



Water for a Healthy Country

Socio-economic Profile of the Great Barrier Reef Region

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May 2006

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Citation: Hug, B. and Larson, S. 2006. Socio-economic Profile of the Great Barrier Reef Region. CSIRO: *Water for a Healthy Country* National Research Flagship Canberra.

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Abbreviations

ABS	Australian Bureau of Statistics
DAFF	Department of Agriculture, Fisheries and Forestry
DNRMW	Queensland Department of Natural Resources, Mines and Water
GBR	Great Barrier Reef
GBRCA	Great Barrier Reef Catchment Area
GBRMPA	Great Barrier Reef Marine Park Authority
GVP	Gross Value of Production
ha	Hectare
LGA	Local Government Area
NRM	Natural Resources Management
OESR	Office of Economic and Statistical Research
PDP	Policy Development & Planning
SD	Statistical Division
SEIFA	Socio Economic Index for Areas

Acknowledgements

Work on this profile was conducted as a part of the Alternative GBR Futures project led by Dr Iris Bohnet. The project is supported by the Water for a Healthy Country Flagship Initiative and CSIRO Sustainable Ecosystems Division.

Report Summary

This report provides a summary of socio-economic data in the GBR region and has been prepared as background material for the “Alternative GBR Future” project.

The Great Barrier Reef region expands from the Tropic of Capricorn in the south to the tip of Cape York in the north. The estimated population of the GBR region in 2005 was 781,200 people, representing close to 20 per cent of Queensland’s population. The total area of the Great Barrier Reef Marine Park is 345,400 square kilometres and stretches more than 2,300 kilometres along the northeast coast of Queensland.

The current estimated annual population growth rate for the SDs of the GBR region is 1.29 per cent, with the age category of 65 years or more growing the fastest. However, the age group of 65 plus years of age in the GBR region is proportionally smaller than the average for Queensland. The Indigenous population, as a percentage of the total population in the GBR region, is 5 per cent. ABS SEIFA data indicates that the GBR region is disadvantaged in socio-economic terms when compared with the rest of Australia.

The unemployment rate for the GBR region is slightly higher than the average for Queensland, where Mackay and Fitzroy SD (3.3 per cent) had lower unemployment rates and Far North SD (6.9 per cent) had a higher unemployment rate. The median weekly income for the GBR region was in line with Queensland’s average income. However, household and family income in the Far North was lower than both the entire GBR region and the average for Queensland.

The majority of the land in the GBR region is used for grazing, and mainly grazing of natural vegetation. However, the gross revenue of grazing per km² of land is considerably lower than for land under other economic uses, such as irrigation or dryland cropping.

The Productivity Commission estimated in 2003 that the gross value of production (GVP) for mining, tourism and agricultural industries in the GBR region was over \$14 billion, with about \$7 billion from mining, \$4.2 billion from tourism and \$3.2 billion from agriculture. In addition, ports within the GBR region exported 62 per cent of Queensland’s ports exports.

Future projections estimate that mineral processing and tourism will have the largest growth in terms of GVP. However, the gross value of mining production in the GBR region is projected to decrease in the long run, both in absolute terms and in terms of percentage contribution to overall Queensland production.

Several community-based natural resources management groups are active in the GBR region. The main natural-resources related issues requiring attention were identified as: those related to loss of vegetation and fragmentation of habitats, including riparian and in-stream vegetation; issues related to poor water quality, including sedimentation and diffuse-source pollution; and a range of issues related to poor land and water management practices.

Queensland economic growth has, on average, been faster than that for the rest of Australia over the 1990-2000 decade. The key delivery instruments for Queensland have been identified as contribution to technological progress and human capital. Both delivery instruments appear to be of high relevance to the GBR region.

1 Introduction

1.1 Context of the project

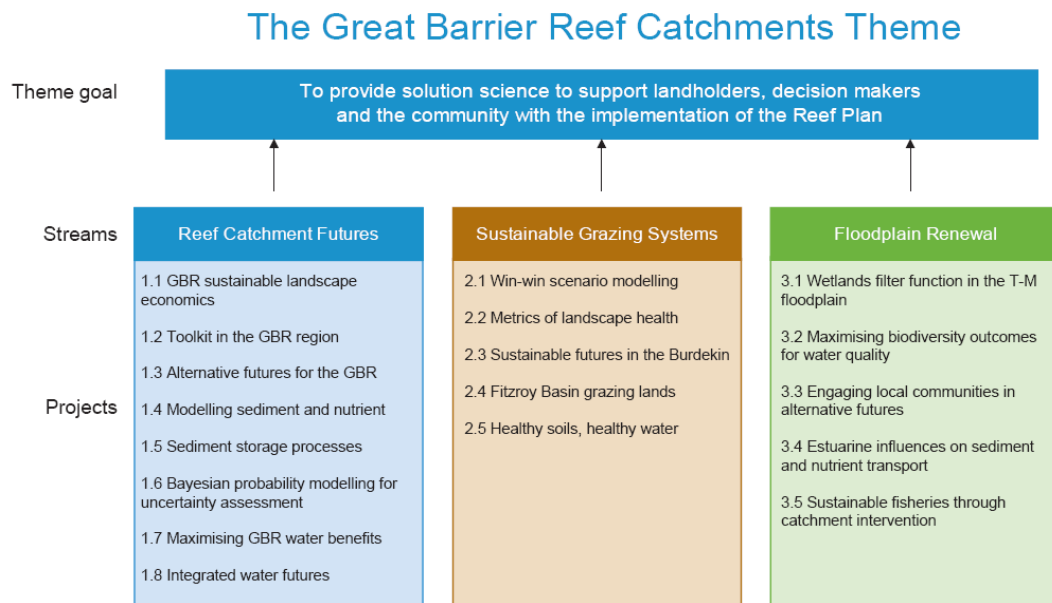
“Catchments of the Great Barrier Reef (GBR)” is one of six research themes in the CSIRO Water for a Healthy Country Flagship. The key aim of the GBR Catchments Theme is to provide solution-based science to address the threat of declining quality of waters entering the GBR lagoon.

The coastal strip adjacent to the GBR lagoon is a region of economic significance and exceptional environmental value. It is therefore important to develop land-use and landscape management solutions that maintain productivity, improve water quality, sustain healthy ecosystems and coastal communities and protect the GBR lagoon.

Figure 1 presents an overview of the organisational structure of the Water for a Healthy Country Great Barrier Reef Catchments Theme. The Reef Catchment Futures stream provides an integration platform for cross-cutting issues applicable to multiple catchments as well as different streams within the GBR Catchments Theme. The objective of the stream is to provide sustainable land-management options to the communities in the GBR region. The stream aims to understand the hydrological, ecological, economic and social dynamics that underpin the use, degradation and protection of land and water in catchments and the relationship between these dynamics.

The socio-economic profile of the GBR region was collated as a part of the “Alternative GBR Futures” project and provides background information for the activities of the Reef Catchment Futures stream.

Figure 1. Conceptual framework of the WfHC GBR theme



Source: (CSIRO, 2006)

1.2 Project area

A region can be defined in many ways; for example, by geographical, historical, cultural, political and economic variables.

Agencies at the State and Commonwealth level dealing with natural resource management (NRM) planning tend to use catchment boundaries or bioregions as their primary units of data collection and action.

Data on population, economics, health and other statistical data relevant to planning are collected by the Australian Bureau of Statistics (ABS) and presented at different geographical levels, from collection district levels, to Local Government Areas (LGAs) and statistical divisions (SDs). Therefore, when reporting on a region, it is important to provide a clear reference to the source of the data.

The Great Barrier Reef Catchment Area consists of 40 drainage basins covering a total area of 425,964 km² (Figure 2). The catchments of the GBR are collated for the purposes of the natural resources management (NRM) into 6 management areas: Burnett-Mary, Fitzroy, Mackay-Whitsunday, Far North Queensland and Cape York (Figure 2).

The Great Barrier Reef region is administratively organised into 42 Local Government Areas (GBRMPA, 2006), Figure 3) and grouped into 5 Statistical Divisions (SDs): Wide Bay-Burnett, Fitzroy, Mackay, Northern and Far North (Access Economics, 2005), Figure 4). The Wide Bay-Burnett Statistical Division corresponds to the GBR region only in a small portion and is therefore excluded from the analysis.

Figures 2 and 3 present two difference between the two definitions of GBR region, where the NRM region (Figure 2) is slightly smaller than the LGA area-based boundaries (Figure 3). The data presented in this report provides clear reference to the source of data, that is whether the information is based on natural resources management/catchment boundaries or local government area/statistical division boundaries. The majority of the data in this report is based on the Statistical Division (SD) level, representing regional grouping of local government areas (Figure 4).

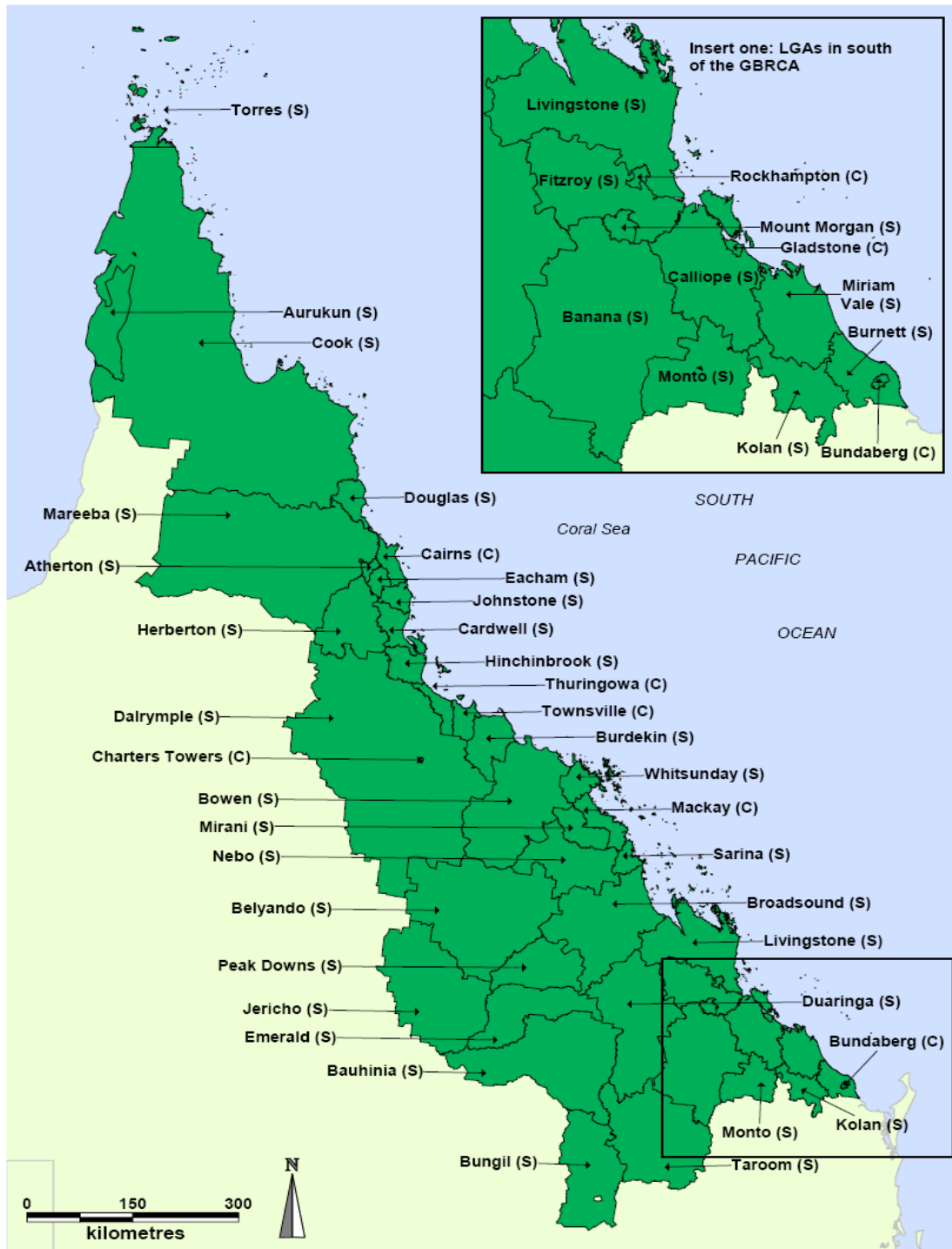
The total area of the Great Barrier Reef Marine Park is 345,400 square kilometres, stretching more than 2,300 kilometres along the northeast coast of Queensland. The Park begins at the tip of Cape York and extends south, almost to Bundaberg (Figure 2). The Great Barrier Reef Marine Park Authority (GBRMPA) is a Commonwealth Government Statutory Authority, responsible for the management of the Great Barrier Reef Marine Park. GBRMPA operates in partnership with other Commonwealth and Queensland Government agencies in managing the Great Barrier Reef region. The *Coastal Protection and Management Act 1995* sets out the State and Regional planning processes towards the consistent management of Queensland's coastal resources.

Figure 2. Location of the GBR region with regional NRM bodies (red boundary lines and text) and catchments (blue areas)



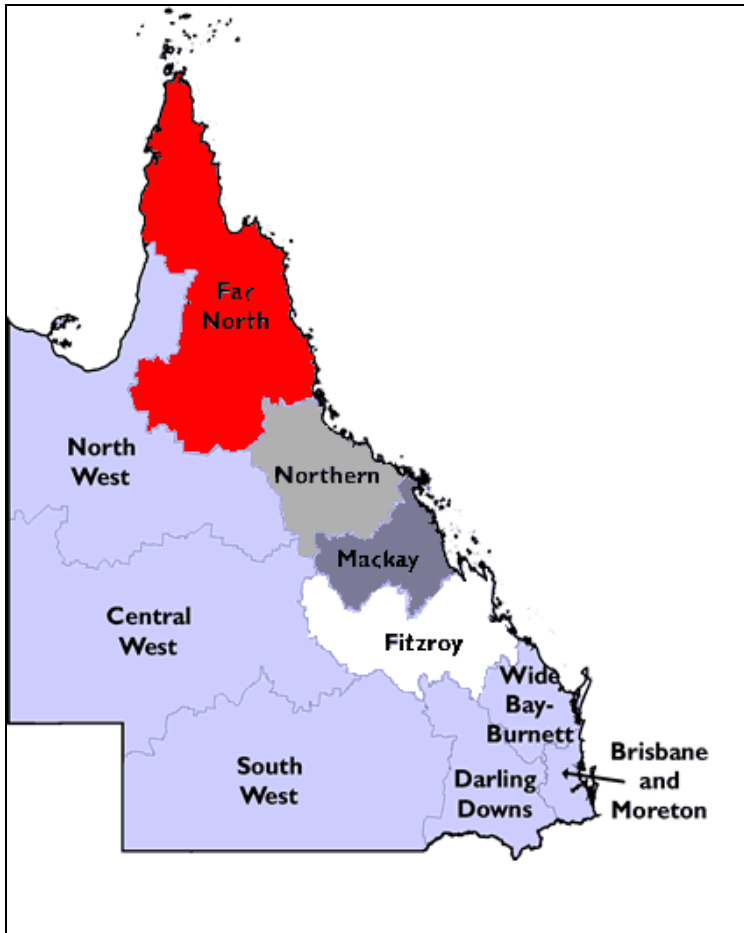
Source: (Haynes et al., 2005)

Figure 3. Great Barrier Reef Catchment Area and corresponding LGAs



Source: (OESR, 2005)

Figure 4. GBR Statistical Divisions (SDs)



Source: (OESR, 2006b)

1.3 Report structure

This report provides a summary of socio-economic data and trends in the GBR region. Chapter 2 presents information and trends on GBR communities, while Chapter 3 summarises economic characteristics and economic trends in the GBR region. Natural resource management issues and risks and drivers for growth are discussed briefly in Chapters 4 and 5, respectively. Concluding remarks are presented in Chapter 6.

2 The regional community

The data presented in this Chapter is based on the Local Government Areas as collated at the Statistical Division level (Figure 4). Therefore, the “GBR region” referred too in this Chapter is based on the administrative boundaries of LGAs and SDs.

2.1 Demographic trends

The estimated resident population for the GBR region was 781,294 persons in June 2005, representing just under 20 per cent of Queensland's population. Table 1 presents a breakdown of population trends for the period of 1998 to 2005, for statistical divisions of GBR.

The average annual growth rate of GBR population over that period was 1.29 per cent, while Queensland has recorded average growth rate of 2.03 per cent (OESR, 2006b), Table 1 and Figure 5.

Population projections published by the Department of Local Government and Planning in 2003 indicate that the population of the GBR region is expected to increase from 733,700 in 2001 to 994,000 in 2026, representing an average annual growth rate of 1.15 per cent (OESR, 2003). This compares with Queensland's estimated annual average growth rate of 1.8 per cent over the next 25 years, projecting increase in Queensland's population from 3,629,000 in 2001 to 5,289,000 in 2026 (OESR, 2003).

The GBR region accounted for 23.1 per cent of the State's population in 1976. The percentage share dropped to 20.2 per cent in 2001 and is projected to decrease to 18.8 per cent by 2026. The largest increase in the share of the State growth is being recorded in the South East of Queensland, and this trend is expected to continue (Table 2).

Table 1. Estimated resident population by statistical division

Statistical Division	Year		annual growth rates
	1998	2005	
Fitzroy	179,752	189,838	0.78%
Mackay	135,049	147,374	1.26%
Northern	181,646	205,628	1.79%
Far North	218,037	238,454	1.29%
Total GBR	714,484	781,294	1.29%
Total Queensland	3,444,725	3,963,968	2.03%

Source: (OESR, 2006b)

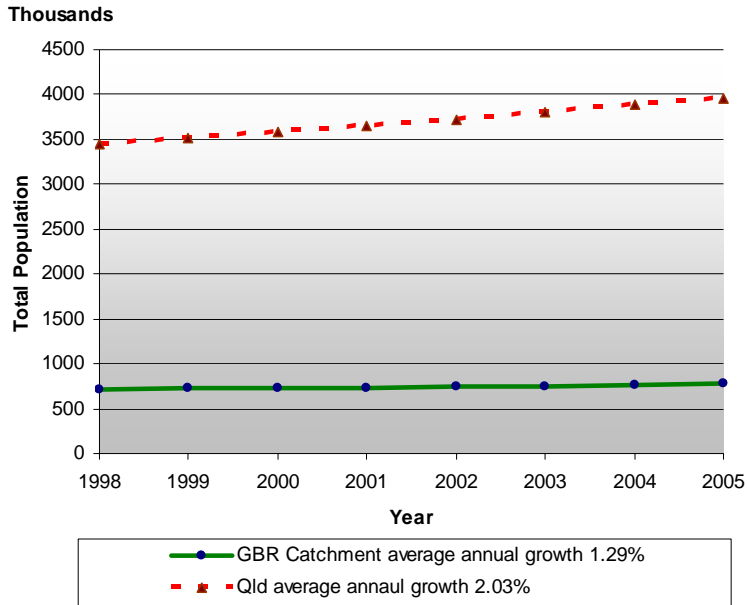
Table 2. GBR actual and projected percentage share of state population

Statistical Division as %	Year		
	1976	2001	2026
Fitzroy	6.2	5.0	4.4
Mackay	4.3	3.8	3.4
Northern	6.6	5.2	4.9
Far North	6.0	6.2	6.1
GBR as % of Qld	23.1	20.2	18.8

Source: (OESR, 2006b) , per statistical division

The overall age profile for the statistical divisions within the GBR region was younger than that of Queensland. The percentage of resident population for the GBR region within the age group 0 to 14 years was larger and the 65 years plus group was smaller than that of Queensland (Table 3). In all four statistical divisions the proportion of the 65 plus age group (10.5%, 9.7%, 9.9% and 9.7%) is lower than the Queensland average of 11.9 per cent. This trend is also reflected in the *median age*, with Mackay and Northern Division having a lower median age group than that of Queensland (Table 3).

Figure 5. Population growth rates for the GBR region and Queensland



Source: (OESR, 2006b)

Table 3. Estimated resident population by age group

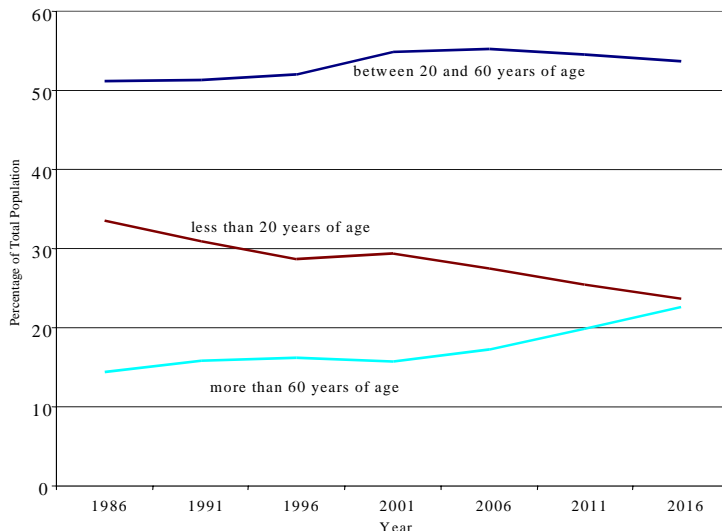
Series in %	Statistical Division, Year 2003				GBR	Queensland
	Fitzroy	Mackay	Northern	Far North		
0 to 14 years	23.2	22.6	22.1	22.6	22.6	20.8
15 to 24 years	14.3	13.2	16	13.2	14.2	14.1
25 to 44 years	28.9	30.5	30.2	31.1	30.2	29.3
45 to 64 years	23.1	24.1	21.8	23.4	23.1	23.9
65 + years	10.5	9.7	9.9	9.7	10.0	11.9
All years	100	100.1	100	100	100.0	100
Median Age	35	34	32	35	34	35

Source: (OESR, 2006b); per statistical division

As an example of age dynamics in the region, Figure 6 (Greiner and Stoeckl, 2002) summarises historic and projected age distribution for the Cairns section of the GBR region. This includes the local government areas of Atherton, Cairns, Cardwell, Douglas, Eacham, Herberton, Hinchinbrook, Johnston and Mareeba, for 1986 to 2016. It can be observed that the 20-60 year age group is the largest and the most stable population

group. Noticeable changes are observable in two other groups, with population under 20 years of age decreasing and the population over 60 years of age increasing throughout the projection period.

Figure 6. Historic and projected age distribution, Cairns section of the GBR region



Source: (Greiner & Stoeckl, 2002), page 19

The major urban centres (>20,000 persons) within the GBR region are Rockhampton, Gladstone, Mackay, Townsville, Thuringowa and Cairns, which are all ranked in the 10 largest urban centres or localities in Queensland.

Table 4 shows the population density for the GBR statistical divisions, with an average of 1.6 people per square kilometer, compared with Queensland's 2.2 persons per square kilometer. However, the Northern SD has a higher population density (2.5 persons per square kilometre) than the Queensland average.

Table 4. Estimated population density for the GBR region, 2003

Statistical Division	Population density, 2003
	Persons per km ²
Fitzroy	1.5
Mackay	1.6
Northern	2.5
Far North	0.9
Average for GBR	1.6
Average Queensland	2.2

Source: (OESR, 2006b)

2.2 Education

Education levels of the people residing in the GBR region have increased from 1996 to 2001 at all levels (Table 5). The same applies for people "15 years and over with qualifications", which has increased from 26.5 per cent in 1996 to 30.2 per cent in 2001.

However, Table 5 highlights that the level of education in the GBR region has fallen during the same time period in terms of percentage share of Queensland. For example: numbers of people with Postgraduate Degrees residing in GBR have fallen from 15 per cent in 1996 to 13.8 per cent of Queensland totals in 2001; while percentage share of Bachelor Degrees holders residing within GBR has also recorded a fall from 17.6 per cent in 1996 to 16.2 per cent of total Queensland Degree holders in 2001.

Comparisons within the GBR region show that all statistical divisions recorded growth in education levels from 1996 to 2001. The Northern SD had the highest percentage of Postgraduate and Bachelor degrees but the Mackay SD leads the region in Certificate education (Table 5).

Table 5. Level of education for the GBR region

Year 2001								
Statistical Division	Postgraduate Degree		Bachelor Degree		Certificate		Total persons 15 y and over	15 y and over with qualification
	No.	%	No.	%	No.	%	No.	%
Fitzroy	1,123	0.8	8,632	6.2	22,966	17	138,517	28.7
Mackay	696	0.6	6,064	5.6	20,113	18	108,907	29.7
Northern	1,775	1.2	11,026	7.5	24,161	16	146,555	30.7
Far North	1,754	1.0	12,453	7.0	30,536	17	176,802	31.7
GBR average	1,337	0.9	9,544	6.7	24,444	17	142,695	30.2
Queensland	38,740	1.4	235,113	8.3	451,525	16	2,823,097	32.3
Total GBR	5,348		38,175		97,776		570,781	
GBR as % of Qld	13.8		16.2		21.7		20.2	

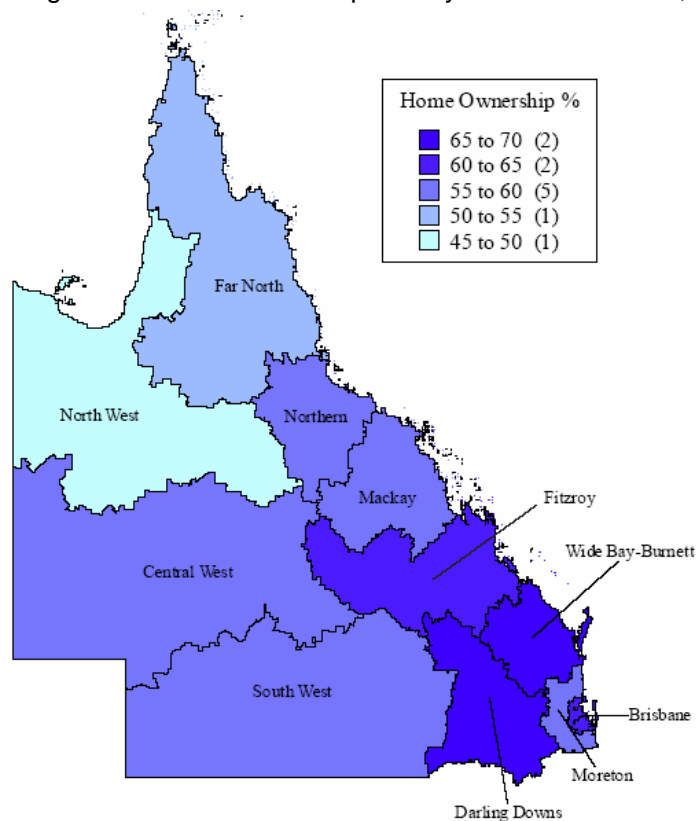
Year 1996								
Statistical Division	Postgraduate Degree		Bachelor Degree		Certificate		Total persons 15 y and over	15 y and over with qualification
	No.	%	No.	%	No.	%	No.	%
Fitzroy	851	0.6	6,941	5.1	19,496	14	135,345	25.5
Mackay	431	0.4	4,895	4.7	16,915	16	104,948	26.4
Northern	1,393	1.0	8,404	6.1	18,705	14	137,188	26.2
Far North	1,223	0.7	9,884	5.8	26,057	15	171,821	28.0
GBR average	975	0.7	7,531	5.5	20,293	15	137,326	26.5
Queensland	26,054	1.0	170,888	6.6	353,617	14	2,592,220	27.6
Total GBR	3,898		30,124		81,173		549,302	
GBR as % of Qld	15.0		17.6		23.0		21.2	

Source:(ABS, 2006)

2.3 Home ownership

Figure 8 summarises home ownership rates (fully owned and being purchased) by statistical divisions for Queensland in 2001. A general trend can be observed for the GBR region, where home ownership rates tend to be lower the further north the statistical division is located. For example: Fitzroy SD has 60 to 65 per cent home ownership compared with the Far North SD where only 50 to 55 per cent of families own or are purchasing their home (OECD, 2004).

Figure 8. Home ownership rate by statistical division, Queensland 2001



Numbers in brackets indicate how many SD fall into each category.
Source: (OESR, 2004)

2.4 Socio-economic index for areas (SEIFA)

Developed by the Australian Bureau of Statistics and using data derived from the Census of Population and Housing, SEIFA (Socio Economic Index for Areas) provides a range of measures to rank areas based on their relative social and economic wellbeing. The Census provides extensive information on a number of social and economic concepts, such as income, education and occupation. However, these attributes in isolation may not give a full indication of the social and economic conditions in a particular area.

SEIFA combines all these items into a series of four indexes, each summarising a different aspect of the level of socio-economic wellbeing in an area. The four indexes are (ABS, 2003):

1. Index of Disadvantage: This index is derived from attributes such as income, educational attainment, unemployment, and dwellings without motor vehicles. In particular it focuses on low income earners, relatively lower educational attainment and high unemployment.
2. Index of Advantage/Disadvantage: This index is a continuum of advantage to disadvantage, and was first introduced in the 2001 Census. It takes into account variables relating to income, education, occupation, wealth and living conditions.

This index replaces and builds on the previously reported Urban relative advantage index.

3. Index of Economic Resources: Variables for this index include those relating to the income, expenditure and assets of families, such as family income, rent paid, mortgage repayments, and dwelling size.
4. Index of Education and Occupation: This index includes variables relating to the educational and occupational characteristics of communities, such as the proportion of people with a higher qualification or those employed in a skilled occupation.

For all indexes, low values indicate areas of disadvantage, and high values indicate areas of advantage. An “average” area in Australia has index values of 1,000 (i.e. any score under 1000 indicates that the local area is below the Australian “norm” of 1,000).

Table 6. SEIFA Index values for the GBR region

Local Government Area	Total Population 2001	Indigenous Population	Mean Income 1999-00 [\$]	ABS Index of Relative Disadvantage 1998	Unemployment 2001 [%]
Atherton	10,621	547	29,790	979	8.1
Bowen	13,698	748	30,014	905	7.3
Broadsound	6,601	131	51,474	999	2.8
Bundaberg	43,549	1,406	28,515	932	12.6
Burdekin	18,486	805	30,487	982	5.3
Burnett	23,598	324	28,515	943	11.4
Cairns	133,199	11,062	31,947	1,012	7.8
Calliope	15,091	355	35,887	1,005	7.7
Cardwell	11,443	716	28,534	967	4.6
Cook	9,700	2,851	35,522	855	6.5
Douglas	17,887	976	28,756	1,012	4.7
Eacham	6,250	216	28,840	980	9.9
Fitzroy	9,553	328	32,228	975	7.0
Gladstone	26,835	952	36,022	976	9.5
Hinchinbrook	14,611	2,562	29,956	933	6.2
Johnstone	19,954	1,644	29,570	959	7.7
Livingstone	27,017	766	32,437	979	8.6
Mackay	75,020	2,813	33,741	980	8.5
Mareeba	18,096	2,099	29,284	954	8.9
Mirani	5,220	125	32,346	978	6.1
Miriam Vale	1,914	98	27,541	878	15.6
Rockhampton	58,382	3,006	32,336	966	9.3
Sarina	9,637	379	33,932	942	9.4
Thuringowa	51,140	2,851	32,859	996	8.0
Townsville	94,739	4,556	34,355	998	8.8
Whitsunday	20,990	251	27,882	1,014	6.6

Source: ABS 2001 census data, Productivity Commission (2003), (PDP Australia Pty Ltd, 2003).
Shade rows: SEIFA higher than Australian “norm” of 1,000

A summary of some of the key socio-economic characteristics of the LGAs in the GBR region, such as total population, indigenous population, mean income and the unemployment rate, are presented in Table 6. Table 6 also presents values for the Index of Disadvantage for each LGA in alphabetical order.

We can observe from Table 6 that 22 LGAs within the GBR region tend to have a lower level of socio-economic wellbeing than the average for Australia. Only the shire and city councils of Cairns, Calliope, Douglas and Whitsunday achieved a SEIFA Index of Disadvantage higher than the Australian average of 1,000, indicating better socio-economic conditions for those shires and cities (PDP Australia Pty Ltd, 2003). In contrast, the LGAs of Cook with an index value of 855, Bowen with 905 and Hinchinbrook with 933 are all well below the average Australian Index of 1,000, indicating a relative disadvantage.

2.5 Crime profile

Queensland rate of offences “against the person”, such as assaults and sexual offences, was around 1,000 offences per 100,000 persons in 2002-03. Offences “against property” (such as stealing and unlawful entry) were considerably more prevalent, reaching rate of almost 8,000 per 100,000 persons in the same year. “Other offences”, such as drug offences, liquor offences and good order offences, reached the rate of around 3,500 offences per 100,000 persons (OESR, 2006a).

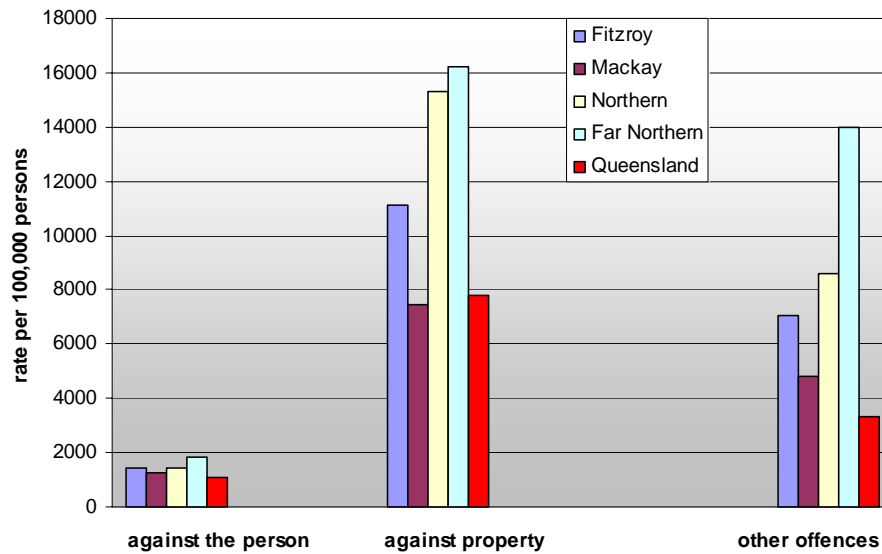
In terms of crime profiles, the GBR region’s rate of offences “against the person” per 100,000 persons was similar to Queensland’s average. However, the rate of “property offences” and “other offences” for the GBR region was significantly higher than the Queensland rate (Figure 9).

Figure 9. Crimes rates in the GBR region and Queensland



Source: (OESR, 2006a), 2002-2003 data

Figure 10. Crime profile for the SDs in the GBR region and Queensland



Source: (OESR, 2006a) 2002-2003 data

Figure 10 shows a comparison of the three crime groups on a statistical division level compared with Queensland. Crime rates “against the person” are similar throughout the GBR region. However, the rate of “property offences” for the Far North SD is more than double the rate for Queensland. In comparison, Mackay SD has the lowest offence rate “against property” in the GBR region and is also below Queensland’s average rate. The “other offence” crime category exhibits even greater variations, with the Far North SD topping the group by as much as three times of Queensland’s average rate.

2.6 Health services

Patients on the waiting list are assigned an emergency category based on the clinical assessment of their condition and the likelihood of their condition deteriorating or becoming an emergency. Category 1 patients are the most urgent cases that should have the operation within 30 days of diagnosis. Those for whom admission is recommended within 90 days are classified as semi-urgent (Category 2) with other patients classified as Category 3.

There appear to be no immediate observable differences between patients numbers / per head of total population in the hospitals of the GBR region compared to the Queensland overall (Table 7, Queensland Health, 2006).

However, the numbers of patients in the “long wait” category, that is those waiting for surgery longer than clinically desirable time, has been steadily increasing throughout Queensland. For example, “long waits” have increased from 3 per cent to 13.7 per cent for Category 1 patients in Queensland over period of April 2005 to April 2006 (Queensland Health, 2006). A similar increase was recorded for the Category 2 patients (from 9 per cent to 23.2 per cent over the same period), while Category 3 patients “long waits” have increased only slightly from 30 per cent to 31.5 per cent (Queensland Health, 2006).

There was no GBR region-specific data available on “long waits” at the time of the writing of the report.

Table 7. Numbers of patients on surgery waiting list

GBR Region	Cat 1	Cat 2	Cat 3	Total
Patients on waiting list	564	2,470	4,866	7,900
Rate of persons on waiting list / per head of population person	1,385	316	161	99
Qld State	Cat 1	Cat 2	Cat 3	Total
Patients on waiting list	2,742	12,398	20,210	35,350
Rate of persons on waiting list / per head of population person	1,446	320	196	112
"Long waits" as in April 2006	13.70%	23.20%	31.50%	

Source: (Queensland Health, 2006)

2.7 Key messages – Regional community

- The population of the GBR region is increasing, with an estimated annual growth rate of 1.29%, compared with Queensland's 2.03%. The GBR region is decreasing as a percentage of Queensland population.
- The largest segment of population is the age category of 25 to 44 years. The 65 plus age group in the GBR region is smaller than Queensland's average.
- The Indigenous population in the GBR region accounts for 5% of total population and about 60 different languages out of 256 for Queensland fall within the GBR region.
- Home ownership rates decrease the further north the SDs are located in the GBR region.
- Education levels of people residing within the GBR region have increased at all levels of education but compared with Queensland, the GBR region recorded a slower growth rate in educational levels.
- According to ABS SEIFA data, the GBR region is disadvantaged in socio-economic terms when compared with the rest of Australia.
- “Other offences” rates such as drug and liquor offences, are much higher in the GBR region than they are for Queensland overall.
- Offences “against property” are also higher than Queensland averages, but offences against the person are similar to Queensland's average.

3 The regional economy

The Productivity Commission estimated that the Gross Value of Production (GVP) for the mining, tourism and agricultural industries in the GBR region (LGAs) totals to over \$14 billion, making them the most significant sectors in the GBR catchments (Productivity Commission, 2003) . Land use and agricultural production in the catchments of the GBR region are discussed in Section 3.1. Section 3.2 provides data on other key sectors of economy, while Section 3.3 summarises employment and income data and Section 3.4 provides key construction industry indicators.

3.1 Land use and agricultural production

The GBR region consists of some of the most topographically diverse landscapes on the Australian continent (GBRMPA, 2001). Table 8 summarises some of the main land-uses within the GBR natural resources management (NRM) regions (DAFF, Department of Agriculture, Fisheries and Forestry, 2006).

The Wet Tropics region has the largest percentage of “Nature Conservation” area (16.2 per cent) followed by Cape York with 13.3 per cent. This compares with the Burdekin region where only 1.6 per cent is allocated for “Nature Conservation”. Cape York has the highest percentage in the allocation for “other protected areas including indigenous uses” at 16.6 per cent, followed by the Wet Tropics with 1 per cent and less than 1 per cent in the other three NRM regions, that is Burdekin, Mackay-Whitsunday and Fitzroy. All five NRM regions have high percentages in “grazing natural vegetation area” ranging from the Burdekin with 87.4 per cent to the Mackay – Whitsunday region with 31.8 per cent.

Table 8. Land use areas as a % / km² of GBR NRM regions for 1996/97

Statistical Division	Fitzroy		Mackay-Whitsunday		Burdekin		Wet Tropics		Cape York	
	%	km ²	%	km ²	%	km ²	%	km ²	%	km ²
Land use area										
Unclassified	1.9	2,725	0.2	16	0.7	908	1.2	244	0	23
Nature conservation	3.6	5,187	11	931	1.6	2,030	16.2	3,185	13	13,075
Other protected areas including indigenous uses	0.4	533	0	0	0.1	173	1	189	17	16,323
Minimal use	11.3	16,206	26	2,168	5.3	6,830	5.3	2,529	3.1	3,011
Grazing natural vegetation	63	90,032	32	2,705	87	111,964	34.4	6,756	62	61,228
Production forestry	6.6	9,467	9.2	785	1.1	1,411	21.5	4,222	2.3	2,231
Plantation forestry	0	14	0	0	0	0	0	0	0	0
Grazing modified pastures	8.6	12,242	3.4	290	2	2,614	2.3	456	0.1	56
Dryland cropping	3	4,348	8.5	724	0.6	708	6.2	1,224	0	17
Dryland horticulture	0	11	0	0	0	0	0.1	22	0	0
Irrigated pastures and cropping	0.2	285	6.1	516	0.3	406	0.3	58	0	1
Irrigated horticulture	0	7	0	2	0	56	0.2	41	0	0
Urban intensive uses	0.1	73	0.3	23	0	51	0.2	32	0	10
Water	1.3	1,819	4.2	354	0.7	938	3.5	688	2.3	2,270
Total	100	142,949	100	8,514	100	128,095	100	19,646	100	98,245

Source: (DAFF, 2006); Australian land use and management classification is presented in Appendix .

However, the percentage of land use within a region can be misleading in terms of actual land area due to differences in total size of the various regions. If we look again at the “Nature Conservation area”, for example, we can see that the Fitzroy region has actually a larger area of 5,187 km² at 3.6 per cent, compared with the Wet Tropics area of 3,185 km² at 16.2 per cent. The Fitzroy NRM region is the largest area with approximately 143,000 km² compared with the Mackay-Whitsunday region with just over 8,500 km². However, the Burdekin region remains the largest area with “Grazing natural vegetation”. Some other important land uses in the GBR region are “grazing modified pastures” and “production forestry”.

Table 9. Land use total gross revenue (\$m), GBR NRM regions

	Fitzroy	Mackay-Whitsunday	Burdekin	Wet Tropics	Cape York
Gross revenue (\$ m)					
Unclassified	3.1	0.0	1.7	1.9	0.0
Nature conservation	n/a	n/a	n/a	n/a	n/a
Other protected areas including indigenous uses	n/a	n/a	n/a	n/a	n/a
Minimal use	n/a	n/a	n/a	n/a	n/a
Grazing natural vegetation	277.6	23.1	115.4	69.3	25.1
Production forestry	n/a	n/a	n/a	n/a	n/a
Plantation forestry	n/a	n/a	n/a	n/a	n/a
Grazing modified pastures	66.1	3.9	7.9	42.0	7.5
Dryland cropping	235.6	178.6	60.9	291.3	2.2
Dryland horticulture	11.6	n/a	6.1	28.4	n/a
Irrigated pastures and cropping	100.6	130.7	117.9	17.5	0.2
Irrigated horticulture	5.7	3.2	83.0	36.3	n/a
Urban intensive uses	n/a	n/a	n/a	n/a	n/a
Water	n/a	n/a	n/a	n/a	n/a
Total	700.0	339.5	393.0	487.0	35.0

Source: (DAFF, 2006); Table based on 1996/97 data

Table 10. Gross revenue per square kilometre, GBR NRM regions

	Fitzroy	Mackay-Whitsunday	Burdekin	Wet Tropics	Cape York
Gross revenue (\$ per km²)					
Unclassified	1,130	275	1,866	7,653	9
Nature conservation	n/a	n/a	n/a	n/a	n/a
Other protected areas including indigenous uses	n/a	n/a	n/a	n/a	n/a
Minimal use	n/a	n/a	n/a	n/a	n/a
Grazing natural vegetation	3,083	8,532	1,031	10,253	410
Production forestry	n/a	n/a	n/a	n/a	n/a
Plantation forestry	n/a	n/a	n/a	n/a	n/a
Grazing modified pastures	5,397	13,521	3,004	92,058	133,900
Dryland cropping	54,181	246,654	86,016	237,996	129,124
Dryland horticulture	1,056,800	n/a	1,019,650	1,289,541	n/a
Irrigated pastures and cropping	352,966	253,260	290,294	301,274	200,800
Irrigated horticulture	810,586	1,624,000	1,482,200	884,190	n/a
Urban intensive uses	n/a	n/a	n/a	n/a	n/a
Water	n/a	n/a	n/a	n/a	n/a

Source: (DAFF, 2006), Table based on 1996/97 data

Table 9 presents total gross revenue generated by the various land uses. Within the GBR region, the largest total agricultural production revenue was recorded for Fitzroy with \$700 million followed by the Wet Tropics with \$487 million. In comparison, Cape York's agricultural production value was \$35 million and just 5 per cent of the Fitzroy region. Within the GBR region, "irrigated pastures", "cropping, grazing natural vegetation" and "dry land cropping" were the major land uses contributing towards total gross revenue from agriculture.

Gross revenue of different land uses varies considerably. Table 10 therefore presents gross revenue per land use, per kilometre square, for each GBR NRM region. The discrepancies of revenue per km² are particularly marked between grazing categories and various irrigated activities.

Agricultural production accounts for 21 per cent of Gross Value of Production (GVP) in the GBR region (Figure 11). In 1999/00 GVP for Sugarcane was \$803 million, Beef \$1017 million and Horticulture \$708 million, indicating that Beef was the largest contributor in agricultural production for that year. Sugar cane production is primarily located at the lower catchments of the GBR region. Most of the GVP from sugar cane growing is concentrated in the Northern (37 per cent) and the Mackay (27 per cent) statistical divisions (SDs). There is no sugar production within the Fitzroy SD. In general, the beef industry is widespread across the GBR region. In the Fitzroy basin, beef production is most concentrated, contributing over 40 per cent of the GBR region's GVP in beef. Horticulture in the GBR region tends to be more geographically concentrated, with the Far North generating around 40 per cent of the GVP for the GBR region. Aquaculture farms are dispersed along the GBR coastal areas producing prawns and barramundi with the major farms located between Cairns and Townsville (Productivity Commission, 2003).

3.2 Other sectors of economy

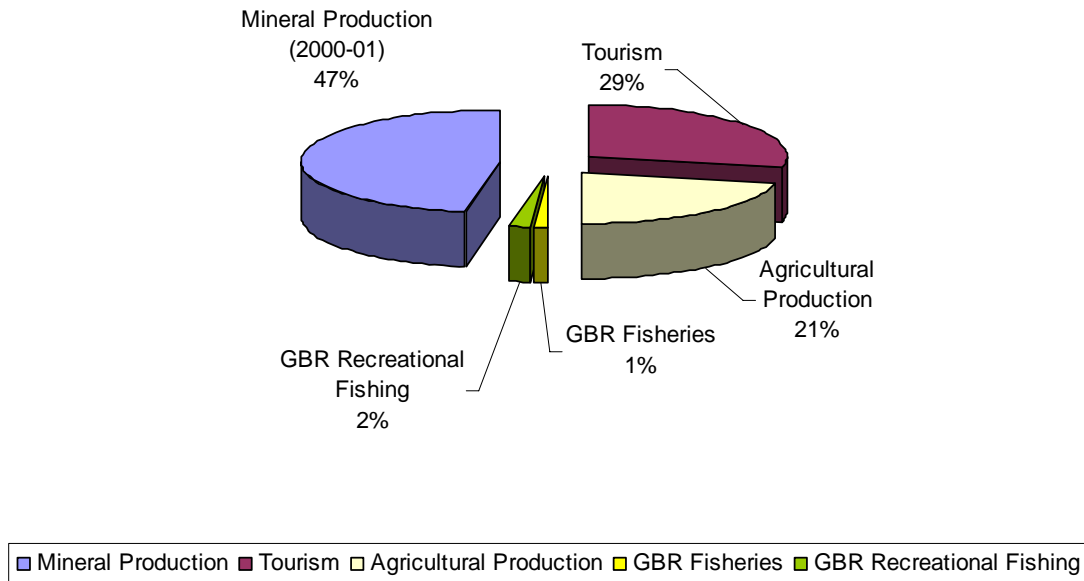
The social and economic importance of the main industries changes across the regions of the Great Barrier Reef. Gross Value of Production (GVP) is a measure of economic activity, typically available for smaller geographical units such as statistical divisions. However, it has to be noted that GVP allows for a degree of double-counting and tends to overstate the economic importance of an industry to a region and, therefore, needs to be interpreted with caution (Productivity Commission, 2003).

Figure 11 presents estimated GVP shares of mining, tourism and agricultural industries in the GBR region. Mineral production was comprised of coal, \$5,969 million, and other minerals, \$1,083 million, totalling \$7,052 million or almost half of the entire GVP of the GBR regions (Figure 11). The agricultural production was valued at \$3,203 million (21 per cent). These values exclude the value of mineral and agricultural processing to avoid potential double counting. In 1999-2000 tourism expenditure accounted for 29 per cent (\$4,269m) of the GBR region's GVP. Fisheries (Commercial and aquaculture) and recreational fishing are among the smaller industries, comprising one and two per cent of GBR GVP, respectively (Figure 11).

Mining in the GBR region is concentrated within the Fitzroy and Mackay statistical divisions (coal fields of the Bowen basin), producing collectively more than 80 per cent of the GVP of mining for the GBR region. While the Far North region produces 94 per cent of Queensland's gold output, Townsville has emerged as major mineral processing hub for

the Far North and Northern regions, processing and exporting minerals from within and outside the GBR region (Productivity Commission, 2003).

Figure 11. Gross Value of Production in key GBR region industries



Source: (Productivity Commission, 2003)

Tourism is an important industry for the GBR region and accounted for 29 per cent of GDP in 1999-00 (Productivity Commission, 2003). The statistical divisions of the GBR region account for 39 per cent of Queensland's hotel, motel, resort, guest house and serviced apartment accommodation establishments (June Quarter 2004, Table 11).

Within the GBR region, Far North SD had more than twice as many establishments as Fitzroy or Mackay SD. The difference in guest room numbers is even greater for the Far North with over 11,000 rooms compared with the other SDs in the GBR region averaging between 2,000 and 5,000 rooms. The average occupancy rate for guest rooms in the GBR region was 58.8 per cent, which is just below the average for Queensland of 61 per cent. Within the GBR region, Northern SD recorded the highest occupancy rate of 65.1 per cent, while the lowest was Mackay SD with 53.2 per cent (Table 11). Takings from tourist accommodation for the GBR region was just over \$595 million for 2004, or 39.3 per cent of Queensland's total accommodation revenue for the year. Table 11 also highlights the difference between Fitzroy and Mackay SD in takings (\$64 million/\$144 million) despite similar numbers of establishments, guest rooms and occupancy rates and is probably attributable to differences in the length of time visitors stay, which is shown by differences in guest nights for the two divisions.

Table 11. Tourist accommodation by statistical division for 2004

Statistical Division	Establishments	Guest rooms number	Guest arrivals	Guest nights	Room occupancy	Takings from accommodation
					rate	12 months to June 2004
					%	\$'000
Fitzroy	87	3,277	141,840	268,300	56	64,390
Mackay	84	4,419	172,603	430,181	53	144,255
Northern	51	2,370	106,176	217,249	65	52,422
Far North	175	11,264	405,449	1,270,219	62	334,072
GBR average	99.3	5,333	206,517	546,487	59	148,785
Queensland	1,015	54,901	2,272,625	5,957,657	61	1,515,095
Total GBR	397	21,330	826,068	2,185,949		595,139
GBR as % of Qld	39.1	38.9	36.3	36.7		39.3

Source: (OESR, 2006b), Data for June quarter 2004

Queensland commodity exports are those that had a final stage of production or manufacture in Queensland. The main commodity exports from Queensland's ports in 2003-04 were coal, coke and briquettes (30.7 per cent), combined "confidential items of trade" (18.5 per cent) and meat and meat preparations (13.2 per cent) (OESR, 2006b). Mackay Statistical Division is the largest exporter within the GBR region with 27.2 per cent of Queensland's exports, followed by Fitzroy (18.6 per cent), Northern (12.7 per cent) and Far Northern (3 per cent) statistical divisions (Table 12).

Table 12. Queensland commodity export, port of statistical divisions

Statistical Division	Value of exports 2003-04	
	\$m	%
Brisbane and Moreton	7,041.7	36.4
Wide Bay-Burnett	40.2	0.2
Fitzroy	3,606.5	18.6
Mackay	5,263.1	27.2
Northern	2,458.7	12.7
Far North	581.7	3.0
North West	364.3	1.9
Other ports	8.4	0.0
Total GBR	11,910.0	61.5
Total Queensland	19,364.6	100.0

Source: (OESR, 2006b) ; Statistical divisions of GBR region in bold

3.3 Employment and income

Employment within the statistical divisions of the GBR region is higher for "primary industries and mining" than the average for Queensland, but much lower for "property, finance and communication" and "cultural, recreational and personal services". Table 13 presents employees by industry groups per statistical division (total number and percentage of employment). Within the GBR region, Mackay SD has the highest employment in primary industries and mining, whereas the Northern SD has the lowest

employment in primary industries with only 7.9 per cent in that group. However, this is still above the Queensland average of 6 per cent.

Table 13. Employed persons by industry group by SD area, 2001

Statistical Division	Primary industries including mining	Manufacturing, construction and utilities	Retail and wholesale trade & accommodation	Property, finance & communications	Government, education & health	Cultural, recreational & personal services	Total
Fitzroy	9,458	19,703	19,088	7,170	15,715	3,649	76,515
%	12.4	25.8	24.9	9.4	20.5	4.8	97.7
Mackay	10,937	13,524	16,063	5,605	9,695	2,387	59,601
%	18.4	22.7	27.0	9.4	16.3	4.0	97.7
Northern	6,589	18,376	20,242	8,707	23,245	4,838	83,742
Northern %	7.9	21.9	24.2	10.4	27.8	5.8	97.9
Far North	9,226	19,801	27,482	9,221	22,349	5,749	96,184
%	9.6	20.6	28.6	9.6	23.2	6.0	97.6
Total GBR	36,249	71,474	82,951	30,732	71,069	16,638	316,335
%	11.5	22.6	26.2	9.7	22.5	5.3	97.8
Total Queensland	93,997	365,957	404,952	218,473	342,105	93,874	1,554,029
%	6.0	23.5	26.1	14.1	22.0	6.0	97.8

Source: (OESR, 2006b)

Note: Components may not add up to SD totals or 100% due to Australian Bureau of Statistics randomisation process for confidentiality purposes.

Table 14. Labour force status by ABS labour force regions, December 2005

Statistical Division	Employed		Unemployed		Unemployment rate		Participation rate	
	Persons	Annual change	Persons	Annual change	%	Annual change (%pts)	%	Annual change (%pts)
Mackay-Fitzroy-Central West	189,600	7.7	6,500	-2.1	3.3	-1.2	69.8	0.5
Northern-North West	132,400	8.1	6,200	-0.9	4.5	-0.9	73.9	2.5
Far North	115,600	-5.2	8,600	4.1	6.9	3.3	65.9	-2.0
Total GBR	437,600		21,300		4.9		69.9	
Total Queensland	2,005,900		95,100	4.2	4.5	0.1	66.2	0.5

Source: (DEWR, 2006)

Labour force, employment rates and participation rates for the GBR region are presented in Table 14. Employment increased for both the Mackay - Fitzroy and Northern – North West regions, but fell in Far North statistical division (DEWR, 2006). The Department of Employment & Workplace Relations (DEWR) uses again a slightly different reporting regions based on the “ABS Labour Market Regional Level”.

Participation rates increased for Mackay - Fitzroy and Northern divisions while at the same time the participation rate decreased by 2 per cent in the Far North statistical division. The unemployment rate for the GBR region is slightly higher than the average for Queensland.

Median weekly incomes of \$365 (\$360 for Queensland) per individual, \$880 (\$871) per family and \$748.50 (\$735) per household were reported for the GBR region (Queensland) for 2001 (Table 14). There appears to be little difference in the median weekly incomes for the GBR region compared with Queensland. However, within the GBR region there is quite a difference in family and household incomes when comparing the Northern SD with the Far North SD (\$918 and \$822 compared to \$789 and \$697). This suggests that

household and family incomes in the Far North are below the average for both the GBR region and Queensland, while Northern SD incomes are above the average (Table 15).

Table 15. Median weekly income by SD

Statistical Division	Year 2001		
	Individual income	Family income	Household income
Fitzroy	347	899	757
Mackay	367	881	751
Northern	376	918	789
Far North	370	822	697
Average for GBR	365	880	748.5
Total Queensland	360	871	735

Source: (OESR, 2006b)

3.4 Construction activities

Building approvals for the 12 months to 30 June 2004 for new residential buildings were 6,485 for the GBR region, valued at \$1,095 million and representing 14 per cent of the total value of Queensland's new residential approvals (Table 16). In contrast, the GBR region accounted only for 11.8 per cent of Queensland's value of non-residential building approvals, suggesting a slightly smaller growth rate in non-residential investments. The average for the GBR region of "Proportion of total value that is residential" building approvals was 76.3 per cent, slightly higher than Queensland's overall rate of 73 per cent. Within the GBR region, the Northern Division recorded the highest number and value of new residential buildings, including the highest value for non-residential building approvals (Table 16).

Alterations, additions and conversions to residential buildings within the GBR region were 12.1 per cent of Queensland's overall investment. The Far North SD recorded the highest value (\$35 million) for the 2004 financial year, while the lowest was Mackay SD with just over \$16 million for the year (Table 16).

Table 16. Residential and non-residential building approvals in the GBR region, 2004

Statistical Division	Dwelling units in new residential buildings	Value of dwelling units in new residential buildings	Alterations, additions and conversions	Value of non-residential building approved	Total value of buildings approved	Proportion of total value that is residential
	number	\$'000	\$'000	\$'000	\$'000	%
Fitzroy	1,217	195,634	20,610	71,860	288,105	75
Mackay	1,284	230,196	16,543	76,462	323,204	76
Northern	2,035	347,114	32,374	143,990	523,479	73
Far North	1,949	321,818	35,294	82,132	439,244	81
GBR average	1,621	273,691	26,205	93,611	393,508	76.3
Queensland	43,744	7,816,292	864,974	3,162,524	11,843,790	73
Total GBR	6,485	1,094,762	104,821	374,444	1,574,032	
GBR as % of Qld	14.8	14.0	12.1	11.8	13.3	

Source: (OESR, 2006b)

3.5 Key messages – Economic data

- Mining, tourism and agricultural industries are the main sectors of income and employment in the GBR region.
- “Grazing natural vegetation” is the predominant land use in the GBR region, but in terms of agricultural production value “Dryland cropping” generates the largest agricultural revenue for the region.
- Mining is the key industry for the southern part of the GBR region, while tourism industries dominate the northern parts of the GBR region.
- The GBR region accounts for 61.5 per cent of Queensland’s commodity exports from ports.
- Employment rates and participation rates in the GBR region increased for all but the Far North SD, where employment fell. This is also reflected in the higher unemployment rate of 6.9 per cent in the Far North when compared with Queensland’s average of 4.5 per cent.
- Median weekly incomes for the GBR region are similar to Queensland’s average, however household and family incomes for the Far North SD are below the average for Queensland.

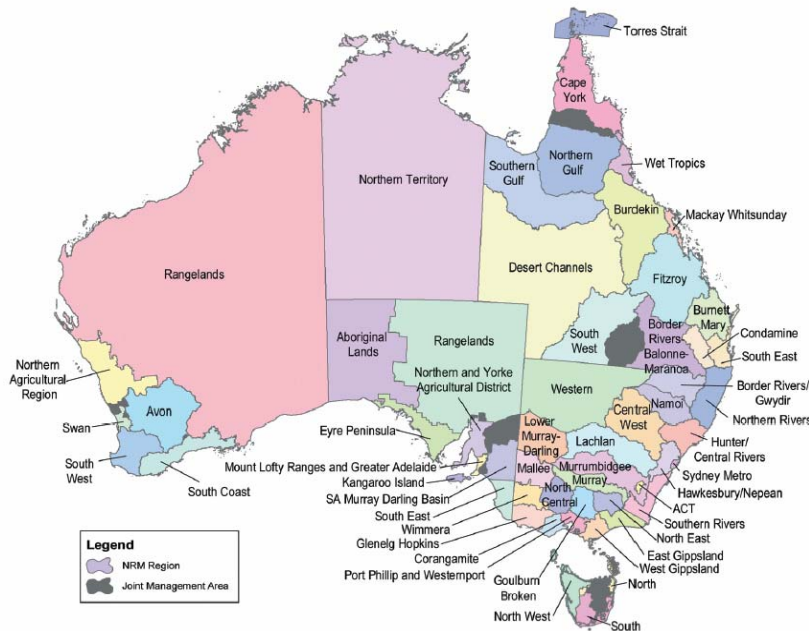
4 Natural Resource Management (NRM) planning in the GBR region

4.1 NRM regions

The GBR region consists of five NRM regions: Cape York, Wet Tropics, Burdekin, Mackay-Whitsunday and Fitzroy. Under the Australian Government's Natural Resource Management Initiatives: Protecting, Conserving, Repairing, each NRM region is responsible for the sustainable management of its land, water, marine and biological natural resources (NRM, 2004).

Figure 12 presents the map of NRM regions in Australia, including the NRM regions of the Great Barrier Reef.

Figure 12. Natural resource management regions of Australia



Source: (Departments of the Environment and Heritage and Agriculture, 2004)

4.2 Key priorities and visions for NRM bodies in the GBR

The top regional NRM issues and visions relevant to the GBR regions can be summarised based on the data presented in Table 17 as:

- Vegetation loss, degradation and fragmentation, particularly in the coastal lowlands.
- Loss and decline of native species and biodiversity.
- Improved community involvement.
- Riparian and in-stream degradation from clearing, flooding and sedimentation and natural erosion processes.

- Water use and quality management and planning.
- Coordinated land management practices.
- Fire management.
- Managing pest animal and plant impacts on natural ecosystems and primary production.
- Declining water quality due to sedimentation and other forms of diffuse pollution, in addition to disturbance of acid sulphate soils, point source pollution and salt water intrusion.
- Aboriginal Traditional Owners' involvement in management.

The Australian Government has already approved the following funding to tackle these environmental and natural resource issues (NRM, 2006): Cape York region \$2.68 million, Wet Tropics \$2.8 million, Burdekin \$3.71 million, Mackay-Whitsunday \$2.66 million and Fitzroy region \$3.89 million.

Table 17. Where the Australian and Queensland Government investments are going

NRM Body	NRM Priority	Vision of the NRM Body
<p><u>Cape York Peninsula</u></p>	<ul style="list-style-type: none"> - Land management practices - Fire management - Natural resource management - Weed and pest control management - Protection of endangered species 	<ul style="list-style-type: none"> - Indigenous land and sea management centres - Weed and feral animal management - Conserving indigenous knowledge - Fire management - Property management planning
<p><u>Wet Tropics</u></p>	<ul style="list-style-type: none"> - Vegetation loss, degradation and fragmentation, particularly in the coastal lowlands - Loss and decline of native species and diversity - Riparian and in-stream degradation from clearing, flooding and sedimentation and natural erosion processes - Feral animals and plants impacting upon natural ecosystems and primary production - Declining water quality due to sedimentation and other forms of pollution 	<ul style="list-style-type: none"> - Community aspirations to build and maintain a healthy environment - Protection and sustainable development of the region's land, vegetation and water resources - Setting of regional targets for addressing natural resource problems, seeking solutions and achieving results at the regional and local level - Significant planning to determine investment priorities which satisfy Natural Heritage Trust funding

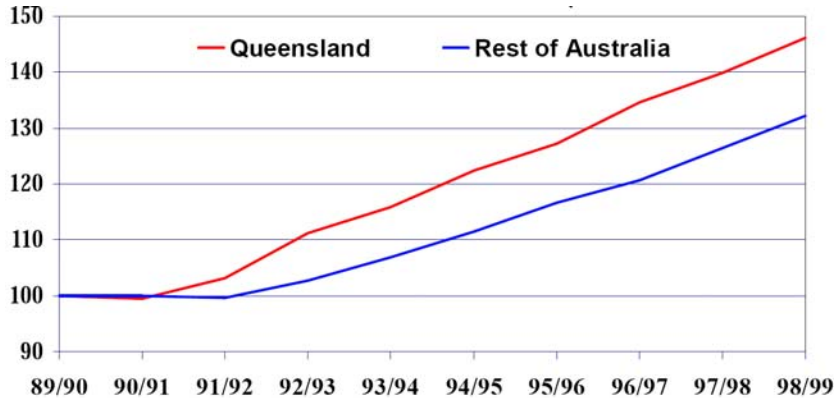
<p><u>Burdekin</u></p>	<ul style="list-style-type: none"> - Improving water quality - Water quality and salinity management - Dryland salinity - Wetlands and waterways assessment - Improving community involvement - Aboriginal Traditional Owner interests - Desert Uplands capacity building - Project planning - Sustainable grazing land management 	<ul style="list-style-type: none"> - Reducing erosion leading to turbidity - Fragmentation of remnant habitat - Water use and allocation - Irrigation and dryland salinity - Invasive species - Fire management - Loss of species
<p><u>Mackay-Whitsunday</u></p>	<ul style="list-style-type: none"> - Land planning, development and management - Water management - Coastal and marine management - Vegetation management 	<ul style="list-style-type: none"> - Protect existing and potential key habitat areas within the region through planning mechanisms and rehabilitation - Implement management practices to reduce the adverse impacts of non-agricultural land uses - Encourage the inclusion of buffer zones, green corridors and ecosystem protection - Encourage participation in river stabilisation, revegetation and maintenance of improvements - Identify and promote incentives to increase biodiversity conservation on private land
<p><u>Fitzroy</u></p>	<ul style="list-style-type: none"> - Coordinated regional planning efforts - Water management and planning - Neighbourhood Catchments program 	<ul style="list-style-type: none"> - Protecting and conserving the cultural heritage of the region - Achieving biodiversity targets through neighbourhood catchments - Conserving remnant endangered ecosystems - Preventing land degradation and loss of biodiversity - Managing the environmental effects of land clearing - Protecting threatened plant and animal species

Source: (NRM, 2006)

5 Drivers of growth

The issue of what drives economic growth is central to the development of good economic policy and to understanding where the economy is likely to head in the future. Queensland's economic growth has, on average, been faster than that of the rest of Australia over the 1990-2000 decade (Crossman 2000, Figure 13).

Figure 13. Queensland economic growth compared with Australia, 1990-2000



Source: (Crossman, 2000); (Index 1989-1990 = 100)

Drivers of economic growth in Queensland were investigated by Crossman (2000). He determined the following factors as critical for economic growth:

- **Federation:** States are still largely responsible for the primary areas of domestic social and economic services and infrastructure – education, health and transport, for example. This means that States retain critical influence over not only key social matters, but over some of the key long run instruments of economic policy. State Governments also own many of the resources, including minerals, land and property rights.
- **Time-frame:** Economic and planning focus should shift from short term to longer term (five to ten years or longer) focus. State operations, whether providing physical or human capital, or whether providing steady delivery of current services, are inherently long term.
- **Global economy:** There is an assumption in business and government circles in Australia that not only is globalisation inevitable, but that it is also desirable and has delivered many benefits to the Australian economy. The Queensland economy particularly is seen as benefiting from globalisation, from areas such as development of the export coal industry to growth in the Japanese economy.
- **Technological change:** Primary and secondary industries have already experienced productivity advances facilitated through technological advances. The key now is to ensure that service industries also advance their productivity.
- **Resource endowment:** Queensland is likely to continue specialising in agriculture, mining, manufacturing based on these industries and tourism exports. Economic

growth is fundamentally determined by resources and by the capacity to use those resources efficiently and sustainably.

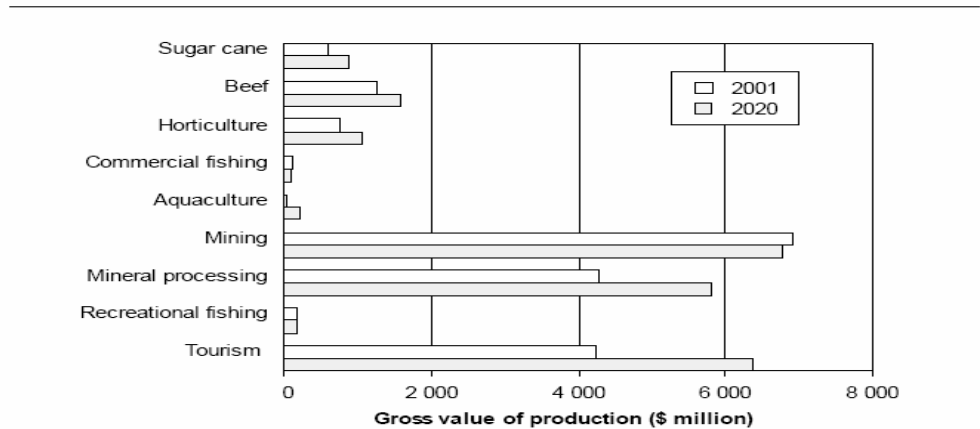
- Fiscal reform: The move to accrual accounting has increased focus on outputs, outcomes, performance and information.

In addition to the drivers of growth, Crossman (2000) discusses two related key areas: the policies which enhance them and the instruments which deliver them. Economic growth and development-conducive policies are seen as encouraging wealth-generating entrepreneurial, innovative behaviour by firms and individuals; and fostering a supportive institutional framework. A major role of the government is seen in ensuring efficient and effective provision of services, including education and training, and infrastructure services; and ensuring certainty and consistency in the application of policy.

The key delivery instruments for Queensland have been identified as contribution to technological progress and human capital.

Figure 14 summarises the projected growth for the “GBR catchments and lagoons” to year 2020, as estimated by Productivity Commission in 2003. The data suggest that mineral processing and tourism will have the largest growth in terms of gross value of production. Mining is expected to remain a substantial industry although its GVP is projected to fall slightly. The GVP of the major agricultural industries in total (sugar, beef and horticulture) is projected to remain substantial, with each industry to grow by one or two per cent per annum over the forecasted period (Productivity Commission, 2003).

Figure 14. Projected gross value of production in the GBR catchment and lagoon 2001 and 2020



^a Base case. In constant 2000-01 prices. Calculated using wholesale prices (sugar, beef and horticulture); landed prices (commercial fishing and aquaculture); mine site prices (mining); turnover (mineral processing); expenditure by recreational fishers (recreational fishing); and expenditure by visitors (tourism).
Source: ABARE projections.

Source: (Productivity Commission, 2003)

6 References

- ABS (2003). *Socio-Economic Index for Areas: A comprehensive profile of the Australian people* Canberra: Australian Bureau of Statistics.
- ABS (2006). Census of Population and Housing: Selected Education and Labour Force Characteristics for the Statistical Local Areas, Queensland 2001.
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2017.32001?OpenDocument> [On-line].
- Access Economics (2005). *Measuring the Economic & Financial value of the Great Barrier Reef Marine Park* Great Barrier Reef Marine Park Authority.
- Crossman, P. (2000). Drivers of Queensland economic growth.
http://www.oesr.qld.gov.au/queensland_by_theme/economic_performance/general/research_papers/drivers_econ_htm.shtml [On-line].
- CSIRO (2006). Great Barrier Reef Catchments Theme.
<http://www.cmis.csiro.au/healthycountry/reports/GBRbooklet.pdf> [On-line].
- DAFF (2004). Land Use and Management - Classification.
<http://www.daff.gov.au/content/output.cfm?ObjectID=3EE8599D-2C6A-4DF3-83ACB3820C5BEDC0> [On-line].
- DAFF (2006). Regional land use profiling - Queensland.
<http://www.daff.gov.au/content/print.cfm?objectid=93506D83-D86F-4041-97E51088878468FC&showdocs=all> [On-line].
- Departments of the Environment and Heritage and Agriculture, F. a. F. (2004). National Action Plan for Salinity and Water Quality Natural Heritage Trust.
<http://www.nrm.gov.au/publications/regional-report/03-04/03-04-summary/pubs/summary-03-04-hi.pdf> [On-line].
- DEWR (2006). Australian Regional Labour Markets.
<http://www.workplace.gov.au/workplace/Category/ResearchStats/LabourMarketAnalysis/RegionalLabourMarkets/> [On-line].
- GBRMPA (2001). Population and Major Land Use in the Great Barrier Reef Catchment Area: Spatial and Temporal Trends.
http://www.gbrmpa.gov.au/corp_site/info_services/publications/misc_pub/misc_018/mp_018_full.pdf [On-line].
- GBRMPA (2006). Management.
http://www.gbrmpa.gov.au/corp_site/key_issues/water_quality/management.html. [On-line].
- Greiner, R. & Stoeckl, N. (2002). *A socio-economic profile of the Cairns - Great Barrier Reef Region* Townsville: CSIRO Sustainable Ecosystems.

-
- Haynes, D., Waterhouse, J., Innes, J., Vella, K., Furnas, M., & Schaffelke, B. (2005). *First Annual Marine Monitoring Programme Report September 2005* Townsville: Great Barrier Reef Marine Park Authority.
- NRM (2004). Overview of the Australian Government's Natural Resource Management Initiatives: Protecting, Conserving, Repairing. <http://www.nrm.gov.au/publications/nrm-overview/index.html> [On-line].
- NRM (2006). Natural Resource Management: Publications - Regional Report Cards. <http://www.nrm.gov.au/publications/index.html#report-cards> [On-line].
- OESR (2003). Population projections to 2051: Queensland and Statistical Divisions. http://www.oesr.qld.gov.au/data/single_publications/demography/population_projections/qld_gov_pop_proj_03_a4.pdf [On-line].
- OESR (2004). Housing in Queensland, Census 2001 Bulletin No. 13. http://www.oesr.qld.gov.au/data/bulletins/census2001/housing_in_qld/housing_in_qld_c01.pdf [On-line].
- OESR (2005). *Socio-Economic Profile of the Great Barrier Reef Catchment Area* Brisbane: Queensland Treasury.
- OESR (2006a). Crime and Social Profiles Local Crime Areas, Queensland 2002-03. http://www.oesr.qld.gov.au/data/regular_publications/crime_profile/lqacrim2002_03.pdf [On-line].
- OESR (2006b). Queensland Regional Profiles. http://www.oesr.qld.gov.au/publications/profiles/regional_profiles/index.shtml [On-line].
- PDP Australia Pty Ltd (2003). *An Economic and Social evaluation of implementing the Representative areas Program by rezoning the Great Barrier Reef Marine Park GBRMPA*.
- Productivity Commission (2003). Industries, Land Use and Water Quality in the Great Barrier Reef Catchment. <http://www.pc.gov.au/study/gbr/finalreport/gbr.pdf> [On-line].
- SKM - Sinclair Knight Merz (2002): *Aboriginal Language Groups in Australia*. Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) and Sinclair Knight Merz Pty Ltd (SKM), Canberra.
- Queensland Health (2006). Elective Surgery Waiting List Report. http://www.health.qld.gov.au/surgical_access/html/reports.asp [On-line].

Appendix A, Source: (DAFF, 2004)

AUSTRALIAN LAND USE AND MANAGEMENT CLASSIFICATION version 5 (November 2001)

1 Conservation and Natural Environments	2 Production from Relatively Natural Environments	3 Production from Dryland Agriculture and Plantations	4 Production from Irrigated Agriculture and Plantations	5 Intensive Uses	6 Water
1.1.0 Nature conservation 1.1.1 Strict nature reserves 1.1.2 Wilderness area 1.1.3 National park 1.1.4 Natural feature protection 1.1.5 Habitat/species management area 1.1.6 Protected landscape 1.1.7 Other conserved area 1.2.0 Managed resource protection 1.2.1 Biodiversity 1.2.2 Surface water supply 1.2.3 Groundwater 1.2.4 Landscape 1.2.5 Traditional indigenous uses 1.3.0 Other minimal use 1.3.1 Defence 1.3.2 Stock route 1.3.3 Remnant native cover 1.3.4 Rehabilitation minimum level of attribution	2.1.0 Grazing natural vegetation 2.2.0 Production forestry 2.2.1 Wood production 2.2.2 Other forest production	3.1.0 Plantation forestry 3.1.1 Hardwood production 3.1.2 Softwood production 3.1.3 Other forest production 3.1.4 Environmental 3.2.0 Grazing modified pastures 3.2.1 Native/exotic pasture mosaic 3.2.2 Woody fodder plants 3.2.3 Pasture legumes 3.2.4 Pasture legume/grass mixtures 3.2.5 Sown grasses 3.3.0 Cropping 3.3.1 Cereals 3.3.2 Beverage & spice crops 3.3.3 Hay & silage 3.3.4 Oil seeds 3.3.5 Sugar 3.3.6 Cotton 3.3.7 Tobacco 3.3.8 Legumes 3.4.0 Perennial horticulture 3.4.1 Tree fruits 3.4.2 Oleaginous fruits 3.4.3 Tree nuts 3.4.4 Vine fruits 3.4.5 Shrub nuts fruits & berries 3.4.6 Flowers & bulbs 3.4.7 Vegetables & herbs 3.5.0 Seasonal horticulture 3.5.1 Fruits 3.5.2 Nuts 3.5.3 Flowers & bulbs 3.5.4 Vegetables & herbs	4.1.0 Irrigated plantation forestry 4.1.1 Irrigated hardwood production 4.1.2 Irrigated softwood production 4.1.3 Irrigated other forest production 4.1.4 Irrigated environmental 4.2.0 Irrigated modified pastures 4.2.1 Irrigated woody fodder plants 4.2.2 Irrigated pasture legumes 4.2.3 Irrigated legume/grass mixtures 4.2.4 Irrigated sown grasses 4.3.0 Irrigated cropping 4.3.1 Irrigated cereals 4.3.2 Irrigated beverage & spice crops 4.3.3 Irrigated hay & silage 4.3.4 Irrigated oil seeds 4.3.5 Irrigated sugar 4.3.6 Irrigated cotton 4.3.7 Irrigated tobacco 4.3.8 Irrigated legumes 4.4.0 Irrigated perennial horticulture 4.4.1 Irrigated tree fruits 4.4.2 Irrigated oleaginous fruits 4.4.3 Irrigated tree nuts 4.4.4 Irrigated vine fruits 4.4.5 Irrigated shrub nuts fruits & berries 4.4.6 Irrigated flowers & bulbs 4.4.7 Irrigated vegetables & herbs 4.5.0 Irrigated seasonal horticulture 4.5.1 Irrigated fruits 4.5.3 Irrigated flowers & bulbs 4.5.4 Irrigated vegetables & herbs	5.1.0 Intensive horticulture 5.1.1 Shadehouses 5.1.2 Glasshouses 5.1.3 Glasshouses (hydroponic) 5.2.0 Intensive animal production 5.2.1 Dairy 5.2.2 Cattle 5.2.3 Sheep 5.2.4 Poultry 5.2.5 Pigs 5.2.6 Aquaculture 5.3.0 Manufacturing and industrial 5.4.0 Residential 5.4.1 Urban residential 5.4.2 Rural residential 5.5.0 Services 5.5.1 Commercial services 5.5.2 Public services 5.5.3 Recreation and culture 5.5.4 Defence facilities 5.5.5 Research facilities 5.6.0 Utilities 5.6.1 Electricity generation/transmission 5.6.2 Gas treatment, storage and transmission 5.7.0 Transport and communication 5.7.1 Airports/aerodromes 5.7.2 Roads 5.7.3 Railways 5.7.4 Ports and water transport 5.7.5 Navigation and communication 5.8.0 Mining 5.8.1 Mines 5.8.2 Quarries 5.8.3 Tailings 5.9.0 Waste treatment and disposal 5.9.1 Stormwater 5.9.2 Landfill 5.9.3 Solid garbage 5.9.4 Incinerators 5.9.5 Sewage	6.1.0 Lake 6.1.1 Lake - conservation 6.1.2 Lake - production 6.1.3 Lake - intensive use 6.2.0 Reservoir/dam 6.2.1 Water storage and treatment 6.2.2 Reservoir - intensive use 6.2.3 Evaporation basin 6.2.4 Effluent pond 6.3.0 River 6.3.1 River - conservation 6.3.2 River - production 6.3.3 River - intensive use 6.4.0 Channel/aqueduct 6.4.1 Supply channel/aqueduct 6.4.2 Drainage channel/aqueduct 6.5.0 Marsh/wetland 6.5.1 Marsh/wetland - conservation 6.5.2 Marsh/wetland - production 6.5.3 Marsh/wetland - intensive use 6.6.0 Estuary/coastal waters 6.6.1 Estuary/coastal waters - conservation 6.6.2 Estuary/coastal waters - production 6.6.3 Estuary/coastal waters - intensive use



