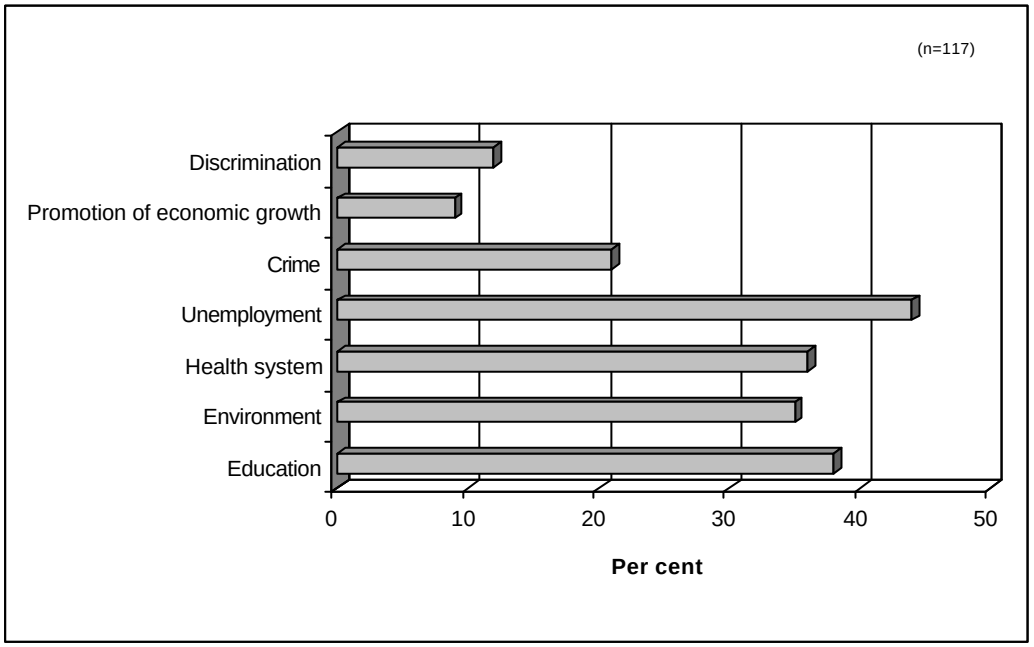


TABLE 6.28: MOST IMPORTANT ISSUES FACING AUSTRALIA

(n=117)

Issue	Frequency	Percentage
Discrimination	14	12
Promotion of economic growth	11	9
Crime	24	21
Unemployment	51	44
Health system	42	36
Environment	41	35
Education	45	38

Social concern for the environment

Of a list of three statements relating to the level of concern shown by society for the environment, respondents were asked to indicate which statement most closely matched their own attitude. Table 6.29 indicates that 69.9 per cent of respondents felt that society doesn't show enough concern for the environment, while only 9.7 per cent of people thought society shows too much concern for the environment. There is a high degree of concern and interest within the sample group towards environmental issues, with two thirds of the respondents indicating they would prefer to see more attention given to environmental values.

TABLE 6.29: SOCIAL CONCERN FOR THE ENVIRONMENT

(n=113)

Level of concern	Frequency	Percentage
Society shows too much concern for the environment	11	9.7
Society shows about the right amount of concern for the environment	23	20.4
Society doesn't show enough concern for the environment	79	69.9

Environmental issues of most concern

Participants were asked to indicate the two environmental issues about which they were most concerned, in order to evaluate issues of prime importance by region, and demonstrate the structure of people's environmental concerns.

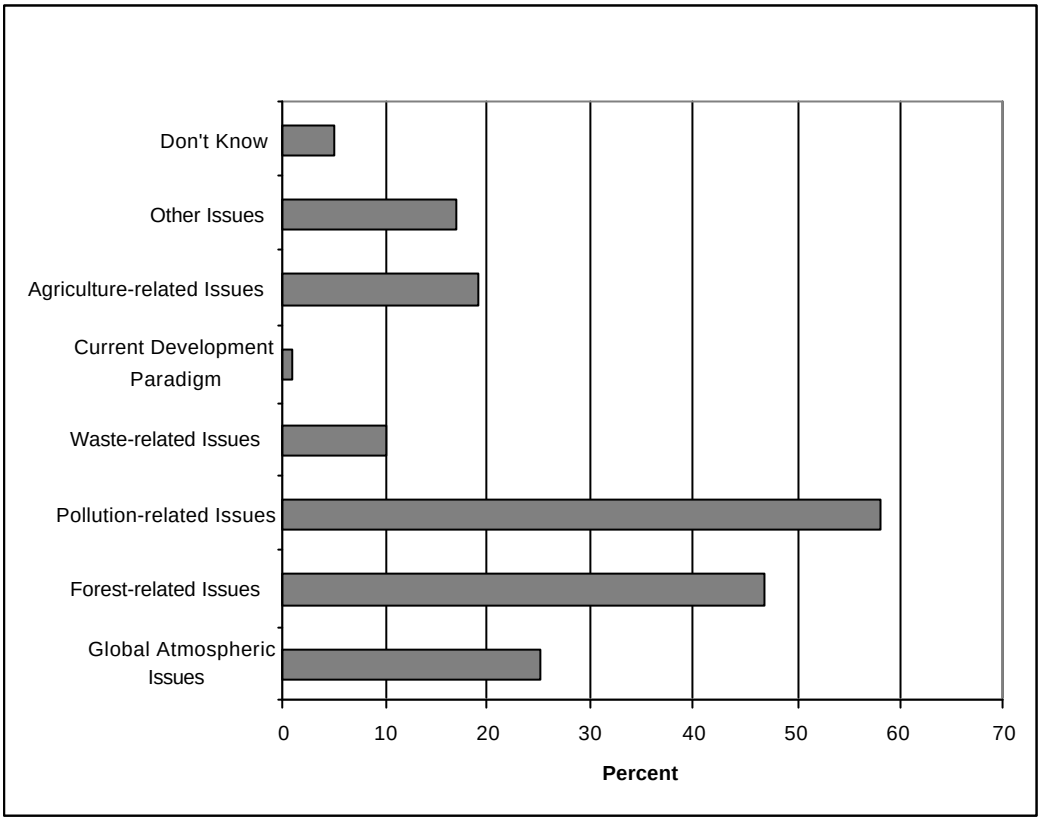
Table 6.30 indicates that for the South CRA region 33 per cent of respondents indicated forest-related issues[12] such as logging and deforestation were the environmental issues they were most concerned about. Pollution issues, particularly water pollution (29%), were also high in the structure of people's environmental concerns. Figure 6.18[13] groups together the primary categories of issues showing

[12] Due to the opening sentences of the questionnaire in which the term 'forest' is mentioned, there is the potential for respondents answers to be structured in ways that prioritise forest-related issues.

[13] The categories for Figure 6.18 were created as follows: global atmospheric issues (greenhouse effect/global warming/ozone layer/CFCs); forest-related issues (deforestation/logging/biodiversity); pollution related issues (beach pollution, water pollution, air pollution, unspecified pollution,

that both pollution-related issues were the primary concerns of the respondents, followed by forest-related issues. This reflects previous surveys (see Section 6.3.4) and reveals the high symbolic value both forests and pollution command in the structure of people's environmental concern.

FIGURE 6.18: ENVIRONMENTAL ISSUES OF PRIMARY CONCERN



industrial emissions), waste related issues (production of waste, waste disposal, litter); current development paradigm (current development paradigm); agricultural issues (pesticides/fertilisers, land degradation/erosion/salinity), other issues (energy production, water conservation, nuclear issues/uranium mining, population pressure, noise pollution, urban sprawl, others)

TABLE 6.30: ENVIRONMENTAL ISSUES OF MOST CONCERN

(n=117)

Issue	Frequency	Percentage
Greenhouse effect/global warming	19	16
Ozone layer/CFCs	10	9
Deforestation/logging	39	33
Biodiversity loss	16	14
Nuclear issues/uranium mining	1	1
Population pressure	1	1
Current development paradigm	1	1
Beach pollution	7	6
Water pollution	34	29
Water conservation	12	10
Air pollution	8	7
Unspecified pollution	15	13
Litter	3	3
Production of waste	4	3
Waste disposal	5	4
Land degradation/erosion/salinity	19	16
Energy production	2	2
Pesticides/fertilisers	3	3
Industrial emissions	4	3
Urban sprawl	2	2
Others	1	1
Don’t know	6	5

Environmentally responsible behaviour

In order to assess how people’s environmental concerns are translated into environmentally responsible behaviour (as a measure of their commitment to environmental issues) the survey asked participants whether they had adopted any of the following practices in an effort to become more environmentally friendly in the last 5 years: recycling (waste-minimisation behaviour); considered environmental issues when voting (political activity); participation in bush regeneration, Landcare or an active anti-litter campaign (active participation); and purchase of environmentally friendly products (consumption behaviour).

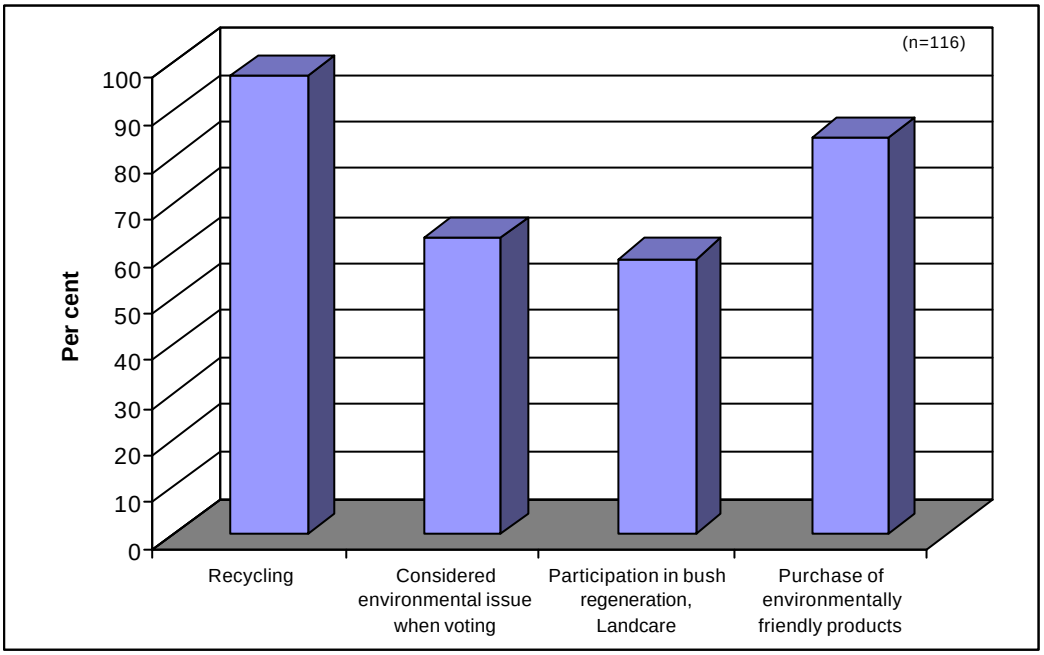
Table 6.31 reveals a strong performance by the participants on behaviour such as recycling, with 97.4 per cent of respondents indicating they recycle, and the purchase of environmentally friendly products (84.3%). More committed forms of behaviour such as voting patterns considerations and participation in community-based environmental campaigns also ranked relatively highly showing a strong commitment and interest in environmental issues within the sample (see Table 6.31 and Figure 6.19).

TABLE 6.31: ADOPTION OF ENVIRONMENTALLY FRIENDLY PRACTICES

(n=116)

Practice	Frequency (Yes)	Percentage
Recycling	111	97.4
Considered environmental issues when voting	73	62.9
Participation in bush regeneration, Landcare or an active anti-litter campaign	68	58.6
Purchase of environmentally friendly products	97	84.3

FIGURE 6.19: ENVIRONMENTALLY FRIENDLY PRACTICES ADOPTED BY RESPONDENTS



6.3.8 Uses of forested land

Introduction

There are two dimensions to people's attitudes towards forest land use. The first is their actual personal use, and the second is how they would like to see the land used at a broader scale. Factors influencing people's ideas include current land categories, the two most important ones being the division between State Forests and National Parks. To investigate these factors people were asked about their current usage patterns and how they think the land should be managed. If people were aware of the differences between National Parks and State Forests they could indicate different uses for each of these land units, if they were unaware, forested land was referred to under the umbrella term of 'public forests'. To further investigate uses of forested land a series of statements were read out to the respondents where they could indicate the extent to which they disagreed or agreed with the statement. To

differing extents all the questions in this section also indicate the way people value forested land.

Personal uses of forested land

Awareness of national park/State forest distinctions

Respondents were asked about their awareness of the difference between State Forests and National Parks, and based on their response they were streamed into a series of questions. Almost two thirds of respondents (64%) reported an awareness of the difference between State Forests and National Parks (refer to Figure 6.20) whilst one third of respondents were unaware of the difference between State Forests and National Parks.

FIGURE 6.20: AWARENESS OF THE DIFFERENCE BETWEEN STATE FORESTS AND NATIONAL PARKS

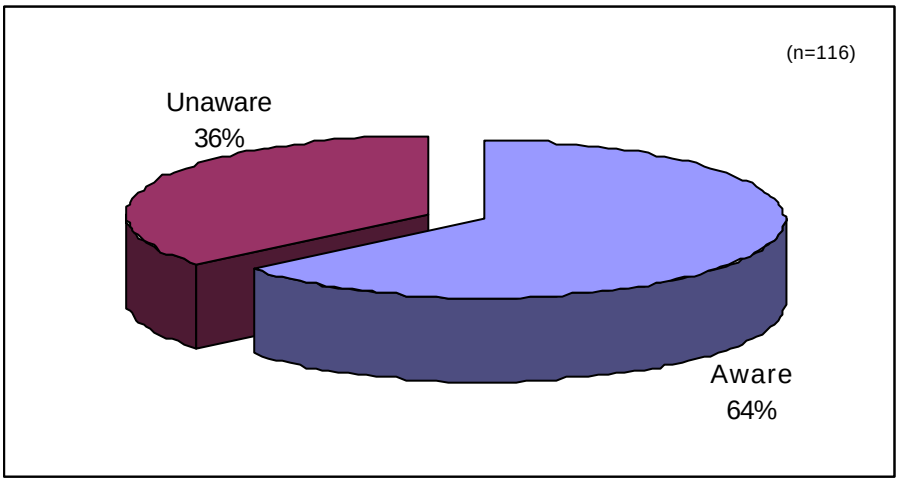


Table 6.32 shows the frequency of visits to State Forests and National Parks (for people aware of the difference in tenure between the two) and Public Forests. There was a large diversity within the sample group in regard to the frequency with which they visited forested land. Many of the respondents visit forested areas (State Forests, National Parks and public forests) regularly, with 28.8 per cent, 25 per cent and 37.2 per cent, respectively, reporting to visit these at least once every two weeks. However a high percentage of the respondents also reported visiting forested areas irregularly with 27.4 per cent of respondents reporting they visited State Forests once a year or less, 36.1 per cent visiting National Parks once a year or less, and Public Forests 34.9 per cent visiting once a year or less.

TABLE 6.32: FREQUENCY OF VISITS TO PUBLIC FORESTS

	Frequency			Percentage		
	State forests (n=73)	National parks	Public forests (n=44)	State forests	National parks	Public forests
> once a week	17	12	11	23.3	16.7	25.6
Fortnightly	4	6	5	5.5	8.3	11.6
Once a month	11	11	5	15.1	15.3	11.6
Once every 2–3 months	13	8	6	17.8	11.1	14.0
Once every 6 months	8	9	1	11.0	12.5	2.3
Once a year	8	18	2	11.0	25.0	4.7
Hardly ever	10	6	8	13.7	8.3	18.6
Never	2	2	5	2.7	2.8	11.6
Not applicable	44	45	74	44.0	45.0	74.0

Entrance fees

Table 6.33 shows that 72.2 per cent of respondents who were aware of the difference between State Forests and National Parks reported having paid an entrance fee to visit a State Forest or National Park. There was, however, a lower percentage of respondents (50%) reporting paying an entrance fee who were not aware of the difference between State Forests and National Parks.

TABLE 6.33: PAYMENT OF ENTRANCE FEE TO VISIT FORESTED LAND

	Frequency (Yes)	Percentage (Yes)	Frequency (No)	Percentage (No)
State forests and national parks (n=72)	52	72.2	20	27.8
Public forests (n=44)	22	50.0	22	50.0

Willingness to pay

Table 6.34 shows the results of the question inquiring about respondents' willingness to pay an entrance fee to forested land. Figures 6.21, 6.22 and 6.23 and Table 6.33 highlight the differences in responses for State Forests and National Parks. Twenty-nine per cent of respondents reported that they would not be prepared to pay an entrance fee to State Forests compared to only 22% for National Parks. The most popular amount people would be willing to pay was between $4–6.

Only 11% of respondents who did not know the differences between National Parks and State Forests would not be prepared to pay an entrance fee to public forests. The amount they would be prepared was similar to those who were aware of the differences being between $4–6.

TABLE 6.34: AMOUNT RESPONDENTS ARE PREPARED TO PAY TO VISIT FORESTED LAND

	Frequency			Percentage		
Amount ($)	State forests (n=72)	National parks (n=72)	Public forests (n=44)	State forests	National parks	Public forests
None	21	16	5	29.2	22.2	11.4
1–3	11	11	14	15.3	15.3	31.8
4–6	24	23	18	33.3	31.9	40.9
7–9	9	11	2	12.5	15.3	4.5
10–15	0	9	5	8.3	12.5	11.4
16–20	0	1	0	0.0	1.4	0.0
21–30	1	1	0	1.4	1.4	0.0
>30	0	0	0	0.0	0.0	0.0

Activities in forested land

The main activities people undertake when they visit public forests are bushwalking, picnics and nature appreciation. Swimming/surfing, and camping were the two most popular activities being pursued by over 10 per cent of the respondents as shown in Table 6.35 and Figures 6.24 and 6.25. People who knew the difference between national parks and state forests were more likely to visit forests for nature appreciation, and to swim or surf (Figure 6.24),whilst those who did not know the difference were more likely to visit public forests to picnic, camp, fish and 4 wheel drive (Figure 6.25).

TABLE 6.35: TYPICAL ACTIVITIES IN FORESTED LAND

	Frequency		Percentage	
Activity	Aware of difference (SF & NP) n=75	Unaware of difference (SF & NP) n=42	Aware of difference (SF & NP)	Unaware of difference (SF & NP)
Picnics	28	20	37.3	47.6
Camping	9	7	12.0	16.7
Bushwalking	44	25	58.7	59.5
Nature appreciation	31	14	41.3	33.3
Visit wilderness	6	2	8.0	4.8
4WD	4	4	5.3	9.5
Cycling	3	0	4.0	0.0
Fishing	4	4	5.3	9.5
Touring	5	2	6.7	4.8
Educational and scientific	2	1	1.7	2.4
Canoeing	0	1	0.0	2.4
Hunting	1	1	1.3	2.4
Swim, surf	10	1	13.3	2.4
Skiing	0	2	0.0	4.8
Employment	2	1	2.7	2.4
Clean-up campaign	1	2	1.3	4.8
Spiritual	1	0	1.3	0.0
Cultural appreciation	0	1	1.3	2.4

FIGURE 6.21: AMOUNTS RESPONDENTS ARE PREPARED TO PAY FOR VEHICULAR ACCESS TO NATIONAL PARKS

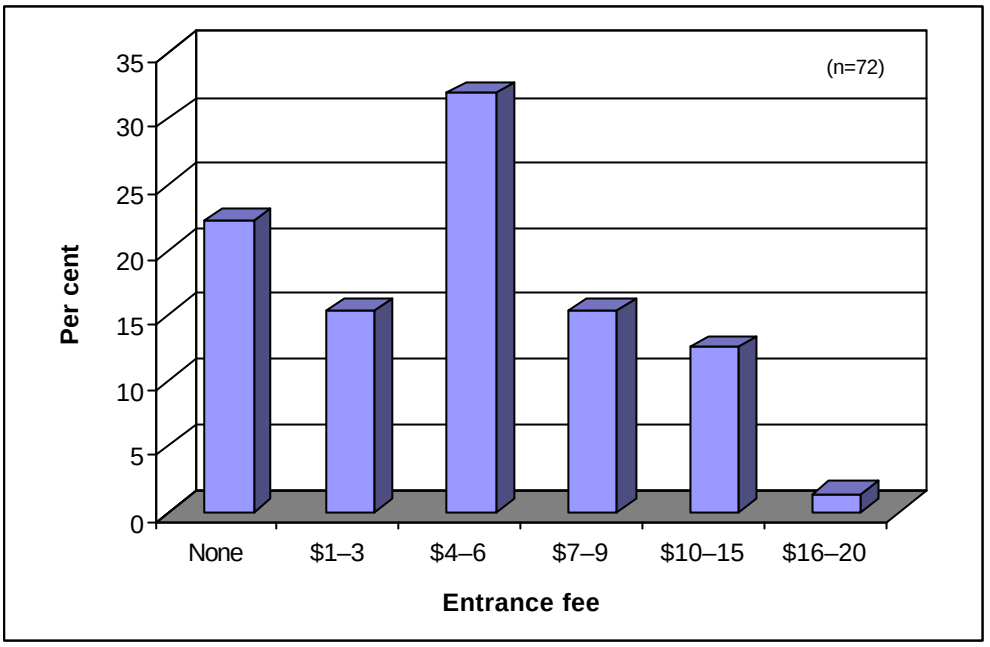


FIGURE 6.22: AMOUNTS RESPONDENTS ARE PREPARED TO PAY FOR VEHICULAR ACCESS TO STATE FORESTS

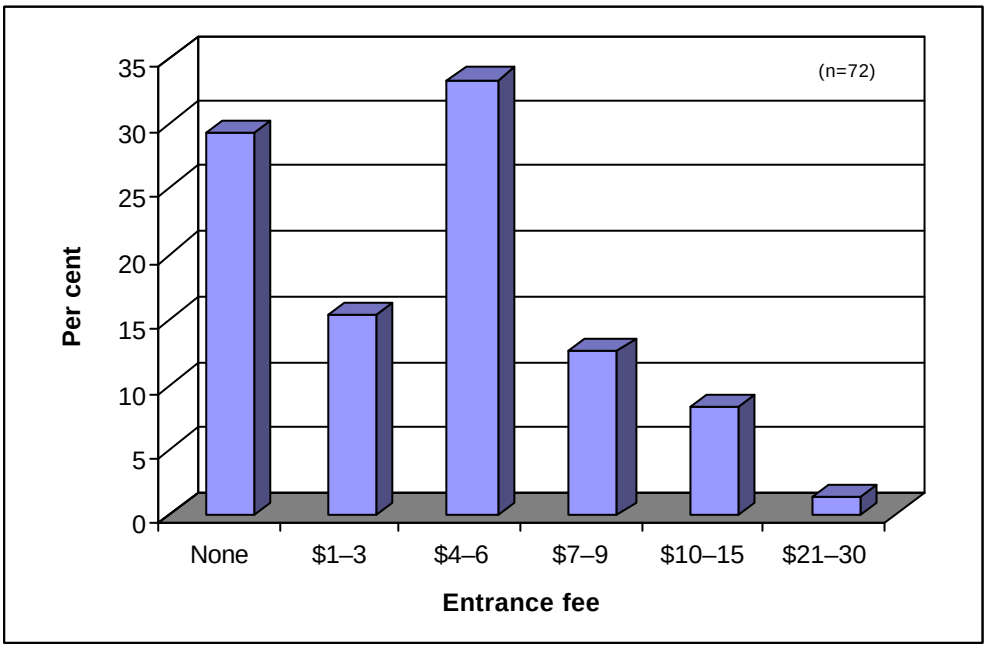


FIGURE 6.23: AMOUNTS RESPONDENTS ARE PREPARED TO PAY FOR VEHICULAR ACCESS TO PUBLIC FORESTS

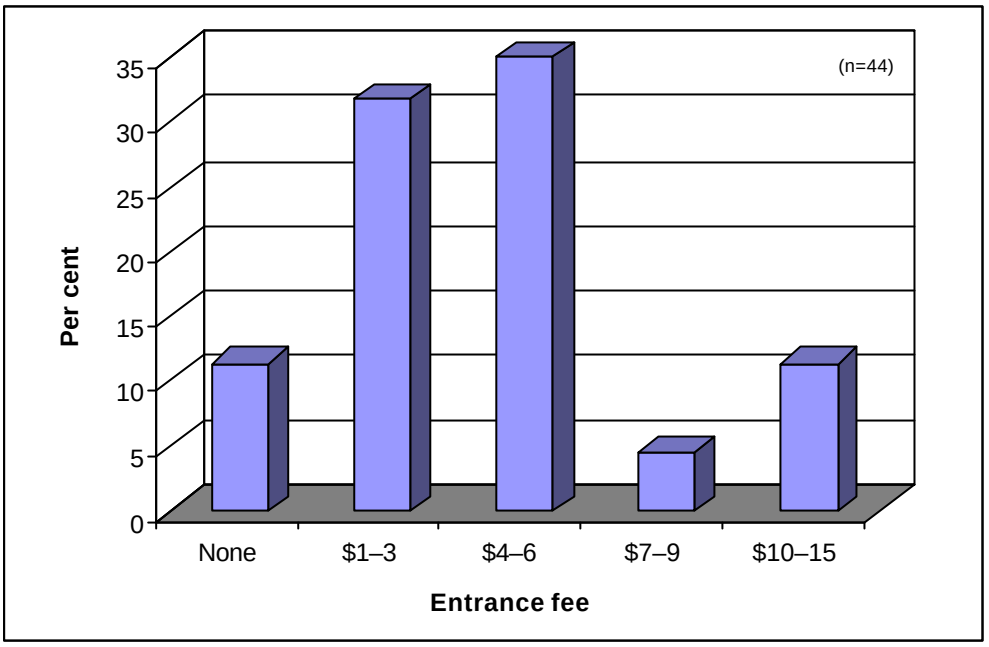


FIGURE 6.24: RESPONDENTS' (WHO RECOGNISE THE DIFFERENCE BETWEEN STATE FORESTS AND NATIONAL PARKS) REASONS FOR VISITING PUBLIC FORESTS

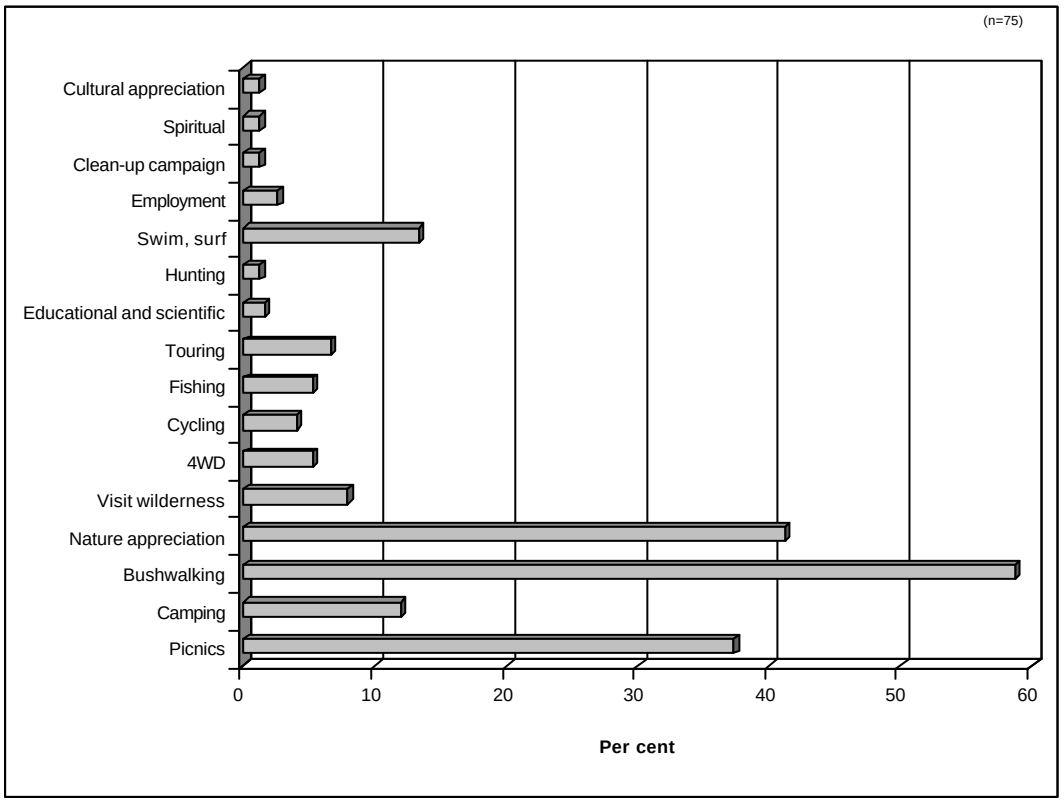
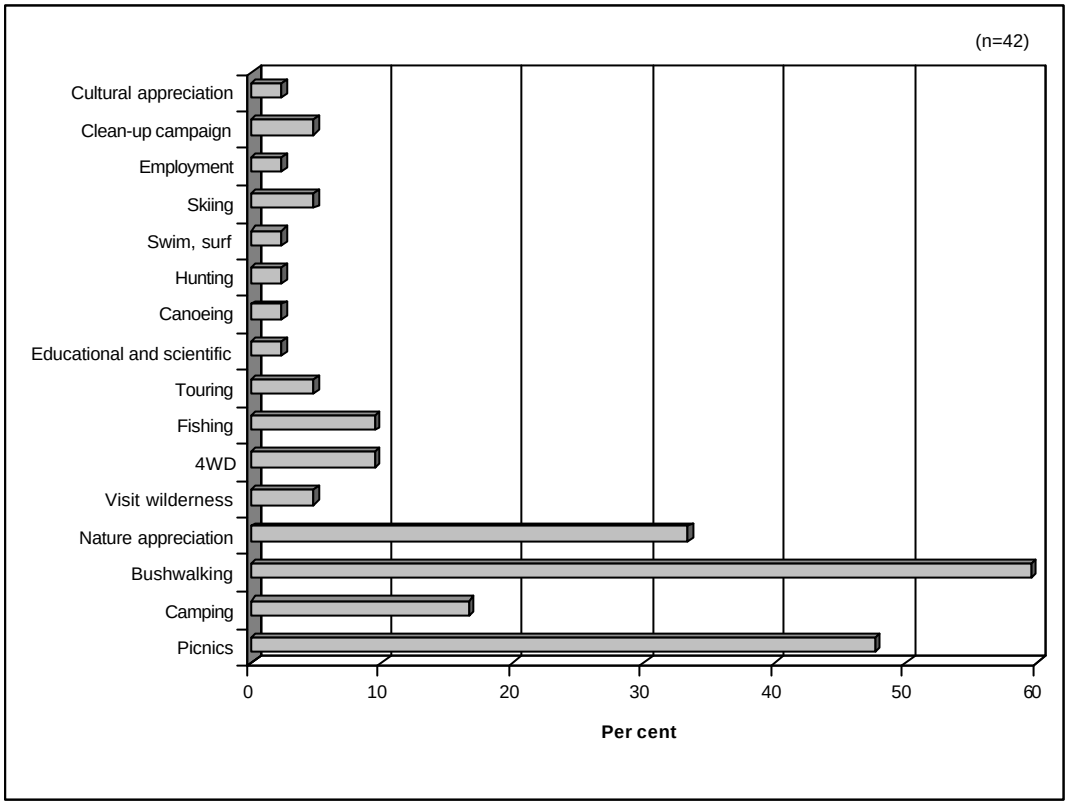


FIGURE 6.25: RESPONDENTS' (WHO DO NOT RECOGNISE THE DIFFERENCE BETWEEN STATE FORESTS AND NATIONAL PARKS) REASONS FOR VISITING PUBLIC FORESTS



Broad-scale uses of forested land

Priority uses of forested land

Figures 6.26 and 6.27 indicate the responses from questions investigating what priority respondents gave to various activities with relation to public forests.

Figure 6.26 and Table 6.36 indicate that protecting wilderness, bushwalking/picnics, education/scientific, protecting native plants and animals, camping, protecting Aboriginal sites, maintaining sites of natural beauty, ecotourism and maintaining water quality, should all be high priorities for managers of State Forests and National Parks. Respondents did not think hunting or mining should be high priorities for managers in either land tenure. There were mixed responses for economic priorities with respondents evenly distributed between those who thought economic activities such as timber harvesting, woodchipping and providing grazing land should be a high priority in both, State Forests only, or not in either.

Results for those who were not aware of the differences between State Forests and National Parks are similar to those who were aware of the differences. The question for this group was modified slightly to allow them to indicate what activities should be a high priority, low priority and not allowed. The activities which received the highest number of responses for the high priority category include: the protection of wilderness, protection of plants and animals, providing for bushwalking/picnics,

educational/scientific, maintaining sites of natural beauty, and maintaining water quality. Activities which received a large number of responses as a low priority include: grazing land, off-road recreation, mining, woodchipping, timber production, bee keeping and paper production. Hunting received the highest number of 'not allow' responses out of all the listed activities, followed by off road recreation and woodchipping. It should be noted that there were some difficulties with the 'hunting' category with some people being pro-hunting feral animals but anti-hunting native animals.

TABLE 6.36: PRIORITY USES OF STATE FORESTS AND NATIONAL PARKS

(per cent)

Priorities (n=73)	National parks	State forests	Both	Neither	Don't know
Timber production	1.4	37.0	39.7	19.2	2.7
Protecting wilderness	12.3	1.4	78.1	8.2	0.0
Hunting	2.7	9.6	28.8	54.4	4.1
Bushwalking/picnics	2.7	1.4	95.9	0.0	0.0
Educational	2.7	2.7	93.2	1.4	0.0
Protecting native plants and animals	5.5	1.41	91.8	1.4	0.0
Beekeeping	2.7	25.0	64.4	9.6	12.3
Off-road recreation	1.4	20.5	34.7	37.5	1.4
Woodchipping	30.1	13.7	42.5	6.8	0.0
Grazing land	2.7	1.4	39.7	39.7	4.1
Camping	4.1	0.0	83.6	8.2	2.7
Aboriginal sites	5.5	2.7	82.2	8.2	4.1
Maintaining sites of natural beauty	4.1	35.6	87.7	4.1	1.4
Paper production	1.4	1.4	26.0	31.5	5.5
Ecotourism	4.1	1.4	82.2	6.8	5.5
Maintaining water quality	1.4	12.5	95.9	1.4	0.0
Mining	1.4		19.4	58.3	8.3

TABLE 6.37: PRIORITY USES OF PUBLIC FORESTS

(per cent)

Priorities (n=44)	High priority	Low priority	Not allowed	Don't know
Timber production	36.4	43.2	15.9	4.5
Protecting wilderness	86.4	11.4	0.0	2.3
Hunting	16.3	23.3	58.1	2.3
Bushwalking/picnics	79.5	20.5	0.0	0.0
Educational	86.4	9.1	0.0	4.5
Protecting native plants and animals	97.7	2.3	0.0	0.0
Beekeeping	43.2	45.5	2.3	9.1
Off-road recreation	13.6	50.0	34.1	2.3
Woodchipping	20.5	43.2	34.1	2.3
Grazing land	29.5	43.2	22.7	4.5
Camping	59.1	36.4	4.5	0.0
Aboriginal sites	75.0	15.9	4.5	4.5
Maintaining sites of natural beauty	97.7	2.3	0.0	0.0
Paper production	27.7	47.7	18.2	6.8
Ecotourism	47.7	45.5	6.8	0.0
Maintaining water quality	100.0	0.0	0.0	0.0
Mining	22.7	43.2	27.3	6.8

FIGURE 6.26: RESPONDENTS' VIEWS ON PRIORITY ACTIVITIES IN STATE FORESTS AND NATIONAL PARKS

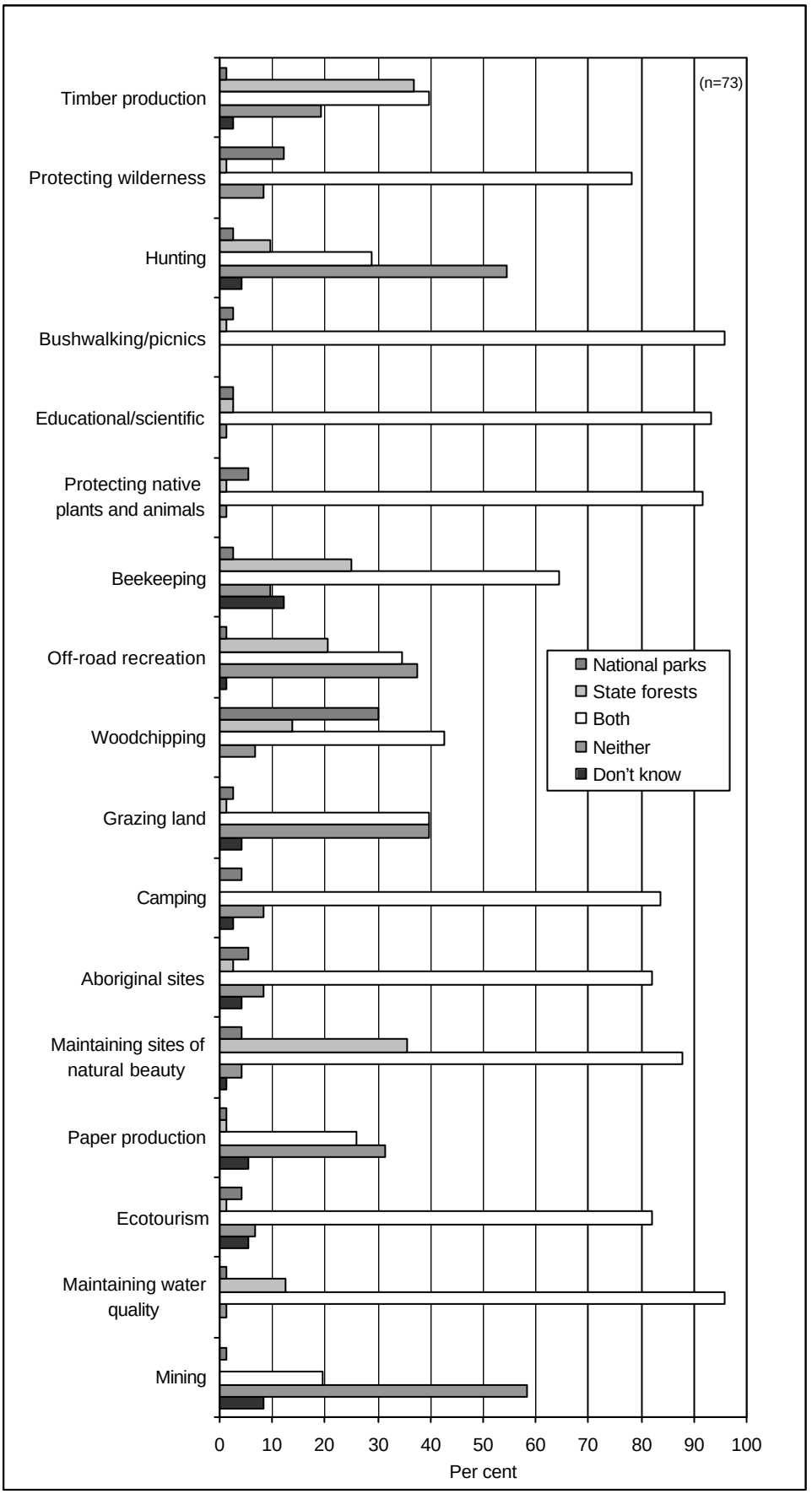
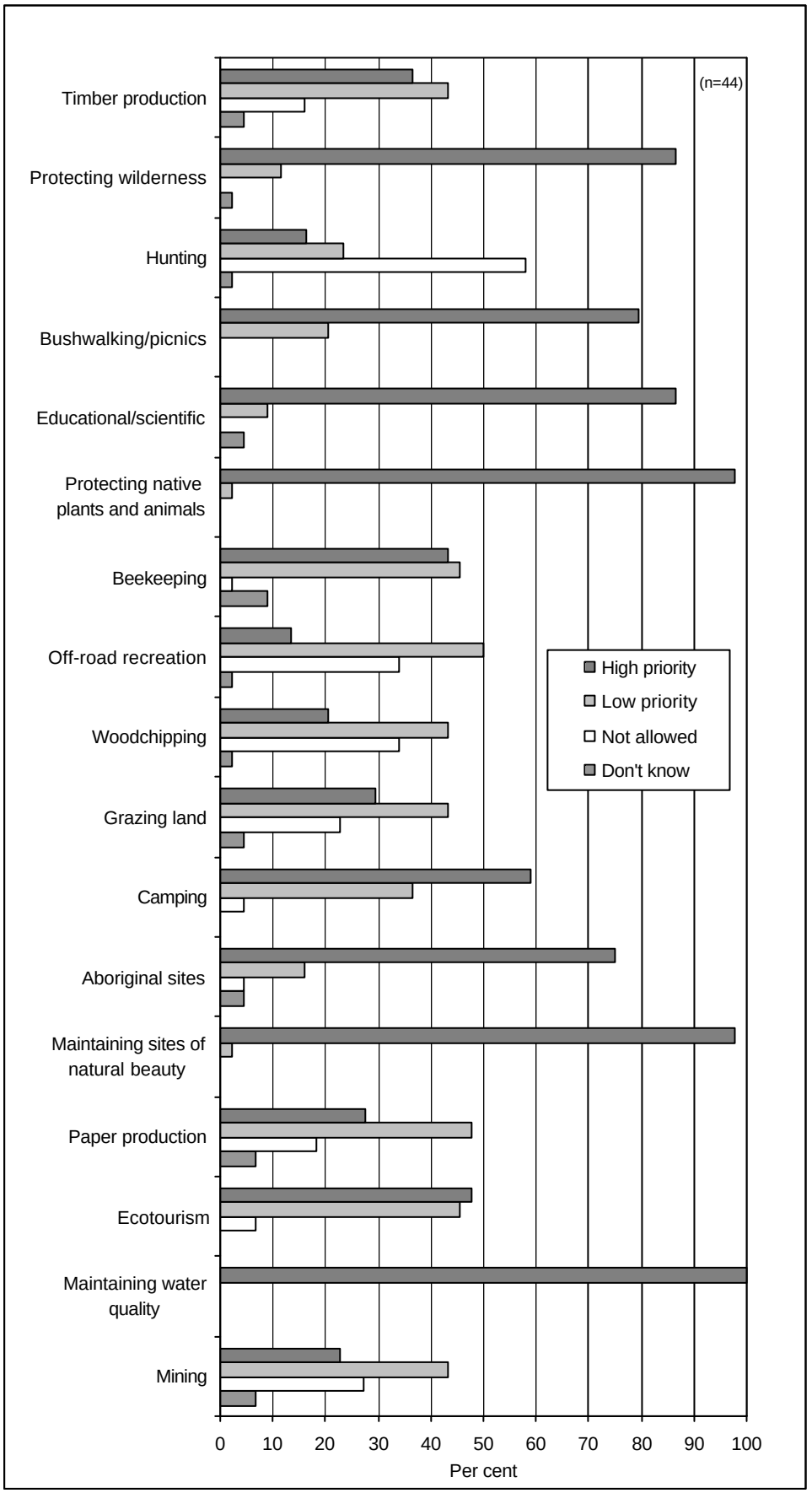


FIGURE 6.27: RESPONDENTS' VIEWS ON PRIORITY USES IN PUBLIC FORESTS



Uses, attitudes and beliefs

The following section of the questionnaire explored respondents' attitudes to different uses of forested land and the conflict, perceived or actual, between certain uses. A series of statements were read out to the participants and they were asked to indicate whether they strongly agreed, agreed, were not sure, disagreed, or strongly disagreed with the statement.

Aboriginal values

A large majority of Aboriginal sites, both historical and sacred, are to be found in State Forests and National Parks throughout NSW. In order to assess participants' attitude to the preservation of Aboriginal sites and the importance of this goal over all other uses of forested land, the questionnaire asked participants' response to the following statement '*Aboriginal sites of significance should be protected, and are more important than other uses of forested land'*.

Figure 6.28 shows that 60 per cent of respondents believe Aboriginal sites should be protected and are more important than other uses of forested land. A significant percentage of respondents were not sure (17%), and a total of 23% per cent disagreed, (refer to Table 6.38).

FIGURE 6.28: ABORIGINAL SITES OF SIGNIFICANCE SHOULD BE PROCTECTED

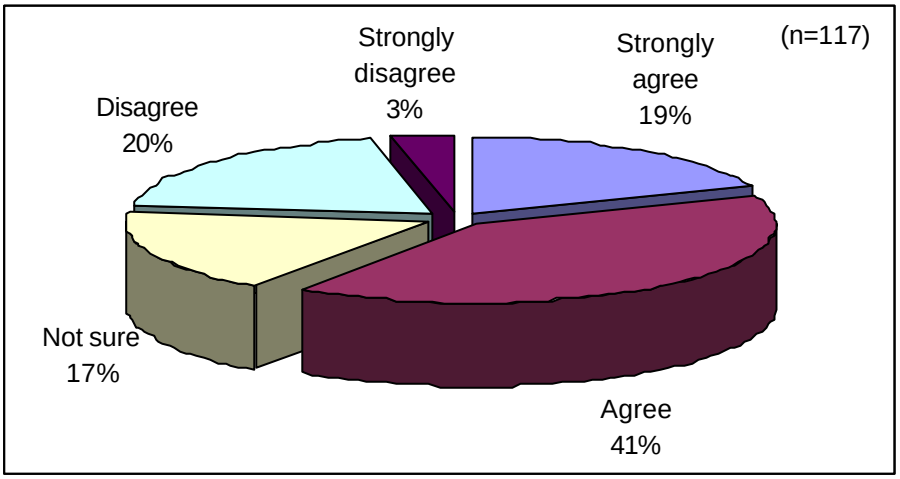


TABLE 6.38: ABORIGINAL SITES OF SIGNIFICANCE SHOULD BE PROTECTED, AND ARE MORE IMPORTANT THAT OTHER USES OF FORESTED LAND

Response (n=117)	Frequency	Percentage
Strongly agree	22	18.8
Agree	48	41.0
Not sure	20	17.1
Disagree	23	19.7
Strongly disagree	4	3.4

Coexistence of environmental and economic goals

State natural resource management policy aims to ensure environmental protection and forestry industries exist side-by-side. To investigate community attitudes towards this policy objective the statement *'Environmental protection cannot co-exist with forestry industries'* was tested on the participants.

Figure 6.29 and Table 6.39 show the responses to the above statement indicating that close to two thirds of the respondents disagree (54.7%) to strongly disagree (8.5%) with the above statement, meaning the majority of those surveyed felt that environmental protection can co-exist with forestry industries. Approximately 20% of people agreed with the statement.

FIGURE 6.29: ENVIRONMENTAL PROTECTION CANNOT CO-EXIST WITH FOREST INDUSTRIES

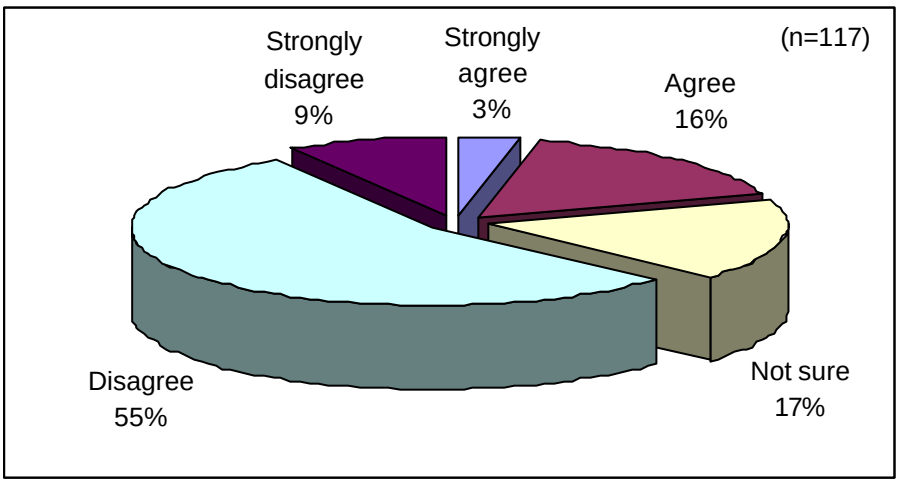


TABLE 6.39: ENVIRONMENTAL PROTECTION CANNOT CO-EXIST WITH FORESTRY INDUSTRIES

Response (n=117)	Frequency	Percentage
Strongly agree	4	3.4
Agree	19	16.2
Not sure	20	17.1
Disagree	64	54.7
Strongly disagree	10	8.5

Economic importance of the forestry industry to small communities

The statement 'The forestry industry can be economically important for some small communities providing valuable employment, and therefore should be maintained' was tested on the participants in order to elicit their attitude to the maintenance of primary industry activities in small towns in the light of the perceived economic importance of such activities.

Figure 6.30 and Table 6.40 show that the majority of respondents believe some small communities are economically reliant upon the forestry industry and believe it

should be sustained for these small communities. A high percentage (31%) of respondents tended to strongly agree with the statement and 51.3 per cent agreed with the statement. A total of 12.8 per cent disagreed with the statement

FIGURE 6.30: THE FORESTRY INDUSTRY CAN BE ECONOMICALLY IMPORTANT FOR SOME SMALL COMMUNITIES

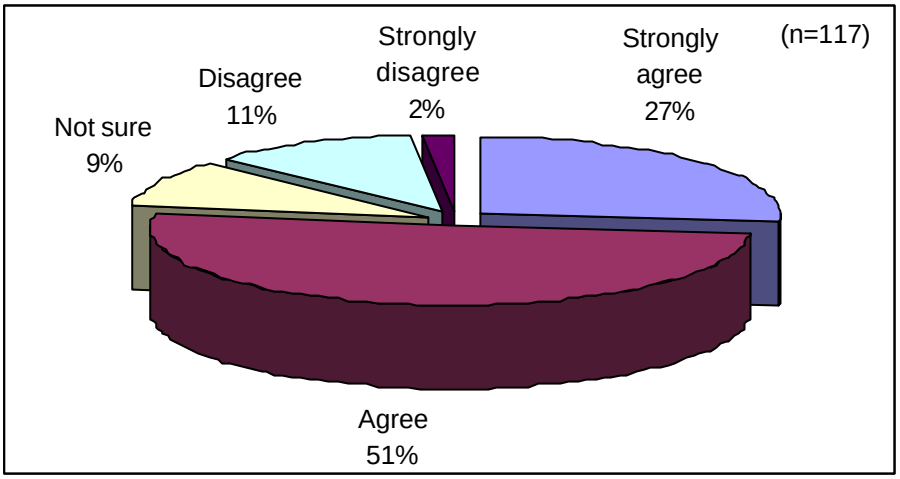


TABLE 6.40: THE FORESTRY INDUSTRY CAN BE ECONOMICALLY IMPORTANT FOR SOME SMALL COMMUNITIES, PROVIDING VALUABLE EMPLOYMENT, AND THEREFORE SHOULD BE MAINTAINED

Response (n=117)	Frequency	Percentage
Strongly agree	31	26.5
Agree	60	51.3
Not sure	11	9.4
Disagree	13	11.1
Strongly disagree	2	1.7

International dimension of forest use

To explore the international dimension of forest use, and more specifically timber products, the statement ‘Australia should draw its timber products from Australian forests rather than overseas forests even if overseas timber products are cheaper’ was tested on participants.

Figure 6.31 indicate that the respondents strongly agree with the above statement, and wish to see Australia draw its timber product needs from Australian forests rather than overseas. Table 6.41 shows that the majority of people thought timber should be sourced from Australian forests. Less than 14 per cent of respondents indicated a negative response to the statement

FIGURE 6.31: AUSTRALIA SHOULD DRAW ITS TIMBER PRODUCTS FROM AUSTRALIAN FORESTS RATHER THAN OVERSEAS FORESTS

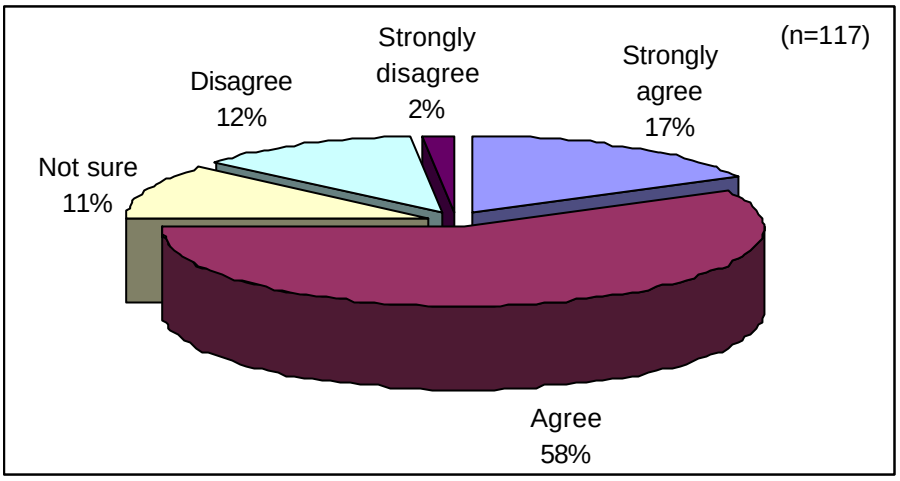


TABLE 6.41: AUSTRALIA SHOULD DRAW ITS TIMBER PRODUCTS FROM AUSTRALIAN FORESTS RATHER THAN OVERSEAS FORESTS EVEN IF OVERSEAS TIMBER PRODUCTS ARE CHEAPER

Response (n=117)	Frequency	Percentage
Strongly agree	20	17.1
Agree	68	58.1
Not sure	13	11.1
Disagree	14	12.0
Strongly disagree	2	1.7

Conservation and State income

To contrast conservation uses with economic uses (such as timber production) the following statement was tested on the survey participants '*I would like to see more forested land conserved even if it means a loss of income to the state from timber harvesting'*. The question also explored participants' responses to the situation of potential conflict between conservation use and state income from the use of forests for timber harvesting.

Table 6.42 and Figure 6.32 show that in total 49.1 per cent of people agreed with the statement whilst 37.1 per cent disagreed with the statement. This shows that almost half the sample group would put environmental principles before economic principles at a State level and in a forestry context, and also reflects the diversity within communities when conservation values and economic values come into conflict.

FIGURE 6.32: I WOULD LIKE TO SEE MORE FOREST LAND CONSERVED, IF IT MEANS A LOSS OF STATE INCOME FROM TIMBER HARVESTING

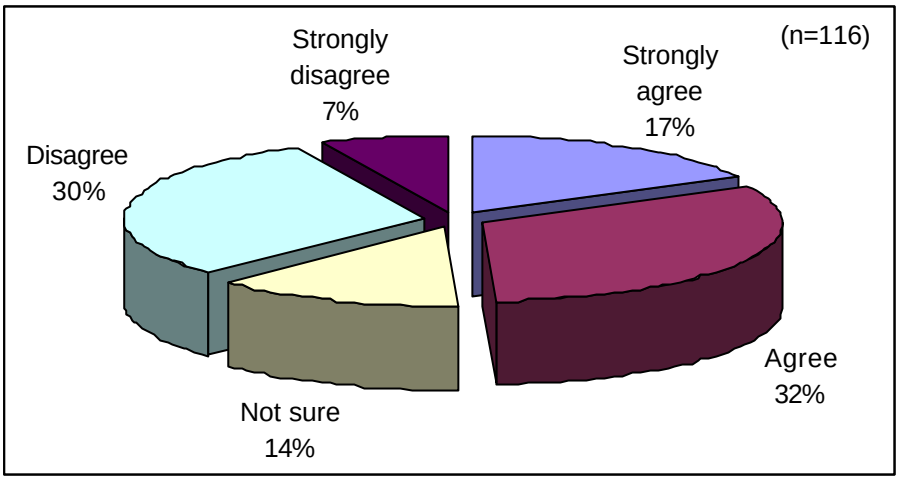


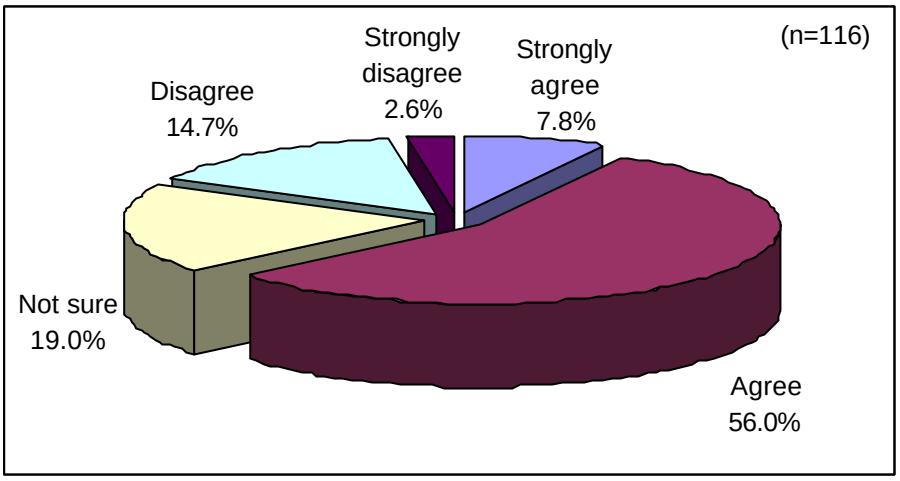
TABLE 6.42: I WOULD LIKE TO SEE MORE FORESTED LAND CONSERVED EVEN IF IT MEANS A LOSS OF INCOME TO THE STATE FROM TIMBER HARVESTING

Response (n=116)	Frequency	Percentage
Strongly agree	20	17.2
Agree	37	31.9
Not sure	16	13.8
Disagree	35	30.2
Strongly disagree	8	6.9

Non-extractive economic uses of forested land

To reveal the extent to which people believe non-extractive economic uses of forested land can offset income and employment losses in extractive industries, respondents were asked to respond to the following statement '*Tourism from conserving forested areas may be able to generate regional income and employment offsetting possible losses in the timber industry*' (Figure 6.33 and Table 6.43).

FIGURE 6.33: TOURISM FROM CONSERVING FORESTED AREAS MAY GENERATE REGIONAL INCOME AND EMPLOYMENT



There was a strong positive response to the above statement with more than half (56%) of respondents agreeing with the statement and a further 7.8 per cent strongly agreeing with the statement. Nineteen per cent of respondents were unsure and a further 17.3 per cent indicated that they disagreed with the statement.

TABLE 6.43: TOURISM FROM CONSERVING FORESTED AREAS MAY BE ABLE TO GENERATE REGIONAL INCOME AND EMPLOYMENT OFFSETTING POSSIBLE LOSSES IN THE TIMBER INDUSTRY

Response (n=116)	Frequency	Percentage
Strongly agree	9	7.8
Agree	65	56.0
Not sure	22	19.0
Disagree	17	14.7
Strongly disagree	3	2.6

Source of timber products

The figures represented in Figure 6.34 and Table 6.44 indicate that the majority of respondents wish to have timber sources from eucalypt plantations and pine plantations, with a low percentage of people wanting timber products sourced from native forests.

FIGURE 6.34: WHERE DO YOU THINK OUR TIMBER PRODUCTS SHOULD PRIMARILY COME FROM?

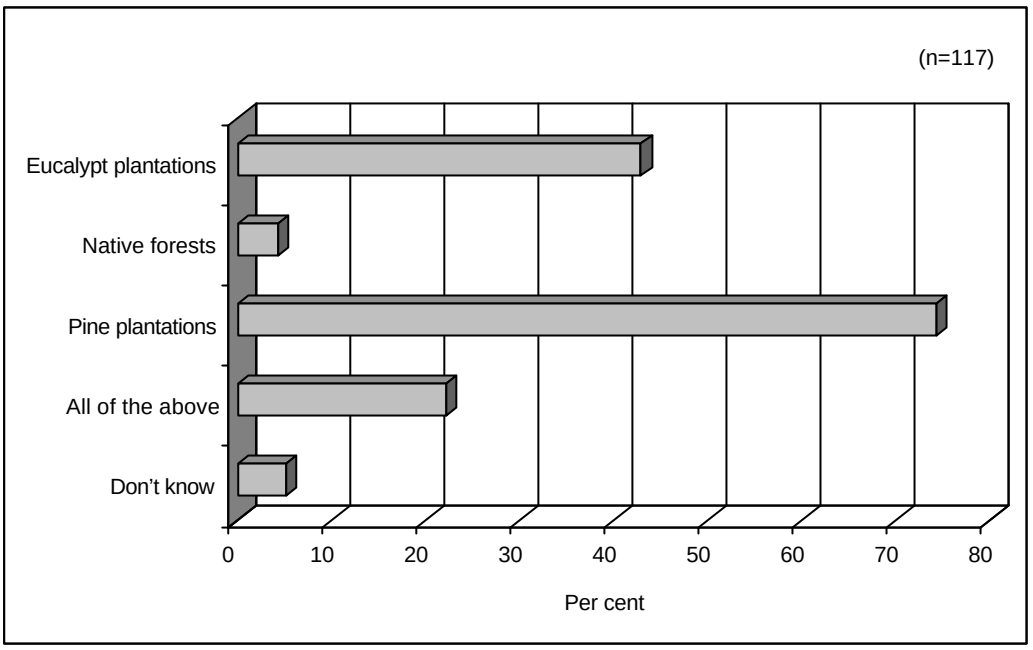


TABLE 6.44: PREFERRED SOURCE OF TIMBER PRODUCTS

(n=117)

Source	Frequency	Percentage
Eucalypt plantations	50	43
Native forests	5	4.3
Pine plantations	77	74.4
All of the above	26	22.2
Don't know	6	5.1

Economic and conservation uses of forests

In order to explore the potential scenario of a conflict between conservation and socio-economic uses of forested land participants were given a probable scenario and then given two options in order to clearly identify people's value orientations. The probable scenario was that timber harvesting in native forests may have an adverse impact on the abundance of native plants and animals. The options respondents had to choose from were limited in order to identify their value orientation between socio-economic objectives (forestry products and employment) and environmental objectives (conservation and protection of native species).

The figures presented in Figure 6.35 and Table 6.45 indicate that the majority of respondents (65.5%) valued conservation and the preservation of animal and plant species over economic objectives such as jobs and forestry products (24.1%). A significant percentage were unsure (10.3%)

FIGURE 6.35: IMPACT OF TIMBER HARVESTING ON THE ABUNDANCE OF NATIVE PLANTS AND ANIMALS

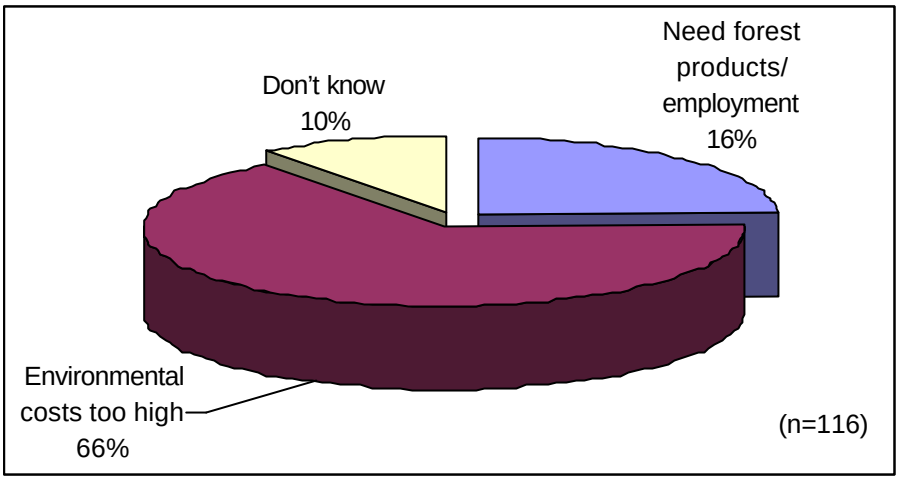


TABLE 6.45: TIMBER HARVESTING IN NATIVE FORESTS MAY HAVE AN ADVERSE IMPACT ON THE ABUNDANCE OF NATIVE PLANTS AND ANIMALS

(n=116)

If this is the case, do you think:	Frequency	Percentage
This is unfortunate but we need forestry products and employment	28	24.1
The environmental costs are too high, it might be better to compromise on forestry activities	76	65.5
Don't know	12	10.3

Social impact of forest policy

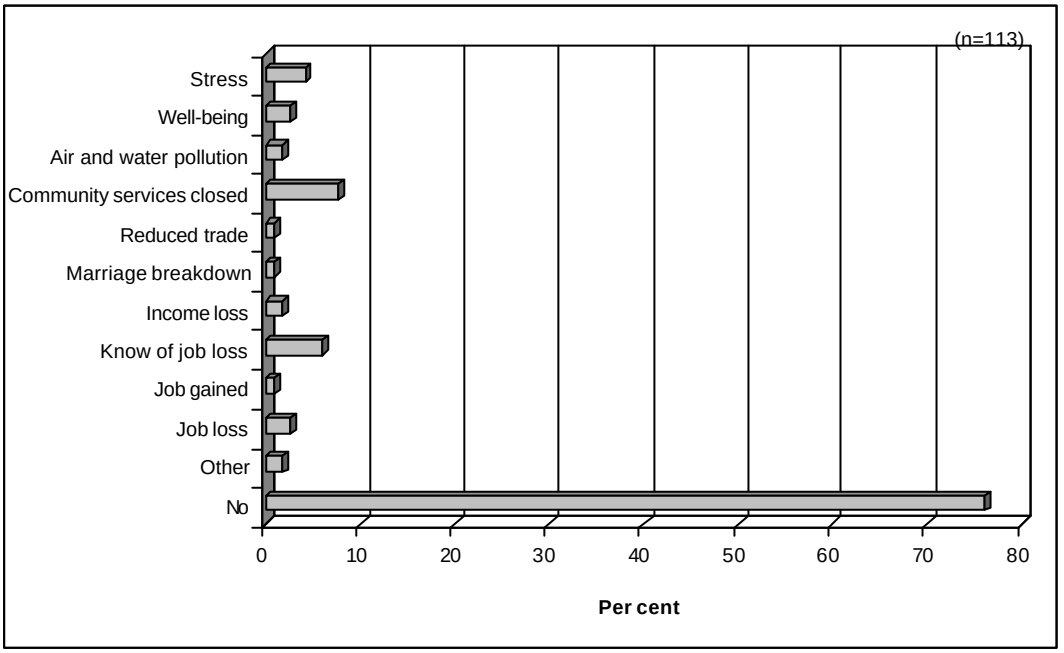
Participants were asked if they or their family had been directly affected in any way by government policy relating to forests in order to identify the social impacts of forest policy and the geographical location of these impacts. Table 6.46 gives the percentages and frequencies for this question; the responses indicate that the majority of respondents (76.1%) reported not being directly affected by government forest policy. However, 7.7 per cent of respondents in the South CRA region reported community services closing as one effect of forest policy; with another 6 per cent of people knowing of job loss.

TABLE 6.46: HAVE YOU OR YOUR FAMILY BEEN DIRECTLY AFFECTED IN ANY WAY BY GOVERNMENT POLICY RELATING TO FORESTS, IF SO HOW?

(n=113)

Effect	Frequency	Percentage
Stress	5	4.3
Well being	3	2.6
Air and water pollution	2	1.7
Community services closed	9	7.7
Reduced trade	1	0.9
Marriage breakdown	1	0.9
Income loss	2	1.7
Know of job loss	7	6.0
Job gained	1	0.9
Job loss	3	2.6
Other	2	1.7
No	89	76.1

FIGURE 6.36: SOCIAL IMPACTS OF GOVERNMENT POLICY RELATING TO FOREST



6.3.9 Social values of forested land

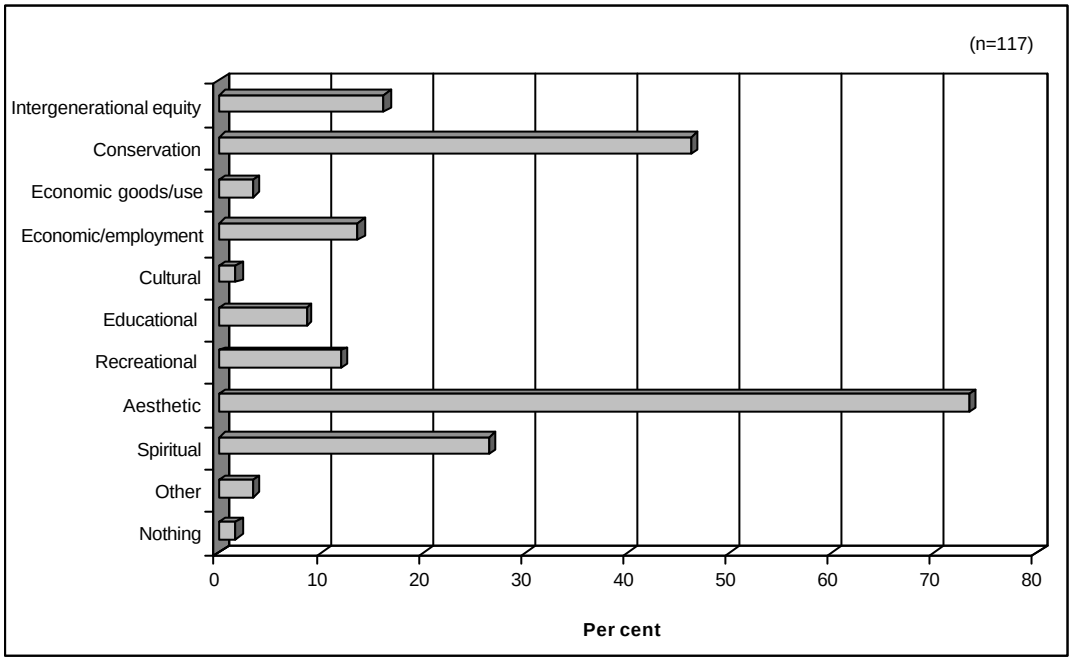
Introduction

This section was composed of five key questions to further investigate how people value forested land.

Personal value of forests

To gain an understanding of what people value about forests at a personal level, people were asked ‘what is it about forests that you value?’. Figure 6.37 and Table 6.47 display the responses to the question.

FIGURE 6.37: PERSONAL VALUES OF FORESTS



The results indicate that a high percentage of respondents (73.5%) valued the aesthetic qualities of forests highly. Respondents also indicated that the conservation qualities (46.2%) were highly valued as were the spiritual qualities (26.5). Desires for intergenerational equity ranked the next highest (16.2%), followed by economic qualities (13.7%) and recreational qualities (12%).

TABLE 6.47: PERSONAL VALUE OF FORESTS

(n=117)

Value	Frequency	Percentage
Nothing	2	1.7
Spiritual	31	26.5
Aesthetic	86	73.5
Recreational	14	12.0
Educational	10	8.6
Cultural	2	1.7
Economic/employment	16	13.7
Economic goods and use	4	3.4
Conservation	54	46.2
Intergenerational equity	19	16.2
Other	4	3.4

Note: Spiritual — well being, peace and quiet, escape, faith in the world, good feelings. Aesthetic — beauty, space, experience nature. Recreational — exercise, sport, games. Educational — learn things about nature. Indigenous culture — understand/experience Aboriginal culture. Landscape — paint, take photographs. Cultural — socialise. Economic — employment. Economic goods and use — gathering firewood/seeds. Conservation — various conservation reasons. Intergenerational equity — sustain values for future generations.

Ecologically sustainable forest management

Ecologically sustainable management is a basic policy principle for forests in Australia. To test the public's perception and awareness of the term participants were asked if they thought current management of forested land is ecologically sustainable. Responses were fairly evenly broken down into three categories for this question, with a high percentage of respondents reporting they did not know.

There was little consensus within the sample on this issue as Table 6.48 and Figure 6.38 show. One third of respondents didn't know whether forested land was managed in an ecologically sustainable way, one third thought it was, and one third thought that it was not.

FIGURE 6.38: RESPONDENTS' VIEWS ON THE SUSTAINABLE MANAGEMENT OF FORESTS

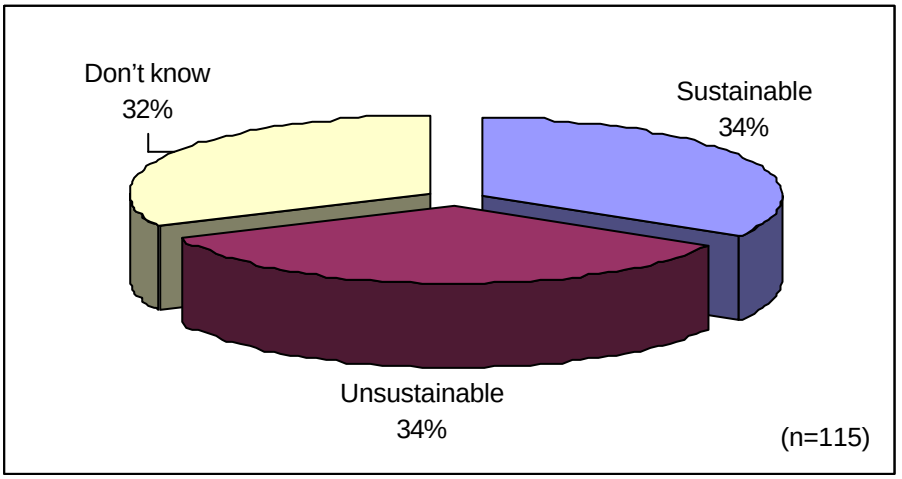


TABLE 6.48: DO YOU THINK CURRENT MANAGEMENT OF FORESTED LAND IS ECOLOGICALLY SUSTAINABLE?

Response (n=115)	Frequency	Percentage
Yes	39	33.9
No	39	33.9
Don't know	37	32.2

Issues of concern relating to forested land

Respondents were asked what issues regarding forested land they were specifically concerned about. Fifteen per cent of respondents did not nominate any forest-related issues as being of particular concern. Woodchipping (23.1%) and logging (20.5%) were at the top of people's concerns about forested land.. The next most frequently recorded issues were 'loss of wilderness' (15.4%), 'degraded land' (13.7%), and biodiversity loss (12.8%) as shown in Figure 6.38 and Table 6.49.

FIGURE 6.39: RESPONDENTS' CONCERNS REGARDING FORESTED LAND

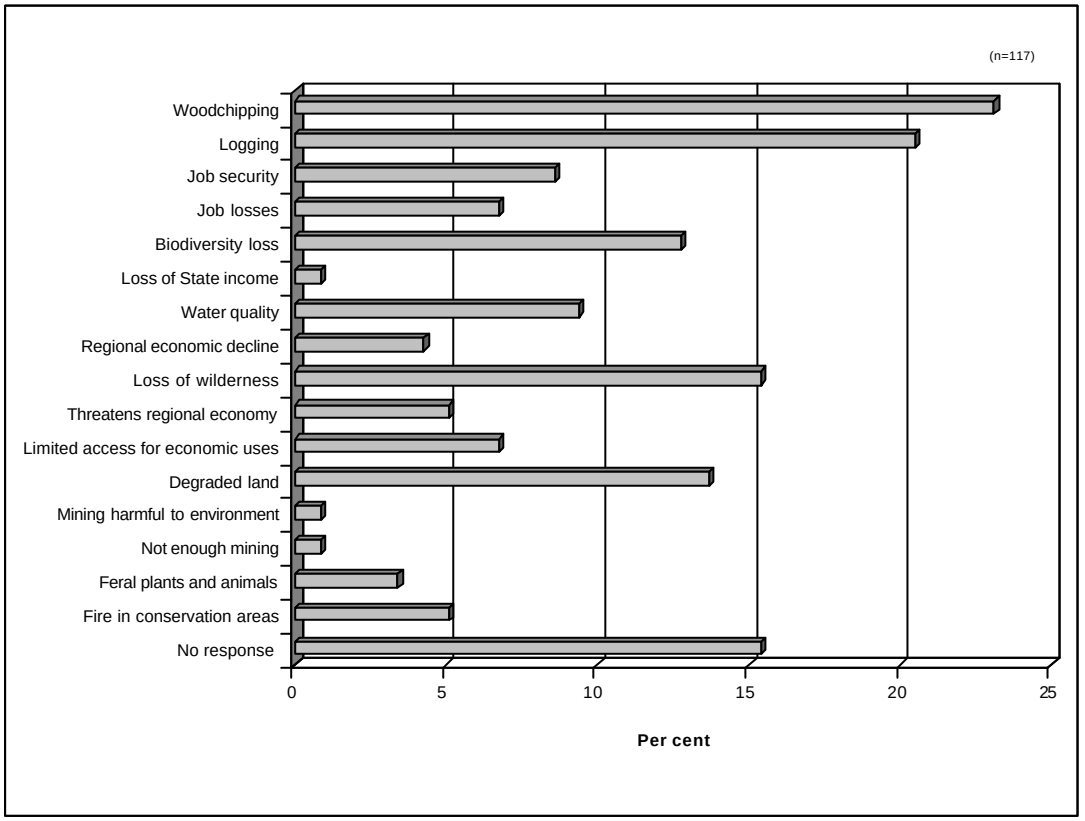


TABLE 6.49: ISSUES OF CONCERN REGARDING FORESTED LAND

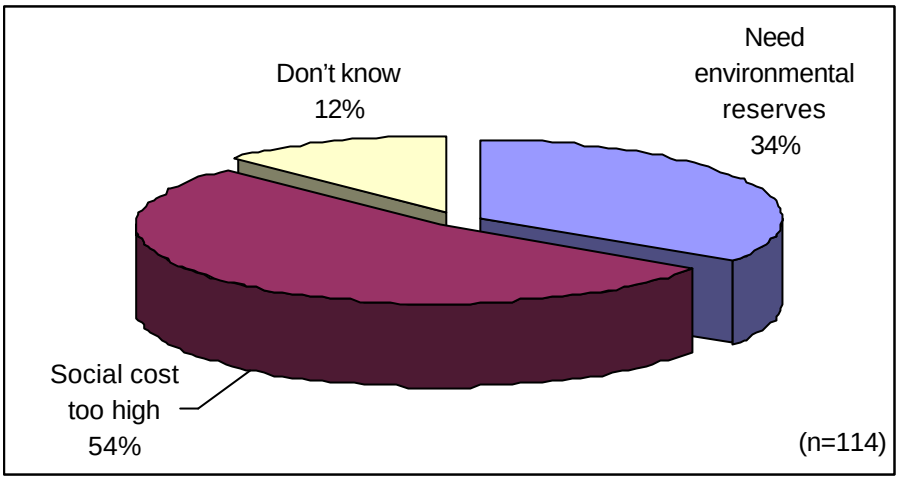
(n=117)

Issue	Frequency	Percentage
Woodchipping	27	23.1
Logging	24	20.5
Job security	10	8.6
Job losses	8	6.8
Biodiversity loss	15	12.8
State income	1	0.9
Water quality	11	9.4
Regional economic decline	5	4.3
Loss of wilderness	18	15.4
Creation of wilderness area a threat to regional economy	6	5.1
Limited access to natural resources for economic uses	8	6.8
Degraded land	16	13.7
Mining activities environmentally harmful	1	0.9
Not enough mining activities	1	0.9
Feral plants and animals	4	3.4
Fire in conservation areas	6	5.1
Loss of grazing land	0	0.0
No response	18	15.4

Social and conservation values

This question explored people's responses to the potential scenario of a conflict between conservation and social values relating to the use of forested land. Survey participants were given a probable scenario and then given two options in order to clearly identify people's value orientations. The scenario was that forestry jobs may be lost to create environmental reserves, and this may then affect some small communities adversely by reducing their access to basic services (as the population may decline to a level that may lead to the closing of schools, health services etc.). The options respondents had to choose from were limited in order to identify their value orientation between social and community objectives (access to basic services) and environmental objectives (conservation and environmental reserves). The results are displayed Figure 6.40.

FIGURE 6.40: IMPACT OF THE CREATION OF ENVIRONMENTAL RESERVES ON THE MAINTENANCE OF BASIC SERVICES FOR SMALL COMMUNITIES



The figures in Table 6.50 show that the majority of respondents (53%) felt the social costs of closing essential services in small communities was too high, and that it would be better to compromise on environmental reserves. Twelve per cent of people did not know which option to choose or did not understand the question.

TABLE 6.50: FORESTRY JOBS MAY BE LOST TO CREATE NEW ENVIRONMENTAL RESERVES. THIS MAY THEN AFFECT SOME SMALL COMMUNITIES ADVERSELY, BY REDUCING THEIR ACCESS TO BASIC SERVICES

(n=114)

If this is the case do you think:	Frequency	Percentage
Unfortunate for these communities but we need environmental reserves for the benefit of future generations	39	34.2
The social costs are too high, it may be better to compromise on creating environmental reserves than reduce people's access to basic services.	61	53.5
Don't know	14	12.3

Existence value of forests

To explore respondents' attitude to the wilderness and existence values of forests in comparison to anthropocentric values the following question was asked of the survey participants:

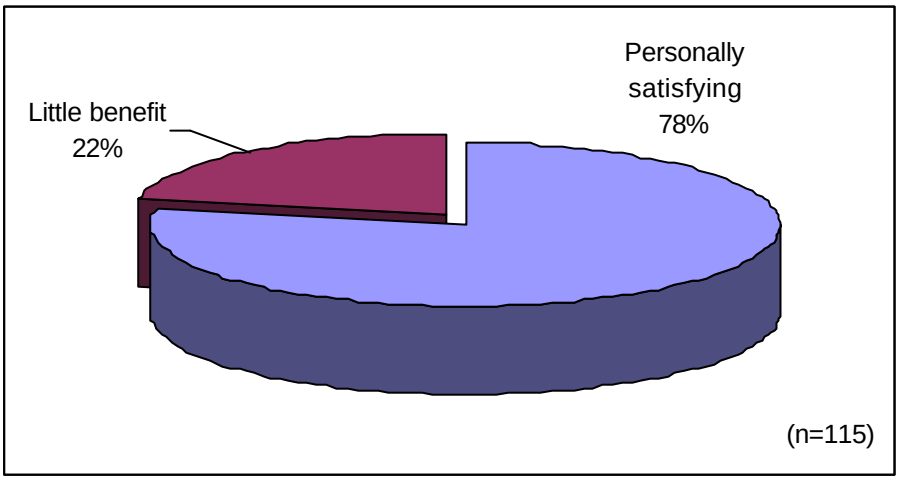
TABLE 6.51: SOME FORESTED AREAS ARE RARELY VISITED OR USED BY PEOPLE

(n=115)

Do you feel:	Frequency	Percentage
There is little benefit in having forested land if humans can't use it for some type of recreational or economic activity.	25	21.7
It is personally satisfying to know that there is forested land that is 'untouched' by humans even if it is never used for recreational or economic activity	90	78.3

The results clearly show in Figure 6.41 and Table 6.51 that people are in favour of wilderness areas that are not used for recreational or economic activities, with 78% of respondents indicating that it is personally satisfying to know there is forested land 'untouched' by humans.

FIGURE 6.41: EXISTENCE VALUE OF FORESTED AREAS



6.3.10 Concluding comments

This report investigated the attitudes of people in the South CRA region towards forests and forest use. One hundred and seventeen people were interviewed with a statewide rejection rate (those who were actually contacted as opposed to unanswered) of approximately 70%. The attitudes of these people remain unknown and is an unavoidable problem in any mass surveying methodology. The demographic profile of those who did respond showed a trend towards people employed in high socio-economic positions and towards people who have received further education, when compared to profiles generated from 1991 Census data. The effect of these trends upon people's attitudes is unknown and a source of debate, although it is possible that highly educated people, or those employed in occupations of high socio-economic status, may have stronger environmental value systems than the general public.

Forest use

There was a large divergence within the sample regarding the amount of contact people had with forested land although they generally had more contact than most people within NSW (Table 6.32, and see Report 5). The high percentage of people who knew the difference between State Forests and National Parks (72%), indicated higher personal values for visiting National Parks than for State Forests by indicating they would be willing to pay marginally more to visit them (Table 6.34). Most people used forested areas for recreational purposes such as bushwalking, picnics and nature appreciation (Table 6.35). Respondents indicated that recreational and conservation uses of forested land should be priorities for forest managers in all types of forests, whilst people were divided as to whether economic uses such as timber and paper production should be priorities for managers of both State Forests and National Parks, only State Forests, or not allowed or a priority at all (Table 6.36, 6.37). Hunting, mining and providing grazing land were considered the least appropriate uses of forested land. Using forested land to conserve Aboriginal sites of significance gained high support throughout the survey (D2g, D3e, D4).

Forest values

The strength of people's economic, social and environmental values were analysed at two scales. Firstly at a non-specific macro-scale more respondents put economic priorities before both social and environmental priorities when asked about their concern for various abstract issues (Figure 6.17). 'Unemployment' was the most frequently mentioned response when the sample was questioned about their primary concerns, followed by 'education', 'the health system' and 'the environment' all being mentioned by a similar percentage of respondents. 'The environment' was ranked particularly highly by women, those with a close proximity to forest-related issues and people identifying themselves as Aboriginal or Torres Strait Islander. Still at a macro-scale but in a forestry specific context, more respondents put environmental principles before economic principles when an environment versus economic question was posed (Figure 6.32). This change in value orientation shows the high status forest issues possess in the structure of people's environmental concern (Figure 6.20). However there was little consensus on this issue (49% choosing the environmental priority, 37% choosing the economic priority) indicating a high degree of uncertainty and potential conflict within the community about these issues.

At a micro-scale, attitudes towards forests in terms of environmental, social and economic priorities were investigated — again by looking at hypothetical micro-scale effects of broad policy decisions. When forestry products and employment were contrasted with the abundance of native plants and animals the majority of respondents opted for the environmental priority (Figure 6.35). This shows that in this particular situation at a micro-scale, people value the biological communities of forests more than they value the economic benefits of forests. This does not necessarily contradict the responses to broad scale questions, instead it suggests that whilst people are more concerned about unemployment in general they would prefer to see jobs come from industries which will not effect the environmental values of forests. This can also be seen in responses in Figure 6.41 where people indicated their support for the existence of wilderness areas even if these areas are never used for economic or social reasons

Another question was asked which contrasted micro-scale value orientations by considering a hypothetical social effect of conserving forested land (Table 6.50). Whilst people were prepared to put environmental values before economic values at a micro-scale, if these environmental standards were then to negatively effect the social structure of small communities, people valued the social above the environmental. Thus the majority of people thought that the environmental standards of forested land should be maintained only if there were no major negative social effects on small communities reliant upon forestry employment. This value orientation was also reflected in an earlier macro-scale question (Figure 6.30) which indicated that the forestry industry has particular importance and value to small communities and therefore should be maintained. Thus the sample indicated that they were concerned about unemployment at a macro-scale but when put into a forest context people generally ranked environmental values of forests over the economic values of forests, and the specific social benefits of forests to small communities above both. The sample also believed that increased tourism could offset some of the losses if forestry activities were scaled down (Figure 6.33) and saw it as a potential industry that could sustain social services without effecting people's environmental values.

At a very personal level respondents indicated that the main reason they valued forests was for aesthetic reasons (Figure 6.37). They enjoyed the beauty, space and natural experiences forests provide. They also valued forests for conservation reasons, valuing the knowledge that forest ecosystems exist and are able to survive. The third most popular reason was spiritual — valuing forests for the way it made them feel. The fourth most popular reason was economic — valuing forests for the employment or income it provides.

There were considerable differences and conflicts within the sample but the general trend was that unemployment was a high priority as a macro-scale issue but became less important at a micro-scale or when put in a forest context. Forests have a very strong symbolic environmental value that people want to preserve. The only time the majority of the sample considered it justified to risk these environmental values was when the social structures and services of small local communities became jeopardised.

7. SOCIAL IMPACT MODELLING

7.1 BACKGROUND

This document describes the development and use of a computer-based process for modelling the social impact of certain changes in the hardwood forest industry of New South Wales. The development came about because the New South Wales and Commonwealth Governments had entered into a process leading to a series of agreements—Regional Forest Agreements (RFA)— on the use and management of forested land in New South Wales. A New South Wales/Commonwealth RFA Steering Committee had responsibility for directing the RFA process in line with a scoping agreement that detail procedures, processes and timetable for developing the RFAs. The scoping agreement provided for Comprehensive Regional Assessments (CRA) of the environment, heritage, social and economic values of forested land.

For the purposes of the CRA/RFA process, the forested lands of NSW were delineated into forested regions. The area under consideration in this report is the Southern region of NSW.

A Social and Economic Technical Committee (SETC) was established to oversee social and economic assessments undertaken as part of the Comprehensive Regional Assessments. A Social Assessment Unit (SAU) was established within the Department of Agriculture, Fisheries and Forestry – Australia (AFFA), to provide a joint resource for the social assessment work. The role of the SAU was to consider the social impacts of forest land use options on communities within each region. This ensures that social data is an integral part of the RFA process.

7.1.1 Objectives and scope of the project

A consultancy brief set out the objectives of project and the scope of the tasks reported in this document. In brief, the main objectives were, in collaboration with the SAU and the SETC:

- to design and/or recommend a computer based, social impact model which is transparent, flexible and informs both government and community stakeholders of social impacts at the community level in an iterative decision-making process;

- to analyse social data collected (by the SAU) in projects for use in the model;
- to model social data for the purposes of integration and advice on land use options, investigating the feasibility of the integration platform and GIS linkages;
- to model anticipated social impacts of land use options on communities in the study regions;
- to prepare, in collaboration with the Social Assessment Unit, social implications advice following an iterative options development phase.

7.2 THE ROLE OF SOCIAL IMPACT MODELLING

Social impact is a term used to describe the interaction between the economic and policy worlds of firms, organisations and governments and the psychological and sociological experiences of the people who live in those worlds. Social impacts are relative things. People can be as disrupted by positive changes in their lives as they can by negative events. However, discussions of social impact tends to be focused most often on the experiences that occur as a consequence of negative events such as undesired changes in employment, shortage of resources or natural disasters, than on experiences from positive events.

Social Impacts are *felt* by the people to whom they happen. They can be felt as uncertainty, stress, anger, a sense of losing personal control over life and despair. These feelings can build up or be ameliorated over time. They impact in turn on the ways in which individuals behave and whole communities thrive or decline.

A major goal in social assessment is to identify and measure indicators that point to the kinds of feelings present in a community and, where possible, to model the likely rise and falls in these feelings and the implications for the community. Modelling is used in this context as a form of forecasting.

Ideally, the modelling process uses available *empirical evidence to describe the relationships* between economic and/or physical events and the subsequent individual or community sentiment. Where empirical data are not available, assumptions derived from broader social research have to be made about the nature of the relationships.

The aim of modelling is to provide as accurate a picture as possible of the ways factors such as individual satisfaction or overall community morale will vary over time under the impact of relevant economic or policy changes. Models are necessarily a simplification of reality but they can have a high level of validity if the salient features of reality have been carefully identified and incorporated into the model. A model may be simple but it may still play a useful role by allowing valid comparisons between cases. Even if a model is not able to forecast a variable of interest with *absolute accuracy*, it may still provide fruitful comparisons between communities because *the relative forecasts* are valid.

The strength of the modelling approach is that it focuses on identifying causal links rather than simply building a catalogue of possibly unrelated indicators to represent what is happening in a community. In practice, some mix of modelling and catalogue building is used because it is not always easy to identify the causal links between easily observed indicators such as the kinds of services available in a town and powerful but invisible concepts such as 'community resilience'.

7.3 OUR APPROACH TO THE MODELLING PROCESS

The first step in modelling social impacts on forest communities was the collection of information about the people living in and around the communities under consideration. As part of this process, a number of surveys were conducted to collect detailed biographical data about people employed in forest-related industries. In addition, surveys and community workshops were used to collect information about the ways in which people perceived their communities and the relationship of the communities to the forests.

7.3.1 Identification and development of social indicators

The data collected from these processes provided the basis for a number of social indicators. These indicators were constructed from one or more specific items of data to provide measures that reflected in a more holistic way aspects of each community or each individual. For example, while the length of time a person has been employed in a particular industry probably influences their ability to change to another kind of industry, this single factor of itself does not provide a clear picture of the flexibility or lack of flexibility the person may feel or experience.

While the surveys and workshops provided a large amount of information about people in the communities and the communities themselves, we sought to identify the smallest possible set of indicators that might best reflect the impact of changes in the hardwood industry on communities. We were guided in this search by referring to the social impact literature, past industry studies and, in particular, the psychological literature dealing with the links between life events and subsequent physical and mental well-being. 'Social impact' is not a simple outcome that can be represented by a single number or indicator. Rather, a number of indicators provide a profile or 'signature' for a community and this profile suggests how sensitive a community might be to the effects of change.

7.3.2 Forecasting the impact over time

The process of modelling social impact does not require intensive computation, hence the mathematical parts of the process could easily be carried out within the limits of a spreadsheet such as Microsoft's Excel. However, spreadsheets have the major disadvantage that the logic involved in reaching the results of calculations is hard to make visible in a way that onlookers can assess quickly and easily. This problem becomes particularly severe when what is being modelled is a dynamic system—a system with interconnections allowing feedback (or feedforward) loops.

As one of the objectives for the consultancy was to develop a computer-based forecasting process that was 'transparent' in that the assumptions and logic are easily examined, we opted not to use a spreadsheet for the project. For a similar reason we chose not to write our own software or to use any of the commonly available statistical or mathematical packages for the task.

We chose *Ithink* produced by High Performance Systems Inc as the most appropriate software for the project. *Ithink* has a heritage in organisational, ecological, environmental and management modelling work associated with people like Jay Forrester from the Sloan School of Management at MIT. *Ithink* has been used by climate modelling groups around the world as well as for economic, industrial and human resource planning and financial modelling. Prior to this project we had used the package in a number of areas including financial modelling in the banking industry and visitor forecasting in the tourism industry. *Ithink* uses a graphical interface to show the logic of the model and hence, assist with model building and interpretation. Thus, meeting one of the project objectives.

The goal when using Ithink is to identify the key 'flows' in a system and then model those flows over time by identifying the factors that control them. The modelling process is one of isolating the essential elements of a situation and then mirroring these in the software so that the impact of changes in key factors can be explored by simulating the system being studied. This approach can work with both 'hard' and soft' variables.

The output from *Ithink* can be presented in a number of ways: tables, graphs and 'indicators'. The 'indicators' are part of the graphic interface and can be chosen from a built-in palette of dials and annunciators to create the most useful 'control panel' for a specific situation. The tables and graphs can be exported through 'hot links' to other software capable of sharing data in this way, such as most recent releases of spreadsheet, database and graphics software.

7.4 DEVELOPING THE INDICATORS

We argued in developing the social impact model described in this report that the major relevant trigger for impacts would be changes in the employment levels in a community. These changes we saw as being (i) in the hardwood industry and (ii) in all other sectors of employment. Changes might come about, we suggested, from either job losses—a decline in the number of jobs within the industry in particular or community in general or through job creation.

Two categories of indicators were developed for the project. The first to capture the impact of changed employment opportunities on people working in the hardwood industry, and the second to capture the impact of these changes on the broader community. The components of these indicators are outlined in the table on the following pages.

7.5 OUTLINE OF INDICATORS DEVELOPED TO REFLECT IMPACTS ON WORKERS IN THE HARDWOOD INDUSTRY

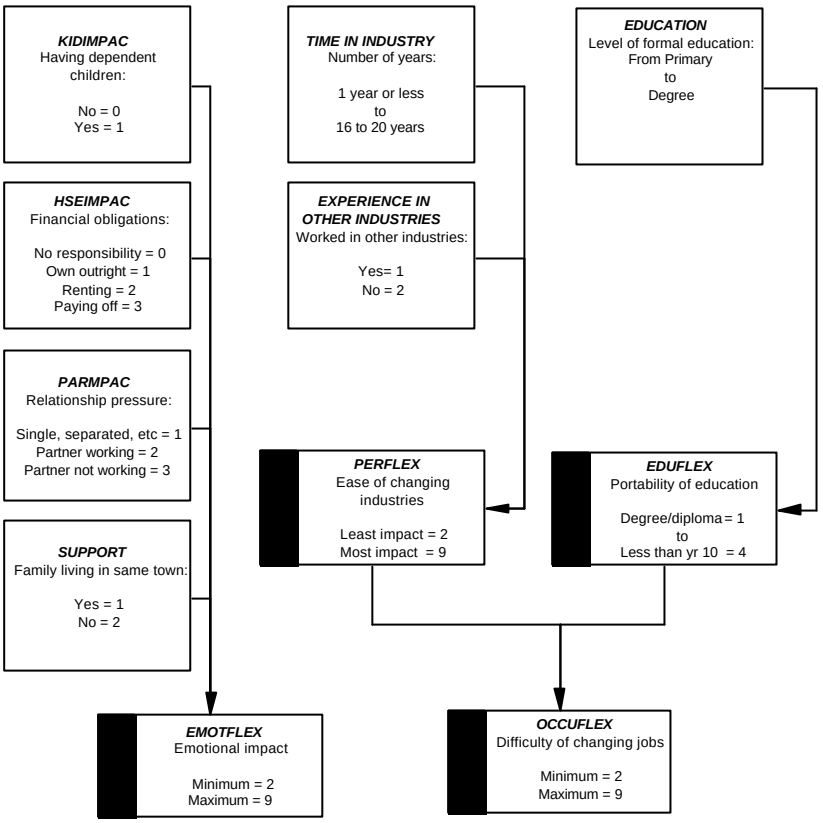
Concept	Indicators	Measured components	Role in model
Impact on hardwood workforce The ability of employees to change occupation or move to new locations in search of work	Domestic flexibility	• Having dependent children. • Extent of being locked into mortgage payments. • Having a dependent partner. • Having family members in the same town.	Values based on survey data are calculated for each worker. (Mean values were then calculated for the group of workers within each community). The impact appears when the jobs are lost and conditions improve slowly over time or more rapidly if jobs are created that can absorb unemployed workers. The rate of improvement is related to a number of factors including the available job pool and community resilience.
	Occupational flexibility	• Time in the timber industry. • Experience in other industries. • Level of education.	
	Community response	• Ways in which a community has dealt with positive and negative impacts in the relatively recent past.	The impact of job losses on hardwood workers is assumed to be less if the community is more resilient and has a history of coping well with both positive and negative events.

The individual components for the indicators were combined to produce single measures. There were three categories of indicator assumed to apply to each person—one that captured the personal or 'emotional' impact of a job loss; one that captured the impact of time in the industry on ability to find jobs outside the industry and one that reflected the role of formal educational qualifications on finding a job outside the industry. The latter two indicators were combined into a measure of 'occupational flexibility'. The way in which the components were combined is set out in Figure 7.1.

7.6 ASSUMPTIONS ABOUT THE INDICATORS FOR WORKERS

- People who have lost their job cannot necessarily move into vacancies that are created; particularly when the jobs are created in other industry sectors.
- The longer a person has worked in an industry, the harder it is to change industries. The change is less difficult if the person has had experience in other industries.
- The greater the level of formal education, the easier it is for a person to change industries or jobs.
- If a person has a mortgage, the impact of losing their job is greater than if they do not. Similarly, it is easier to move if a house is owned outright than if it is being rented.
- If a person has dependent children the impact of losing their job is greater than if they do not.

FIGURE 7.1: SOCIAL INDICATOR STRUCTURE—IMPACT ON WORKERS



Note: The indicator names shown in italics are the names created in SPSS when analysing the survey data collected from workers in the hardwood industry. SPSS is limited to eight character names for variables, resulting in unfortunately cryptic labels.

- If a person has a partner not in the workforce, the impact of losing their job is greater than if the partner is employed.
- If a person does not have other family members living in a community, the impact of losing their job is greater than if they have family members in the community.

The indicator values were summed such that the greater the total, the greater the difficulty a person might have in changing jobs.

7.7 OUTLINE OF INDICATORS DEVELOPED TO REFLECT IMPACTS ON COMMUNITIES

Concept	Indicators	Measured components	Role in model
Impact on a community The degree to which the impact of job losses can be dealt with by a community	Assessed response to previous impacts Relative impact of job losses	• Previous history of impacts. • Jobs losses relative to the size of the community workforce. • Job gains relative to the size of the workforce. • Proportion of new jobs that can be substituted for timber jobs lost. The aggregate level of impact within a community is the mean flexibility of hardwood workers in the community (see previous table) multiplied by the number of jobs lost.	Case histories of the ways in which a community has dealt with previous impacts were identified through community assessment workshops and published documents. The SAU officers assessed the case histories for the degree to which they reflected a robust and coordinated community response. • An interval scale was developed to reflect the quality of community response based reported reactions to past changes. • It was assumed that negative impacts would decay over time. • A moving value for cumulative impact was calculated by adding the impact at time 't' to half the value at time 't-1'. In this way each community is given an historic accumulated impact when the simulation begins.

7.8 ASSUMPTIONS ABOUT THE INDICATORS FOR COMMUNITIES

- Impacts are cumulative over time and industry sectors. For example, the closure of a butter factory and the closure of a major retail outlet can combine to result in a greater impact than either event alone.
- The intensity of an impact—positive or negative—declines over time.
- The impact of losing job opportunities within a community is greater when the initial pool of job opportunities is smaller.
- The impact of losing job opportunities within a community will be greater if people who are unemployed are less well equipped to seek employment or create jobs for themselves.
- The impact of rising unemployment on a community will be less if the members of the community are experienced in working together to deal effectively with events that dislocate the routine pattern of life.
- It is easier for a community to deal with positive events than with negative events

7.9 DEVELOPING THE SIMULATION MODEL FOR FORECASTING

The focus of this work is modelling *social* impact. This means that the system to be represented by the model is some aspect of the social life in the towns and townships that form the forest communities in the regions. Thus, the social impact model is in

one sense the complement of the ecological models dealing with forest flora and fauna.

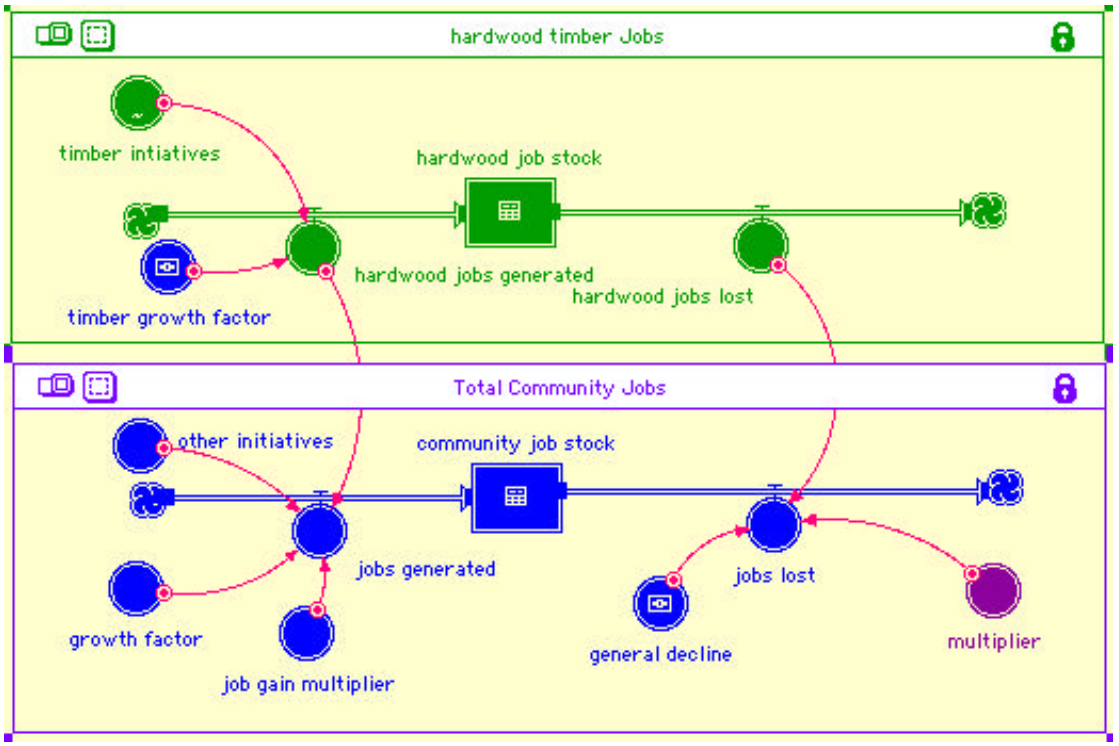
To keep the complexity of the model to a minimum, a single logic was developed for the model and then cloned for each of the communities involved in the study. This meant that while the actual values of variables and parameters for each community were specific to that community, the *underlying logic* of assessing the social impact was the same for all communities.

A starting point for developing system models is to identify the most relevant 'flows' in the system being studied and then to identify the factors that either vary those flows or are consequences of changes in the flow. In the present case, jobs were identified as the most important things that vary. If we stay with the 'plumbing' metaphor conjured up by the term flow, the number of available jobs at a given time can be thought of as the 'pool' or stock of jobs. If employment opportunities decrease in a community, jobs can be thought of as draining away from a reservoir holding the total stock of jobs. Conversely, if employment opportunities increase, jobs can be thought of as flowing into the reservoir and increasing the general stock. Hence, the base flow for the social impact model was seen as the number of jobs in the hardwood industry. The link between jobs and communities was the place of residence of each person holding a job in the industry. For example, community A may have x contractors, y haulers, z bush crew and a mill worker.

At the beginning of a simulation run with the model each community has both the number of individuals employed in the hardwood industry, and the number of individuals employed in the community overall, allocated to it as part of the input. The simulation then removes or adds jobs that change as a consequence of policy decisions and as a consequence of an extrapolated historic increase or decrease in community jobs. The impacts of these changes are then assessed in terms of the social impact on the employees in the hardwood industry and the overall community.

In the model described here there are two kinds of information included in the profile. One is based on what in the modelling terminology are called 'co-flows' and these vary over time as part of the simulation. The co-flow used in this model is the total stock of jobs in the community. The co-flow also provides the means for including some kinds of mitigation factors in the model—such as the growth in jobs because of developments in other industries. These flows are shown in Figure 7.2.

FIGURE 7.2: ITHINK GRAPHIC INTERFACE

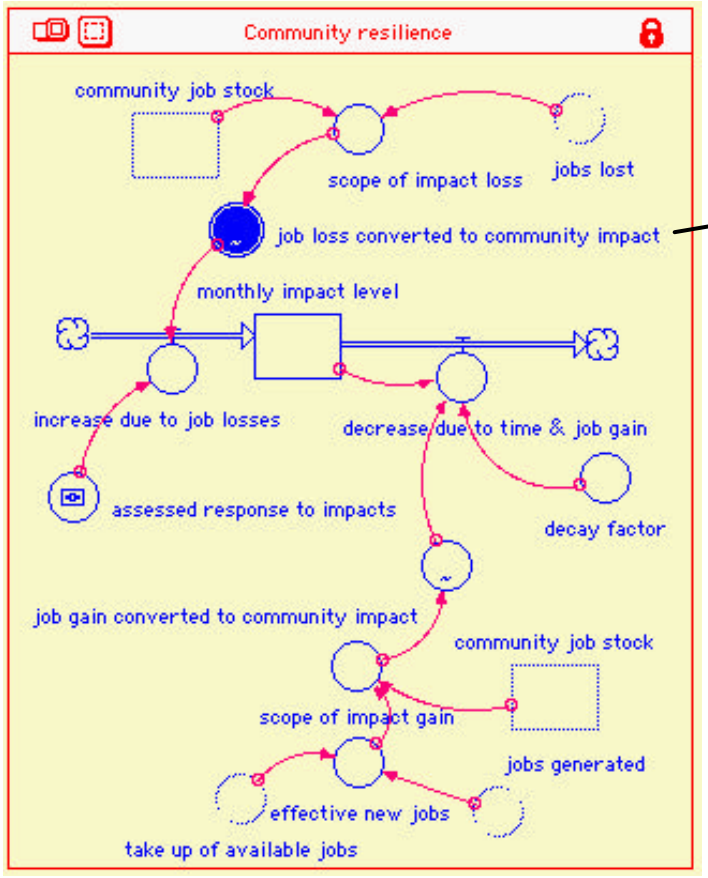


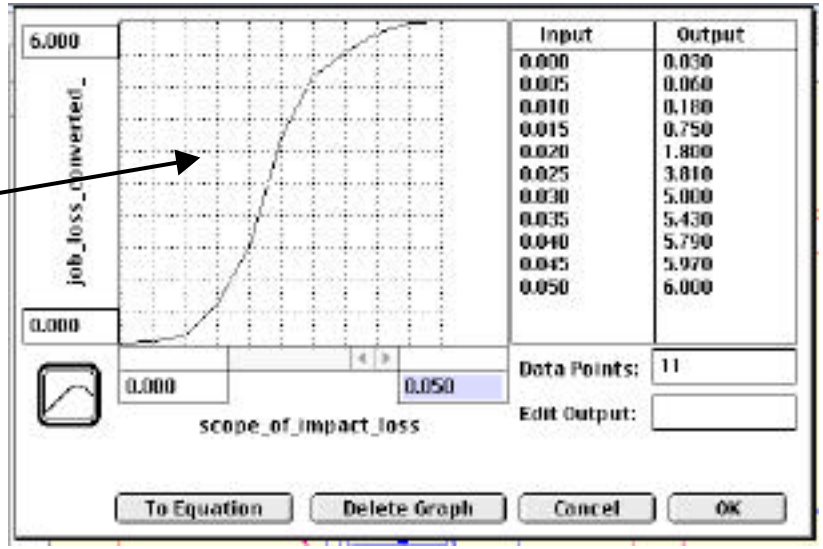
The cloud symbols represent the boundaries of the model. The flows run from left to right between the cloud symbols. Circles represent points in the model at which the flows can be controlled. They can also be thought of as 'containers' for logical or mathematical instructions defining the actions of the model. In this model, circles are included to provide the opportunity to include action but the actions were not necessarily activated. An example is the 'multiplier' that was set at '1' for the social impact analyses described in this and other RFA reports. The arrows connecting elements of the model represent connections through which information flows.

7.10 FLOWS REPRESENTED IN THE *ITHINK* GRAPHIC INTERFACE

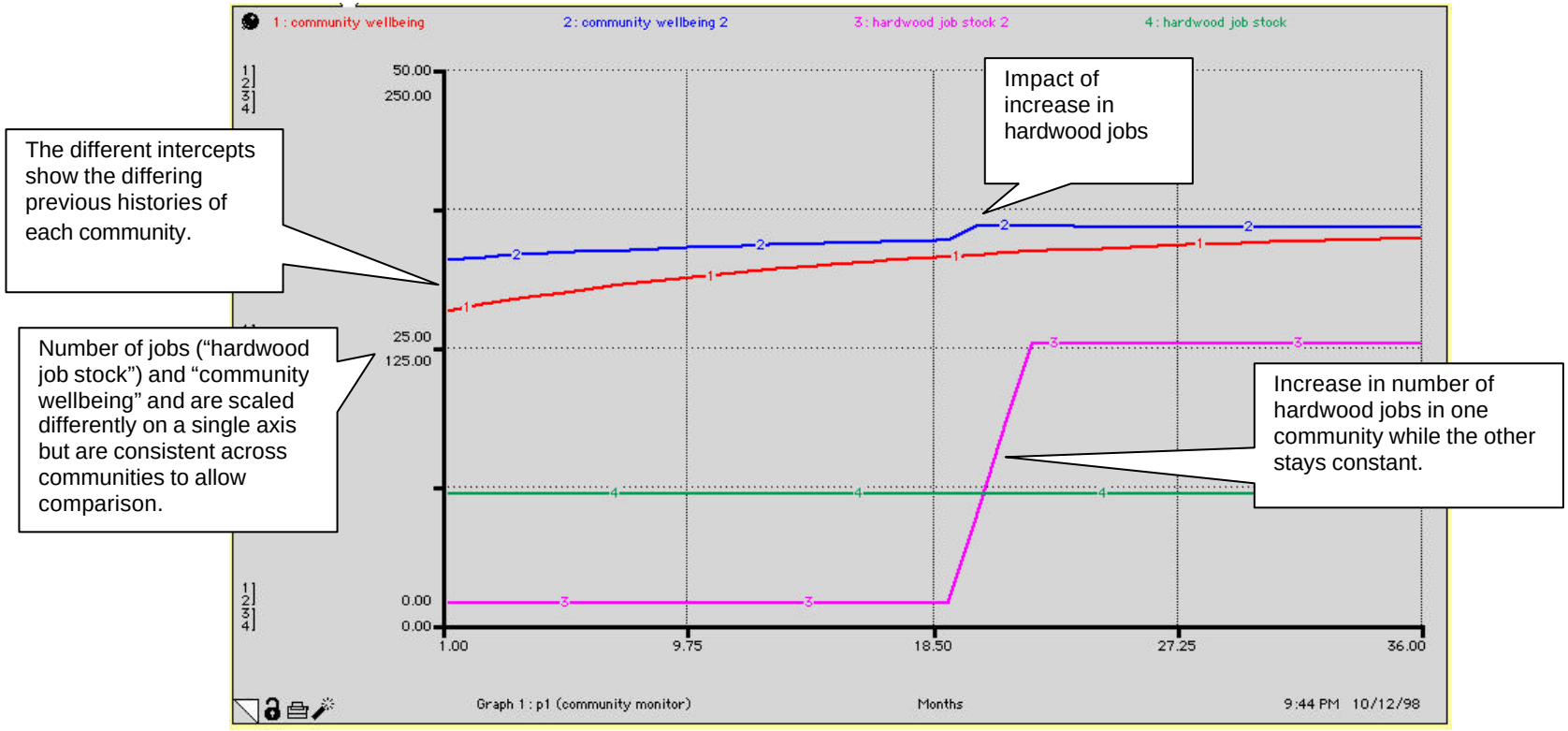
The rectangles labelled 'hardwood job stock' and 'community job stock' represent the number of jobs available at any given time. The circles in the diagram represent factors that control the creation or loss of jobs. Some, like 'timber growth factor' are historical estimates of changes in the industry. In contrast, other circles such as 'timber initiatives' provide a means for including interventions that might occur at a particular point in time. The intervention can come about through government policy, market conditions or any other factor that can realistically interact with the labour market.

The circles in the model are the points at which control or transformation instructions can be inserted. These can be in a number of forms—values, functions or plots depicting the assumed relationship between input and output variables. For example, the number of jobs lost in a community is not, of itself, a useful direct Indicator of the impact on the community. The impact will depend on a number of things including the number of jobs in the community. One job lost from a pool of 10 jobs will probably have more impact than one job lost from a pool of 1000 jobs.





An example of a transformation control.. Here, the ‘scope of job loss’ measured by the number lost as a proportion of the total jobs in the community is converted to an index of perceived loss—’community impact’—scaled in the same way as the impacts assessed by SAU officers during community workshops.


1 : community wellbeing
2 : community wellbeing 2
3 : hardwood job stock 2
4 : hardwood job stock
50.00
250.00
25.00
125.00
0.00
0.00
1.00
9.75
18.50
27.25
36.00
Graph 1 : p1 (community monitor)
Months
9:44 PM 10/12/98
Impact of increase in hardwood jobs
The different intercepts show the differing previous histories of each community.
Number of jobs (“hardwood job stock”) and “community wellbeing” and are scaled differently on a single axis but are consistent across communities to allow comparison.
Increase in number of hardwood jobs in one community while the other stays constant.

7.11 OUTPUT FROM THE MODEL

The actions of the model at any point can be displayed in graphical or tabular form. In the example shown here, two communities are compared on the measure of 'community well-being' over a period of three years. Also shown on the graph is the number of hardwood jobs in each community. In one community the number of jobs increases beginning halfway through the period. This results in a small increase in overall community well-being. The size of the increase in well-being depends upon a number of features of that community. These include the overall number of jobs already in the community and the previous history of the community at dealing with change. The graph also shows that one community started the period with greater resilience than the other (the different intercepts with the vertical axis) did. Because, for this analysis, the only changes the model was asked to make in the communities was to the number of hardwood jobs, the community well-being tends toward being asymptotic—over time, the communities reach a plateau. The rate at which this plateau is reached depends, again, on the resilience and size of each community.

It is important to note here that this simplistic view of the community is not a function of the software or a limitation of the model. Controls were built into the logic so that the future of a community could reflect both adverse and supporting events. However, because the aim of the present exercise was to compare communities on only one measure, changes in hardwood jobs, all factors other than the previous history of each community has been held constant to throw the role of hardwood jobs into sharp relief.

7.12 RESEARCH RELEVANT TO SOCIAL IMPACT MODEL ASSUMPTIONS

Summary of research evidence for some of the key psychological and sociological assumptions built into the model[14].

Section of the model	Findings/comments
Community resilience	
Decrease due to time and job gain	The model proposes that the impact of stressors associated with job loss on a town's resilience decreases over time. In a study of the impact of stressors over a 15 year time period Ensel and Lin (1996) found that although 'time does not heal all wounds, it does heal some' (page 80).
Job loss converted to community impact	The graph, which has been generated to explain this relationship, is based on the unemployment literature. The graph indicates that job loss initially has a severe impact on the community, which peters off over time. Warr and Jackson (1987) in a longitudinal study of unemployed men found a substantial deterioration in their psychological well-being (as measured by the GHQ-12) in the first 6 months, of unemployment. After six months, the deterioration stabilised however the psychological well-being of these men did not rise to 'normal levels'.

[14] We gratefully acknowledge the contribution made in collating and reviewing the relevant research by Ms Tamar Balkin BA (Hons) M.Org. Psych.,MAPS.

Section of the model	Findings/comments
	The stabilisation of the mental health of the unemployed is due to an adaptation to their current circumstance, in some cases this is constructive in others it is 'resigned'. Constructive adaptation involves a person taking positive steps to develop interest and activities outside of the labour market. For example unemployed people may become involved in voluntary, religious or community organisations. (The community may have a role in facilitating this process, depending on its assessed response to impacts.) In contrast resigned adaptation involves the individual reducing their aspirations 'By wanting less, long-term unemployed people achieve less, and they become less.' (Warr et al, 1988 p.55). Warr explained that after 6 months the unemployed see the future as predictable, they know how to deal with social security, they are able to fill their time, and are less concerned about financial of psychological collapse. These findings are based on studies conducted in the United Kingdom where the unemployed receive benefits for as long as they are unemployed. Warr et al (1988) cautions about the generalisability of these findings to a country where individuals lose unemployment benefits after a period of time. In such circumstance, the individual will experience an increase in financial strain, which in turn effects psychological well-being.
Job gain converted to community impact	This relationship is also described by a graph in the model. The graph displays a sharp increase in job gain converted to community impact as the scope of the impact of the gain increases. There are two main theories of employment, which are used to explain the experiences of the unemployed. Marie Jahoda (1982) proposed that work provided latent and manifest benefits to the individual, and hence irrespective of the 'quality' of the job a person with a job is better off than a person without. Thus her model predicts that there will be an increase in the psychological well-being of individuals when there is an increase in jobs. More recently, based on a large amount of research with unemployed people in the UK, Peter Warr developed what is termed the vitamin model of employment. (see pages 271–274) Warr proposed that there are nine environmental factors common to work situations that influence mental health. The presence of these factors ensures that the individual is mentally well, but like vitamins, excess does not increase ones well-being beyond a certain point. Hence there will be an initial increase in job gain converted to community impact as the scope of the gain increases, but once the community has reached it's quota the impact will slow down. In summary the most effective way of improving the psychological well-being of an unemployed individual is for them to gain employment (Warr et al, 1988; and Turner et al, 1991).
Assessed responses due to impacts	This is an indication of how well the town has coped with stressors in the past. The model assumes that: • Past coping predicts future coping • An estimate of past coping is based on the number of events the town had to cope with and their ability to cope, not the type of event.
	Assumption 1: Past coping success/failure predicts future coping success/failure. As described above a person can cope with unemployment in an adaptive or a maladaptive way (Warr, et al, 1988). The number and severity of the stressors and the individuals coping ability influence how an individual copes with multiple stressors. Severity and frequency of stressors: In the 1970s researchers at Washington University began to study the impact of life events on physical health. They found that the greater the severity and the number of life changes a person encounters the greater the impact on the individual (Wyler, Holmes & Masuda, 1973: cited in Cooper, Cooper & Eaker, 1988). The type of life change (positive or negative) did not influence the impact on the individual. The fundamental aspects of this model have been replicated in recent studies. Ensel and Lin (1996) found that both positive and negative stressors diminish coping resources, which leads to an increase in stress. In this study positive stressors were defined as 'changes in status' for example marriage, education, employment etc. Benshek and Lopez (1997) found a significant correlation between frequency of life stress and illness and also between severity of life stress and illness for men and women. However, this result was influenced by personality and gender variables, indicating that frequency and severity of events is not sufficient to predict future coping. In support of the concept that stressors have a cumulative effect on stress levels Ensel and Lin (1996) found that past stressors influences a person's ability to cope with present stressors. However, the ability for past stressors to account for variations in current stressors decreases over time.

Section of the model	Findings/comments
	Coping ability: Personality and unemployment literature suggests that some people cope better with stressors than others. Several longitudinal studies have indicated that ability to cope with past major life events and daily hassles are predictors of future emotional and behavioural functioning (see Windle & Windle, 1996 for a review). Researchers have found that some people consistently cope better with stress than others (Kobasa, Maddi & Kahn, 1982). Ensel and Lin found that the likelihood of experiencing stressors as long as 15 years ago influences the current likelihood of experiencing stressors. Although there is debate as to how and why different coping resources influence adaptation, it has been suggested that the ability to cope is a stable trait. Some researchers argue that people who cope with stress well have a characteristic called 'hardiness'. Hardiness is a personality characteristic hypothesised to buffer people against the deleterious effects of life stress (Benishek & Lopez, 1997). Others argue that people with Type A personality, cope well with unemployment as they are aggressive, ambitious and driven (Leana & Feldman, 1992). In contrast people who do not cope well with stressors and engage in maladaptive coping strategies, remain anxious and are not prepared for future stressors (Cooper et al, 1988).
Hardwood workforce flexibility	
Positive to negative ratio	SEE ASSUMPTIONS. The predictions in this section are based on the assumption that past experiences teach people what to do in new circumstance. The greater the similarity between the past and the present experience the easier it is for the individual to transfer what they have learnt in the past and apply it in the future (Hesketh, 1997). In addition, the cliché 'success breeds success' also applies. Evidence for this comes from the learned helplessness and learned optimism literature as well as the self-efficacy literature. Thus a town which has successfully dealt with a past stressor will have the confidence to do it again. In addition if the stressor was a negative one then the town should cope better with a sudden increase in unemployment such as may occur when a major employer closes. Learned helplessness:/Learned optimism. The more intense people find job loss the less coping behaviour they engage in. The intensity of job loss creates a sense of learned helplessness. A person who has successfully mastered past negative events will have more optimism and thus be less likely to fall into this trap. In contrast people who perceive the situation as reversible, are more likely to engage in adaptive coping (Leana & Feldman, 1992). Thus a community, who has had little success in dealing with past negative stressors, will be more likely become resigned and helpless in the face of mass unemployment.
The degree of occupational flexibility is defined by the survey data. It was assumed that the amount of time a worker spent in the timber industry, their education level and whether or not they had had experience in other industries would effect their occupational flexibility.	Experience in other jobs: The less experience a person has had in a variety of industries the less likely that they have skills that can be transferred to other context (Hesketh 1987). Hence it is more difficult for people who have worked in the same job for a long period of time to find alternative employment. In addition, a person who has worked for a long time in the one job has had little experience in applying for other jobs hence it is likely that they will believe that they lack job-seeking skills (Caplan, Vinokur, Price and van Ryn, 1989). Low self-efficacy and self-esteem will decrease the likelihood that one believes they can get a job (see also Bandura, 1977). If a person suffers continued setbacks in applying for jobs they lose their motivation to keep trying. Prolonged unemployment and successive failures to get jobs results in a feeling of helplessness (Caplan et al, 1989). Education level: In a factory closure in America the impact of long-term unemployment was more severe among less educated than amongst the more educated people. This is because, less educated workers are more 'hard hit psychologically' by unemployment and because unemployment is objectively a worse stressor for them. In addition it is likely to reflect their view of the future (Broman et al, 1995). Time in the industry: Although there is little research which measured the impact of the time in an industry on the relationship between unemployment and psychological impact. Time can be understood in terms of age or perhaps seniority. Time in a particular position may reflect the age of the individual. For example a person who has been in the timber industry for 20 years or more will be over the age of 40. Men aged between 20–59 show significantly greater deterioration as a result of unemployment than did older or younger men (Warr, et al, 1988). (Part of this related to financial strain see below). The research into the impact of seniority is less clear. Hamilton et al, (1990) found that in a unionised sample, seniority impacts the likelihood that someone will get a re-employed in the original job. However Broman et al (1990) found that seniority had no impact on distress levels for white collar workers.

Section of the model	Findings/comments
Personal impact level: This was defined by survey data on individual's family circumstances and their financial commitments.	In the unemployment literature, financial strain and social support are seen as factors that influence the relationship between unemployment and psychological well-being. Financial strain The greater the financial strain on the individual the greater the impact of unemployment. There is greater financial stress on unemployed men who have dependent children, than single unemployed teenagers who are living in their parent's home (Warr et al., 1988). Social support Social support reduces the severity of the effects of unemployment. (See Strobe & Strobe, 1996 for a review of the impact of social support). Being married and having family in the town are sources of social support. Over time, the unemployed reduce the number of non-family members that they rely on for support, however there is no change in the number of family members relied upon (Warr, 1988). In addition, Spouse support can increase a person's job seeking behaviour (Vinokur & Caplan, 1987). In a study of the impact of a factory closure, Broman et al, (1995) found that there was a progression of distress for men *married<cohabiting<widowed<single<divorced<separated* Impact of the local unemployment rate on mental well-being Research comparing those who lost jobs with those who remained in the workforce over 6-month period. indicates that the unemployed had lower levels of psychological well-being than their employed counterparts. However there is some evidence that when unemployment levels are relatively high, unemployed people find it easier to attribute the cause to factors outside themselves and are thus maintain a personal sense of psychological well-being. Jackson and Warr, (1987), studies communities with unemployment rates ranging from 10% to 19% and found evidence of resilience in the face of a perceived external threat.

7.13 DOCUMENTATION FROM *ITHINK*

Documentation from *Ithink* showing (a) the graphic interface for two communities, (b) the full logic of and values used for the model and, (c) example output. Note that the documentation of the logic and values is created automatically by the software as the model is constructed using the graphic interface.

The *Ithink* interface with the user occurs at a number of levels. One is the 'control panel' layer on which graphs and tables show the output of a simulation and virtual dials and slider controls provide the opportunity to manipulate input values with ease. A second level is the 'documentation' layer. Here, the software automatically creates a text record of the model logic in which equations, parameters and variables are all specified. The following documentation is from the model used in the previous examples and is included here to provide a sense of the transparency of the model—an important factor when stakeholders are interested in the assumptions driving the output.

dependency(t) = dependency(t - dt) + (dependency_change) * dt
INIT dependency = dependency_change
dependency_change = GRAPH(participation_potential)
(0.00, 1.00), (0.2, 0.35), (0.4, 0.15), (0.6, 0.04), (0.8, -0.04), (1.00, -0.08), (1.20, -0.14), (1.40, -0.29), (1.60, -0.49), (1.80, -0.78), (2.00, -0.97)
DOCUMENT: This component reflects the flexibility available to the community in the degree to which it is dependent on unemployment benefits. It takes into the number of unemployed workers together with the stock of realistically available jobs and weights this by the extent to which the community suffers from unemployment.

job_turnover_rate = 0.05
DOCUMENT: This figure reflects the vacancy rate in existing jobs created by retirement, illness, migration, etc.

number_on_unemployment_benefits = ROUND(RANDOM (38,42,200))
DOCUMENT: Number at ABS 1996 Census was 40 people. This figure will vary over time. To avoid assuming a trend in the relatively short term, the model takes 40 as the 'typical' level and each month uses a random number chosen from a

rectangular distribution ranging from 38 to 42.
The 'ROUND' function makes sure that the figure is a whole number.

participation_potential =
(community_job_stock*job_turnover_rate*take_up_of_available_jobs)/number_on_unemployment_benefits
DOCUMENT: This component represents the potential for community members currently unemployed to get jobs in the community. It represents the 'effective number of jobs' (those available that can reasonably be taken up by unemployed community members) compared to the number of unemployed people in the community. It takes a value of zero when there are no jobs; '1' when the jobs match the number seeking work; and a number greater than one when there is a demand for labour.

Community job stock is calculated by the model based on ABS figures.
Number of unemployed is based on ABS figures.
'take up' is a judgement made by Social Assessment Officers.

take_up_of_available_jobs = 15/32
DOCUMENT: This converter provides an opportunity to mirror the likelihood that as jobs become available they does not automatically decrease the pool of people in unemployment in a one-to-one fashion.
It is represented here as a value between 0 and 1 and thus can be interpreted as the probability that a member of the community will be able to take up each available position. The value is derived from data showing the reemployment rate of timber workers.

The figure below is based on Structural Adjustment Report, Rush1997.

dependency_2(t) = dependency_2(t - dt) + (dependency_change_2) * dt
INIT dependency_2 = dependency_change_2
dependency_change_2 = GRAPH(participation_potential_2)
(0.00, 1.00), (0.2, 0.35), (0.4, 0.15), (0.6, 0.04), (0.8, -0.04), (1.00, -0.08), (1.20, -0.14), (1.40, -0.29), (1.60, -0.49), (1.80, -0.78), (2.00, -0.97)
DOCUMENT: This component reflects the flexibility available to the community in the degree to which it is dependent on unemployment benefits. It takes into the number of unemployed workers together with the stock of realistically available jobs and weights this by the extent to which the community suffers from unemployment.

job_turnover_rate_2 = 0.05
DOCUMENT: This figure reflects the vacancy rate in existing jobs created by retirement, illness, migration, etc.

number_on_unemployment_benefits_2 = ROUND(RANDOM (38,42,200))
DOCUMENT: Number at ABS 1996 Census was 40 people. This figure will vary over time. To avoid assuming a trend in the relatively short term, the model takes 40 as the 'typical' level and each month uses a random number chosen from a rectangular distribution ranging from 38 to 42.

The 'ROUND' function makes sure that the figure is a whole number.

participation_potential_2 =
(community_job_stock_2*job_turnover_rate_2*take_up_of_available_jobs_2)/number_on_unemployment_benefits_2
DOCUMENT: This component represents the potential for community members currently unemployed to get jobs in the community. It represents the 'effective number of jobs' (those available that can reasonably be taken up by unemployed community members) compared to the number of unemployed people in the community. It takes a value of zero when there are no jobs; '1' when the jobs match the number seeking work; and a number greater than one when there is a demand for labour.

Community job stock is calculated by the model based on ABS figures.
Number of unemployed is based on ABS figures.
'take up' is a judgement made by Social Assessment Officers.

take_up_of_available_jobs_2 = 15/32
DOCUMENT: This converter provides an opportunity to mirror the likelihood that as jobs become available they does not automatically decrease the pool of people in unemployment in a one-to-one fashion.

It is represented here as a value between 0 and 1 and thus can be interpreted as the probability that a member of the community will be able to take up each available position. The value is derived from data showing the reemployment rate of timber workers.

The figure below is based on Structural Adjustment Report, Rush1997.

hardwood_job_stock(t) = hardwood_job_stock(t - dt) + (hardwood_jobs_generated - hardwood_jobs_lost) * dt
INIT hardwood_job_stock = 59
hardwood_jobs_generated = timber_growth_factor +timber_intiatives
hardwood_jobs_lost = 0
timber_growth_factor = 0
DOCUMENT: This component allows for an increase in the stock of timber related jobs in the community brought about as part of 'natural' industry growth.

timber_intiatives = GRAPH(TIme)
(1.00, 0.00), (4.50, 0.00), (8.00, 0.00), (11.5, 0.00), (15.0, 0.00), (18.5, 0.00), (22.0, 0.00), (25.5, 0.00), (29.0, 0.00), (32.5, 0.00), (36.0, 0.00)
hardwood_job_stock_2(t) = hardwood_job_stock_2(t - dt) + (hardwood_jobs_generated_2 - hardwood_jobs_lost_2) * dt
INIT hardwood_job_stock_2 = 10
hardwood_jobs_generated_2 = timber_growth_factor_2 +timber_intiatives_2
hardwood_jobs_lost_2 = 0
timber_growth_factor_2 = 0
DOCUMENT: This component allows for an increase in the stock of timber related jobs in the community brought about as part of 'natural' industry growth.

timber_intiatives_2 = GRAPH(TIme)
(1.00, 0.00), (4.50, 0.00), (8.00, 0.00), (11.5, 0.00), (15.0, 0.00), (18.5, 0.00), (22.0, 0.00), (25.5, 0.00), (29.0, 0.00), (32.5, 0.00), (36.0, 0.00)
A:_personal_impact_accumulation(t) = A:_personal_impact_accumulation(t - dt) + (impact_level - recovery_pers) * dt
INIT A:_personal_impact_accumulation = 0
impact_level = hardwood_jobs_lost*degree_of_personal_flexibility
DOCUMENT: This indicator reflects the 'mass' of the impact when a particular number of workers lose their jobs.

recovery_pers = A:_personal_impact_accumulation*((decrease_due_to_time_&_job_gain)/(positive_to_negative_ratio+1))
cumulative_occupational_inflexibility(t) = cumulative_occupational_inflexibility(t - dt) + (inflexibility_level - recovery_occup) * dt
INIT cumulative_occupational_inflexibility = 0
inflexibility_level = hardwood_jobs_lost*degree_of_occupational_flexibility
DOCUMENT: This indicator reflects the 'mass' of the impact when a particular number of workers lose their jobs.

recovery_occup = cumulative_occupational_inflexibility*(decrease_due_to_time_&_job_gain)/(positive_to_negative_ratio+3)
degree_of_occupational_flexibility = 6.13
DOCUMENT: This is the mean figure for the hardwood workforce within the community derived from the demographic section of the workforce survey.

The index is constructed by taking into account the time a worker has been in the timber industry; whether or not they have had experience in other industries; and the level of their formal education.

It is assumed that the higher a worker's education level, the more portable are their skills, Similarly, the less their time in the timber industry and having had experience in other industries increases their occupation 'flexibility'.

The figure reflects a workers flexibility to move from the community and the potential impact of unemployment.

degree_of_personal_flexibility = 2.8
DOCUMENT: This is the mean figure for the hardwood workforce within the community derived from the demographic section of the workforce survey.

The index is constructed by taking into account the number and extent of personal obligations and support surrounding each worker. These were dependent partner, dependent children, financial obligation for accommodation and having family in the community.

The figure reflects a workers flexibility to move from the community and the potential impact of unemployment.

positive_to_negative_ratio = 1.5
DOCUMENT: This value is the ratio of community response to a past positive event at community level to the community response to a negative event. It provides a measure of community adaptability.

The ratings were made during workshops held within each community and took into account factors such as : the scope of the event; the breadth of community participation and whether any goals were achieved.

A ratio of '1' suggests that the community response is similar to both positive and negative events. Values greater than one reflect greater success with positive events; a value less than one, greater success with negative events.

cumulative_occupational_inflexibility_2(t) = cumulative_occupational_inflexibility_2(t - dt) + (inflexibility_level_2 - recovery_occup_2) * dt
INIT cumulative_occupational_inflexibility_2 = 0
inflexibility_level_2 = hardwood_jobs_lost_2*degree_of_occupational_flexibility_2
DOCUMENT: This indicator reflects the 'mass' of the impact when a particular number of workers lose their jobs.

recovery_occup_2 =
cumulative_occupational_inflexibility_2*(decrease_due_to_time_&_job_gain_2)/(positive_to_negative_ratio_2+3)
personal_impact_accumulation_2(t) = personal_impact_accumulation_2(t - dt) + (impact_level_2 - recovery_pers_2) * dt
INIT personal_impact_accumulation_2 = 0
impact_level_2 = hardwood_jobs_lost_2*degree_of_personal_flexibility_2
DOCUMENT: This indicator reflects the 'mass' of the impact when a particular number of workers lose their jobs.

recovery_pers_2 =
personal_impact_accumulation_2*((decrease_due_to_time_&_job_gain_2)/(positive_to_negative_ratio_2+1))
degree_of_occupational_flexibility_2 = 5.7
DOCUMENT: This is the mean figure for the hardwood workforce within the community derived from the demographic section of the workforce survey.

The index is constructed by taking into account the time a worker has been in the timber industry; whether or not they have had experience in other industries; and the level of their formal education.

It is assumed that the higher a worker's education level, the more portable are their skills, Similarly, the less their time in the timber industry and having had experience in other industries increases their occupation 'flexibility'.

The figure reflects a workers flexibility to move from the community and the potential impact of unemployment.

degree_of_personal_flexibility_2 = 2.9
DOCUMENT: This is the mean figure for the hardwood workforce within the community derived from the demographic section of the workforce survey.

The index is constructed by taking into account the number and extent of personal obligations and support surrounding each worker. These were dependent partner, dependent children, financial obligation for accommodation and having family in the community.

The figure reflects a workers flexibility to move from the community and the potential impact of unemployment.

positive_to_negative_ratio_2 = 1.2
DOCUMENT: This value is the ratio of community response to a past positive event at community level to the community response to a negative event. It provides a measure of community adaptability.

The ratings were made during workshops held within each community and took into account factors such as : the scope of the event; the breadth of community participation and whether any goals were achieved.

A ratio of '1' suggests that the community response is similar to both positive and negative events. Values greater than one reflect greater success with positive events; a value less than one, greater success with negative events.

community_job_stock(t) = community_job_stock(t - dt) + (jobs_generated - jobs_lost) * dt
INIT community_job_stock = 18040

DOCUMENT: Based on the ABS 1996 Census labour force
(employed fulltime+employed parttime+ employed not stated)

jobs_generated = (hardwood_jobs_generated+growth_factor+other_initiatives)*job_gain_multiplier
DOCUMENT: In any given time period the number of jobs created is the sum of those generated internally within the community and those created by external intitatives.

jobs_lost = (hardwood_jobs_lost+general_decline)*multiplier
general_decline = (60/60)
DOCUMENT: This component of the model reflects any 'background' drift toward smaller job stocks in the community. Because the model is concerned with reflecting the social impact of policy changes in the timber industry, changes in employment opportunities in the timber industry are treated as 'shocks' over and above the background trend and as occurring at a point in time.

The current measure is the difference in ABS estimates of numbers of people employed in 1991 and 1996.

growth_factor = 12.3
DOCUMENT: This factor allows for a generalised growth in jobs as a function of activity already in the community. It is used to allow explicit modelling of a situation in which some industries create jobs.

Lost jobs are modelled as a draining of the total job stock by the 'general decline' factor and the 'multiplier'.

job_gain_multiplier = 1
multiplier = 1.0
other_initiatives = 0
DOCUMENT: This controller allows for the creation of jobs due to the arrival of new organisations or industries. The increase in jobs could be specified as time dependent ramp or step functions depending upon the timing of job creation. Initially it is set to zero.

community_job_stock_2(t) = community_job_stock_2(t - dt) + (jobs_generated_2 - jobs_lost_2) * dt
INIT community_job_stock_2 = 361

DOCUMENT: Based on the ABS 1996 Census labour force
(employed fulltime+employed parttime+ employed not stated)

jobs_generated_2 = (hardwood_jobs_generated_2+growth_factor_2+other_initiatives_2)*job_gain_multiplier_2
DOCUMENT: In any given time period the number of jobs created is the sum of those generated internally within the community and those created by external intitatives.

jobs_lost_2 = (hardwood_jobs_lost_2+general_decline_2)*multiplier_2
general_decline_2 = (60/60)
DOCUMENT: This component of the model reflects any 'background' drift toward smaller job stocks in the community. Because the model is concerned with reflecting the social impact of policy changes in the timber industry, changes in employment opportunities in the timber industry are treated as 'shocks' over and above the background trend and as occurring at a point in time.

The current measure is the difference in ABS estimates of numbers of people employed in 1991 and 1996.

growth_factor_2 = 0.5
DOCUMENT: This factor allows for a generalised growth in jobs as a function of activity already in the community. It is used to allow explicit modelling of a situation in which some industries create jobs.

Lost jobs are modelled as a draining of the total job stock by the 'general decline' factor and the 'multiplier'.

job_gain_multiplier_2 = 1
multiplier_2 = 1.0
other_initiatives_2 = 0
DOCUMENT: This controller allows for the creation of jobs due to the arrival of new organisations or industries. The increase in jobs could be specified as time dependent ramp or step functions depending upon the timing of job creation. Initially it is set to zero.

monthly_impact_level(t) = monthly_impact_level(t - dt) + (increase_due_to_job_losses - decrease_due_to_time_&_job_gain) * dt
INIT monthly_impact_level = 7.6
increase_due_to_job_losses = job_loss_converted_to_community_impact * (1/assessed_response_to_impacts)
DOCUMENT: This converter takes the "community impact" value derived from the number of actual jobs lost and then weights that impact by the ability of the community to cope with further impacts. Because this latter term is a decimal value less than or equal to '1', it is expressed as the reciprocal value so that less able communities feel the impact of a given number of job losses more than more able communities.

decrease_due_to_time_&_job_gain = monthly_impact_level*(decay_factor)+job_gain_converted_to_community_impact
assessed_response_to_impacts = 0.83
DOCUMENT: This value is sum of the rated community responses to both positive and negative events compared to the maximum possible rating.

A value of one means that the maximum has been achieved; smaller values reflect the relative inability of the community to meet these challenges.

decay_factor = 0.05613
effective_new_jobs = jobs_generated*take_up_of_available_jobs
scope_of_impact_gain = effective_new_jobs/community_job_stock
scope_of_impact_loss = jobs_lost/community_job_stock
DOCUMENT: Calculates the proportion of the community total job stock lost when jobs are lost in a given month

job_gain_converted_to_community_impact = GRAPH(scope_of_impact_gain)
(0.00, 0.03), (0.005, 0.06), (0.01, 0.18), (0.015, 0.75), (0.02, 1.80), (0.025, 3.81), (0.03, 5.00), (0.035, 5.43), (0.04, 5.79), (0.045, 5.97), (0.05, 6.00)
job_loss_converted_to_community_impact = GRAPH(scope_of_impact_loss)
(0.00, 0.03), (0.005, 0.06), (0.01, 0.18), (0.015, 0.75), (0.02, 1.80), (0.025, 3.81), (0.03, 5.00), (0.035, 5.43), (0.04, 5.79), (0.045, 5.97), (0.05, 6.00)
monthly_impact_level_2(t) = monthly_impact_level_2(t - dt) + (increase_due_to_job_losses_2 - decrease_due_to_time_&_job_gain_2) * dt
INIT monthly_impact_level_2 = 3.0
increase_due_to_job_losses_2 = job_loss_converted_to_community_impact_2 * (1/assessed_response_to_impacts_2)
DOCUMENT: This converter takes the "community impact" value derived from the number of actual jobs lost and then weights that impact by the ability of the community to cope with further impacts. Because this latter term is a decimal value less than or equal to '1', it is expressed as the reciprocal value so that less able communities feel the impact of a given number of job losses more than more able communities.

decrease_due_to_time_&_job_gain_2 =
monthly_impact_level_2*(decay_factor_2)+job_gain_converted_to_community_impact_2
assessed_response_to_impacts_2 = 0.92
DOCUMENT: This value is sum of the rated community responses to both positive and negative events compared to the maximum possible rating.

A value of one means that the maximum has been achieved; smaller values reflect the relative inability of the community to meet these challenges.

decay_factor_2 = 0.05613
effective_new_jobs_2 = jobs_generated_2*take_up_of_available_jobs_2
scope_of_impact_gain_2 = effective_new_jobs_2/community_job_stock_2
scope_of_impact_loss_2 = jobs_lost_2/community_job_stock_2
DOCUMENT: Calculates the proportion of the community total job stock lost when jobs are lost in a given month

job_gain_converted_to_community_impact_2 = GRAPH(scope_of_impact_gain_2)
(0.00, 0.03), (0.005, 0.06), (0.01, 0.18), (0.015, 0.75), (0.02, 1.80), (0.025, 3.81), (0.03, 5.00), (0.035, 5.43), (0.04, 5.79), (0.045, 5.97), (0.05, 6.00)
job_loss_converted_to_community_impact_2 = GRAPH(scope_of_impact_loss_2)
(0.00, 0.03), (0.005, 0.06), (0.01, 0.18), (0.015, 0.75), (0.02, 1.80), (0.025, 3.81), (0.03, 5.00), (0.035, 5.43), (0.04, 5.79), (0.045, 5.97), (0.05, 6.00)
community_wellbeing = inverter-monthly_impact_level
community_wellbeing_2 = inverter_2-monthly_impact_level_2
inverter = 36
inverter_2 = 36
timber_workers_occupational_inflexibility = inverter-cumulative_occupational_inflexibility
timber_workers_occupational_inflexibility_2 = inverter_2-cumulative_occupational_inflexibility_2
timber_workers_personal_wellbeing = inverter-A:_personal_impact_accumulation
timber_workers_personal_wellbeing_2 = inverter_2-personal_impact_accumulation_2

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