Benchmarking the Competitiveness of the Far North Queensland Region Economy

Brian H. Roberts

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2. Regional Economic Analysis

3. Regional Competitiveness

4. Benchmarking

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Preface

Over the past 20 years, the Far North Queensland (FNQ) has undergone a remarkable transformation to become one of the most internationalised regional economies in Australia. In the 1970s, the region was a small branch line economy servicing the State of Queensland. It produced mainly sugar, timber, tobacco and beef - much of which was exported by rail or coastal shipping to southern ports and cities. The opening of the Cairns International Airport in 1984 began a process that transformed the region's economy, leading to a period of rapid development in tourism, residential and business investment. During the 1980s, national economic reforms and environmental policies had a dramatic impact upon traditional industries, bringing about major changes in local business, trade and resource management.

The economic base of many regional towns and cities in Australia has undergone similar transformations. However, few regions have been as successful as FNQ in embracing change in response to national economic reforms and globalisation. These two factors have led to increased competition between regions in Australia, domestically and internationally. Regional economies have become much more diversified, service orientated and integrated into global production and distribution systems. The Far North Queensland (FNQ) is a region that has managed to capitalise on changes quicker than most to emerge as one of Australia's fastest growing regional economies.

Globalisation will continue to pose significant challenges to the competitiveness of FNQ. Michael Porter (1990), a leading authority on economic strategy argues that competitive advantage relates to the strength of endowed resources, factor conditions related to production, inter-firm rivalry and support from government. Others authors {Omhae 1994; Hamel & Prahalad 1994; Petts 1997} argue the need for leadership, the development of core competencies, competitive infrastructure and superior marketing intelligence systems are critical success factors in supporting regional economic development. With the emergence of the global economy, attention to all these factors is important.

In Australia, there have been a number of reports and inquiries into the economic development and competitiveness of cities and regions (eg. {EPAC 1990 b; AIC 1993; Australian Parliament 1994 a*;* AURDR 1994; BIE 1985; Kelty Report 1994; McKinsey 1994}. These have provided a useful macro-overview and case studies of urban and regional change. There has been little research undertaken to measure factors that make regions competitive.

Examples of research into the competitiveness of Australian regions include: *Australian Regional Development 4* (1987) which looked at regional variations in the structure of finance, property and business services; Kasper, et al. (1992) who investigated the competitiveness of the Gladstone regional economy; and Roberts (1996) who examined structural change in the FNQ region.

For regions to maintain competitive advantage in future local business and government need to capitalise, reinvent, and build upon core competencies. They also need to develop *strategic architecture* that enables local businesses and government to constantly reposition the region to develop and capture new business in global and national markets. Strategic Architecture is the unique combination of infrastructure, technologies, knowledge, human capital and natural resources that regions develop to support key industries to develop and trade in highly competitive domestic and international markets. Regions that have successfully cultivated competitive strategic architecture have a consistent record of economic success.

For the FNQ economy to remain successful, local business, government and the local community will need to work out ways to enhance regional competitiveness. The FNQ region has many strategic advantages in terms of location to Asian markets, communications, resources, environment and quality of life. These will not be sufficient to maintain competitive advantage in future. Future competitiveness will depend upon the region maintaining its special competencies, the quality of assets, business efficiency; the management of risk and uniqueness of products and services offered to investors, developers and visitors. These features are called 'value factors' and they are important to the future economic competitiveness of the region. Understanding, quantifying and monitoring these value factors is important for long term strategic planning, infrastructure and business development in the region.

Much of this book is concerned with measuring value factors that contribute to the competitiveness of the FNQ economy. An extensive survey of 206 industries, focus groups and discussions with key decision makers have been used to quantify value factors that are important to the development of the economy. These factors will become the benchmarks, which will be used for the ongoing monitoring of economic activity, the formulation of economic strategies and new initiatives to support the development of the region’s economy.

The introduction chapter provides a comprehensive overview of recent developments in the FNQ economy. The chapter brings together information

about gross regional product, employment, trade, competitiveness and investment in the region since 1991. It also raises a number of issues facing the future economic development of the region.

Chapter 2 discusses the importance of ***benchmarking factors*** that contribute to competitive advantage in regional economic development. There are no universally accepted techniques for benchmarking regional competitiveness. The chapter discuses briefly some techniques used to benchmark economic competitiveness, and then introduce a technique called ***Multi-Sector Analysis (MSA)*** which is used to benchmark factors that contribute to the competitiveness of the FNQ economy.

Chapters 3 & 4 analyse the competitiveness of *core* ***competencies*** and ***strategic infrastructure*** in the region's economy. Competencies are not skills, but the application of skill, technology, information, negotiations etc that combine in a unique way to give industries and firms in the region its competitive edge. The analysis also identifies major weaknesses and combinations of factors that are critical to the support of business and organisations in the region. The research presents a series of graphs that illustrate attributes of competitiveness. These graphs are the benchmarks, which will be used for monitoring regional industry competitiveness and performance in future.

Chapter 5 introduces the concept of regional risk. ***Regional risk*** is an important factor to competitiveness in all regions. Managing regional risk in FNQ is vital in protecting the economy from events that might damage or harm its performance. The internationalisation of the economy has exposed the region to much higher levels of risk from external events. The chapter describes types of risks that need to be managed for selected industry sectors.

Chapter 6 analyses the ***economic development potential*** of the FNQ region that could be realised through greater industry collaboration. Regional economic development can be stimulated in many ways. One of the most effective means is to 'stretch' and 'leverage' industry resources, competencies, and infrastructure to create new economic investment and employment opportunities. This can be achieved through greater inter and intra- industry collaboration. Using MSA, it has been possible to measure the potential and magnitude of collaboration between industries in the region.

The final chapter draws a series of ***conclusions*** about factors that are important to the competitiveness of the region, and discusses ***strategic directions*** to improve the development of the region's economy. Included is a

discussion on best practices the region might adopt to maintain its competitiveness.

The research reported in the book will have specific application to business, government and the community of FNQ. The book will also be of interest to regional economic development practitioners seeking to identify what makes regional economies competitive.

This book would not have been possible without the support of many people and organisations in Far North Queensland. The author acknowledges the funding and logistical support of the Cairns Regional Economic Development Corporation (CREDC) and the Department of State Development (DSD), the committee of CREDC, the Director of CREDC, John Dean, his dedicated staff and many other people in the region. Without this support, it would not have been possible to undertake this important research to benchmark the competitiveness of the region's economy.

Brian H. Roberts

August 2000

1 A PERSPECTIVE OF THE FAR NORTH QUEENSLAND REGION ECONOMY

From a Branch Line Economy to a Global Player

Until the 1970s, Far North Queensland (FNQ) was a small primary industries-based economy located in one of the most remote and poorly serviced areas of Australia. In 1984 all that changed. The opening of the Cairns International Airport began a transformation in the region's economy that has led to a remarkable success story in economic development. The International Airport links the region to major urban centres in Asia and many other parts of the world.

From small beginnings, Cairns has developed into a global tourism destination frequented by over 1.5 million visitors annually. The FNQ economy has grown at over 6 percent annually since 1985 and the population has doubled. Today, the Far North Queensland region is a highly integrated international economy, with its future firmly focused on expanding its links and trade with North American, European, Asian and the rest of Australia.

There are many reasons for the remarkable development of the region. Factors that have contributed strongly to the development of the region are: local leadership in business and government; the ability to attract substantial foreign investment; international air links and geographic location to emerging Asian Markets; local entrepreneurship and marketing capabilities; good planning; well developed social capital and a can do community.

However, these factors will not be enough to maintain the competitiveness and future development of the economy. To maintain the competitiveness of its tourism, tropical agriculture, marine industries and mining industries, the region must continue to improve its understanding of what factors make it competitive and what factors are constraining its development potential. A sound understanding and attention to these factors will be important in shaping the region’s future competitiveness.

This book is concerned with evaluating the competitiveness of the FNQ. It brings together an extensive range of knowledge on the economy derived from research undertaken since 1990. This first chapter is a profile of the FNQ economy. It includes an overview of the economic geography of the region, followed by a discussion of the structure and performance of the economy, and strategic planning initiatives to enhance economic development. The final section of the chapter examines issues that affect

competitiveness and opportunities to develop the economy. Many of these issues are addressed in the chapters that follow.

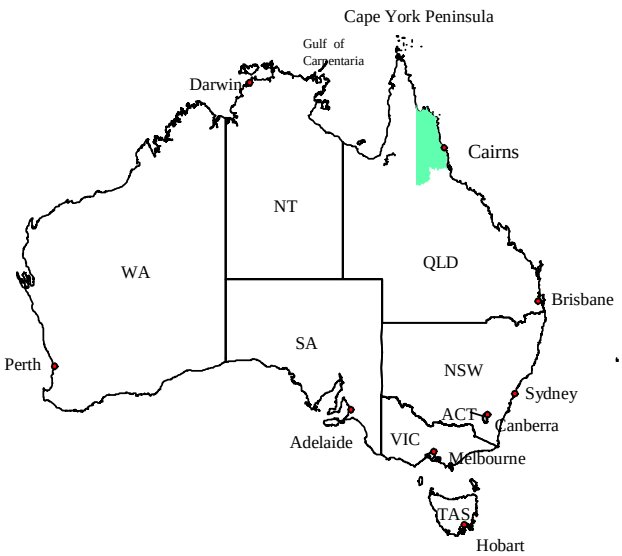
Geography of the FNQ Region

The FNQ region covers an area of approximately 210,000 km^2 and incorporates the large and remote area of Cape York Peninsula. The region incorporates eight local governments and has a total population of approximately 250,000. FNQ has four distinct climatic and geographic zones. The coastal zone consists of a 40km strip of lowlands and ranges. The lowlands are very fertile and used for intensive sugar and tropical fruit farming. This zone has some of highest rainfall areas in Australia. The escarpment rises 800 metres above sea level and is covered by a dense rain forest which forms part of the Wet Tropics World Heritage area.

The Tablelands are a series of fertile plateaus, which drain gently to the channel country of the Gulf of Carpentaria several hundred kilometres west. The Tablelands have high quality soils and lower rainfall and are an important horticultural and former tobacco growing area.

Cape York Peninsula forms the northern extension of the Great Dividing Range, which runs almost 3000km along the East Coast of Australia. This area is used for cattle grazing and contains one of the largest bauxite mines in the world near Weipa. The climate of the Cape York Peninsula and interior are much more arid than the coastal zone. These more remote areas experience heavy wet season rains from December to March, that isolate many parts of the region for several months.

Figure 1.1 Location of Far North Queensland Region



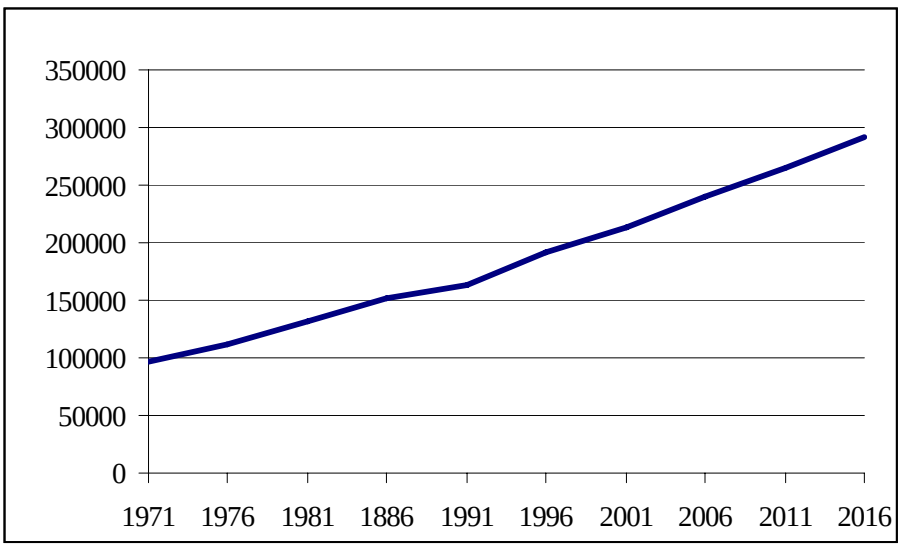
The FNQ region has two World Heritage listed areas. The Great Barrier Reef comes closest to the Australian mainland at Cooktown and is a major asset for the region's tourism industry. Over 700,000 visitors annually make trips to the Reef from Cairns and Port Douglas. The wet tropics rainforest, especially the Daintree, contains some of the most ancient rainforest on earth. Other parts of the region contain unique volcanic features, geology and coastal landscapes in pristine condition. It is these natural landscapes that form the key elements of the region's tourism product {ESS 1993}.

Historic Perspective

Aborigines and Torres Strait Islander people have inhabited FNQ continuously for over 30,000 years. Their culture has endowed the region with a rich inheritance, which is being shared and experienced by visitors to the region. In 1770, Captain Cook first mapped the coastline of FNQ and named several prominent geographic features. European settlement started in the 1870s and grew rapidly during the 1920s. Cairns was a major staging post for the Pacific War campaign from 1942 to 1944. In the 1950s, Cairns became a popular holiday destination for farmers and visitors from the southern states of Australia.

The opening of the Cairns international airport in 1984 was a milestone in the development of the region's tourism industry. Currently more than 1.4 million visitors (470,000 international) holiday in the region contributing over $1.2 billion to the local economy (Queensland Visitor Survey 1998).

Figure 1.2 Population Trends and Projections FNQ 1976 - 2016



Source: 1976 -96 Census; FNQ 2010 Strategy

The population of the FNQ region has grown rapidly since 1976. Figure 1.2 shows past and projected population growth for the region from 1976 to 2016. The population of the region has grown at over 4.2 percent per annum since 1981. During the boom years of the late 1980s, the population grew at more than 6 percent. Projections show population growth rates falling to 2.2 percent by 2016 (FNQ 2010, 1998:16). A significant proportion of the regional population growth has occurred from inter and intrastate migration. Migration from overseas to the region is small. It is increasing, as the region has become more internationalised.

The Economy

Gross Regional Product

Several estimates have been made of the Gross Regional Product (GRP) of the economy over the past 10 years[1]. There have been significant differences in these estimates. Estimates of GRP using the same modelling techniques by Jensen et al (1994) for 1986, 1990, 1994. These estimates have generally proved consistent, and have been used in several studies and research papers on the region's economy {Roberts 1996; Stimson et al. 1998}. In 1986, the GRP of the economy was estimated at $1.84 billion, rising to $3.426 billion in 1994 or approximately 8.4 per cent per annum. Current estimates put the GRP at $4.5bn in 2000. The GRP for the financial year 1997/98 is estimated at $4.4 billion. In 1994 GRP per capita for the region was approximately $18,000 compared to $20,850 for Queensland as a whole. The lower GRP per capita is attributed to the low wage and salary structure in the tourism sector.

Table 1.1 indicates the contribution to GRP by 18 industry sectors and household consumption. The percentage contribution of the different industry sectors to GRP for 1986, 1990 and 1994 are given in Table 1.2. Finance, tourism/recreation services, retail trade, mining, food processing and community services are the dominant sectors of the economy. Building construction and transport services grew significantly during the 1980s, but slumped significantly during the early 1990s as foreign investment in the region declined.

[1] Queensland Treasury 1994 have provided two estimates of GRP for 1989/90 and 1994/95. I/O estimates have been made by Jensen and Bayne from the University of Queensland for 1986/90/94. Robinson J., in a Department of Tourism, Small Business and Industry Development made an estimate of GRP for an industry land use Strategy in 1996{DTSBI 1996}. The National Institute of Economic and Industrial Research in 1996 provided an estimate of GRP. There are variations of more than 15 percent in GRP estimates.

Table 1.1 Contribution of Industry Sectors to Gross Regional Product ($million)

	1986	1990	1994
Animal	38.1	47.7	52.5
Other Agriculture	93.2	159.5	225.1
Forest/Fish	50.0	48.0	53.4
Mining	92.8	218.0	259.1
Food Processing	78.5	97.8	159.1
Wood & Paper Manufacturing	29.8	31.1	42.1
Machinery Manufacturing	32.5	44.9	50.0
Metals	49.6	19.2	37.9
Non Metals	8.9	14.8	16.8
Other Manufacturing	5.6	9.9	16.8
Elect/Gas/Water	30.1	46.3	49.9
Build/Construction	186.2	191.6	193.5
Trade	258.5	283.5	399.5
Transport	198.5	200.8	254.2
Finance	267.4	294.0	347.7
Public Administration	55.1	81.6	184.5
Community Services	227.2	294.4	435.1
Personal Services	167.9	198.7	381.4
Household Consumption	8.5	231.4	267.6
GRP	1878.6	2513.1	3426.2

Table 1.2 Percentage Contribution of Industry Sectors to GRP (1986, 1990, 1994)

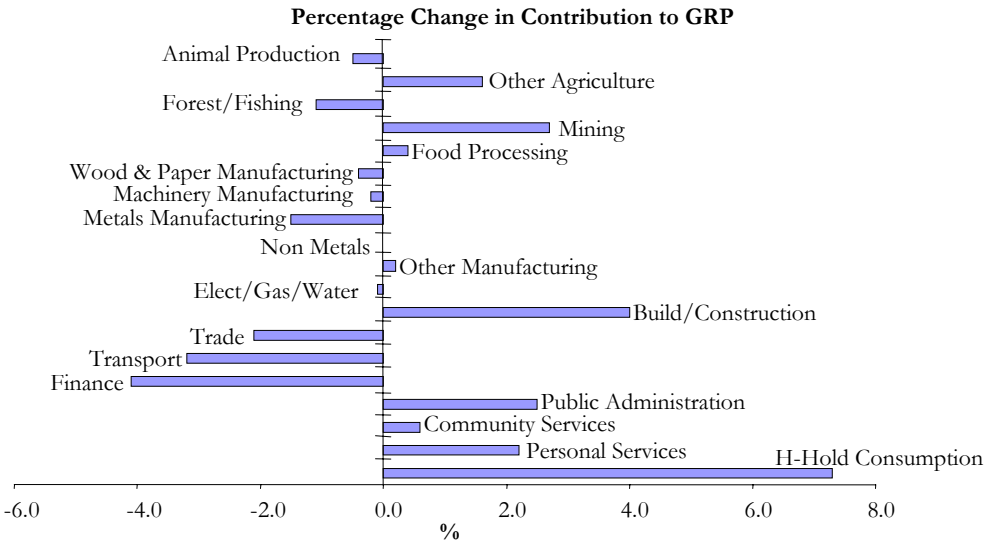
	1986	1990	1994
Animal	2.0	1.9	1.5
Other Agriculture	5.0	6.3	6.6
Forest/Fish	2.7	1.9	1.6
Mining	4.9	8.7	7.6
Food Processing	4.2	3.9	4.6
Wood &Paper Man	1.6	1.2	1.2
Machinery Man	1.7	1.8	1.5
Metals	2.6	0.8	1.1
Non Metals	0.5	0.6	0.5
Other Man	0.3	0.4	0.5
Elect/Gas/Water	1.6	1.8	1.5
Build/Construction	9.9	7.6	5.6
Trade	13.8	11.3	11.7
Transport (Trans)	10.6	8.0	7.4
Finance	14.2	11.7	10.1
Public Administration	2.9	3.2	5.4
Community Services	12.1	11.7	12.7
Personal Services	8.9	7.9	11.1
H-Hold Consumption	0.5	9.2	7.8
GRP	100.0	100.0	100.0

Source AHURI 1995

Figure 1.3 indicates the proportional shifts in the contribution of industries to GRP between 1986-94. In 1994, 73.4 per cent of the GRP was attributable to activities in the service sectors. Tourism was estimated in 1993 to contribute to 24.9 per cent of GRP {Horwarth & Horwarth 1993}. The primary industry sector's contribution to the economy grew from 14.6 per cent to 17.2 per cent, due to bauxite mining in Weipa and new agricultural industries.

Between 1986-94, the importance of the manufacturing sectors (with the exception of food processing) declined by 1.4 per cent. Despite the decline of traditional local manufacturing industries, the region has managed to develop a range of small, but very specialised industries. Metals fabrication manufacturing showed the greatest real decline in contribution to GRP, along with declines in the building construction, transport and trade sectors. This change is the result of national structural change in these industries and the closure of local industries facing import competition.

Figure 1.3 Shift in Contribution to GRP by Industry Sectors (1986 -94)

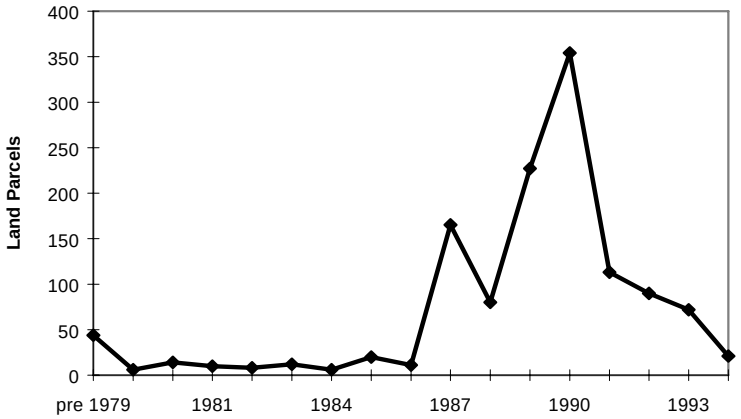


Foreign Investment

The development of the FNQ region in the 1980s was heavily dependent upon external investment. In excess of $2 billion (public and private sector capital) was invested in transport, building construction and tourism projects in the 1980s. Over $800 million was invested in land by foreign interests (particularly Japanese corporates) between 1986-94 according to the Queensland Foreign Investment Land Registrar (QFILR). By 1993, foreign

investment in the region slowed to a trickle (see Figure 2.4) and capital for major tourism projects became extremely difficult to secure {Burchell 1995}.

Figure 1.4 Cumulative Land Parcels Purchased by Foreigners



(Source: QTFILR, 1995)

The momentum in the domestic residential property market and public sector supported projects continued well after foreign and commercial investment in tourism facilities and infrastructure had slowed. Residential growth continued to be driven by unrealistic expectations of high visitor growth and intra/inter state migration, evidenced by several large projects such as the Cairns Casino, Law Courts, major shopping centre development and the Cairns Convention Centre. The 1997 Asian economic crisis saw a sudden contraction of the tourism market and a subsequent economic downturn.

Regional Trade

Until 1970, sugar, beef and tobacco were the only major international export industries in the region. The opening of the Weipa bauxite mines on Cape York Peninsula in 1970 and the development of tourism during the 1980s began the transformation and diversification of the economy. Since 1990, the region has become increasingly dependent upon national and international trade for its development.

The Cairns International Airport is a major transportation hub and is Australia's Northern Gateway to Asia. The international airport has given Cairns a strong identity and high level of accessibility as a global tourism destination. Approximately 6.7 per cent of all international passenger arrivals

to Australia disembark at Cairns International Airport {BTR 1998}, which is the fifth largest airport in Australia. Approximately 28 per cent of all international visitors to Australia visit FNQ {DTM 1998}.

There are considerable difficulties in obtaining and analysing trade data for the FNQ region. This is not a problem specific to this region of Australia. The ABS and Queensland Government Statisticians Office (GSO) compile data on merchandise trade for all sea and airports in the State. However, port freight figures do not necessarily represent goods produced or consumed in the region where they are landed or shipped. An estimated 65 per cent of merchandise trade for the FNQ region, is freighted by road and rail to and from southern ports and distribution centres. There is very poor information on the volume, classification and value of intra-regional freight movement by land. The ABS freight movement surveys sample size has been greatly reduced, along with other surveys in recent years. No recent inter-regional data on trade of services is available. The last inter-regional estimates for trade in services were undertaken by Queensland University based on 1986/87 data {Jensen et al. 1988}.

Given the paucity of statistical data on regional trade, input output tables are the most reliable and useful means of analysing the change and structure of regional trade. The following discussion looks at the structure and change of imports, exports and balance of trade for FNQ.

Regional Exports

Tables 1.3 and 1.4 shows the estimated value and percentage contribution of regional exports by sector for FNQ in 1986, 1990 and 1994. Regional exports grew from an estimated $898.2 million in 1986 to $2.946 billion in 1994. This represents an annual growth rate of over 15 per cent or 10 per cent in real terms. Exports per capita in 1994 were approximately $15,500 compared to $7,000 for Queensland.

Table 1.3 Regional Exports and Percentage Contribution to Total Exports

Export Sector	1986	1990	1994
Animal	8.4	28.8	30.9
Other Agriculture	70.2	168.3	264.0
Forest/Fish)	66.6	76.0	87.6
Mining	114.6	459.5	570.1
Food Processing	196.6	308.7	516.9
Wood & Paper Manufacturing	25.1	6.9	1.5
Machinery Manufacturing	8.2	44.0	79.9
Metals	116.4	12.8	54.7
Non Metals	0.4	10.1	3.5
Other Manufacturing	0.2	7.5	54.1
Elect/Gas/Water	0.7	0.0	0.0
Build/Construction	0.2	4.6	0.0
Trade	26.5	165.4	137.2
Transport	64.8	123.6	215.4
Finance	21.6	59.9	292.1
Public Administration	9.9	51.1	14.1
Community Services	159.0	195.7	4.5
Personal Services	8.8	250.6	619.8
Total	898.2	1973.3	2946.4

(Source: AHURI, 1995a)

Exports of commodities and goods (national and international) contributed to about 78 per cent of total regional exports in 1986 but fell to 68 per cent in 1994. The contribution of service sector increased from 22 per cent in 1986 to 32 per cent in 1994. Services contributed to 20 per cent of total Australian exports in 1994 {Austrade 1994} increasing to 25.5 percent in 1997/98 (WTO).

Personal services, transport, food processing and mining industry contributed collectively to 65 per cent of regional exports. Tourism (which comprises significant elements of transport, personal, finance and trade services) was estimated at $1.1 billion in 1994 {FNQPB 1994} followed by mining ($570.14 million) and food processing ($516.9 million). Figures in most manufacturing sectors showed little growth and declined in real terms.

The region has experienced a significant decline in investment and employment in the manufacturing sector. This sector is not competitive - except in a few local industries - because of high intra-state transportation and local production costs. There has been a very small increase in the growth of elaborately transformed manufacturing industries (ETMI) in the region.

Table 1.4 Regional Exports and Percentage Contribution to Total Exports

Export Sector	1986	1996	1994
Animal	0.9	1.5	1.0
Other Agriculture	7.8	8.5	9.0
Forest/Fish	7.4	3.9	3.0
Mining	12.8	23.3	19.4
Food Processing	21.9	15.6	17.5
Wood & Paper Manufacturing	2.8	0.4	0.1
Machinery Manufacturing	0.9	2.2	2.7
Metals	13.0	0.6	1.9
Non Metals	0.0	0.5	0.1
Other Manufacturing	0.0	0.4	1.8
Elect/Gas/Water	0.1	0.0	0.0
Build/Construction	0.0	0.2	0.0
Trade	3.0	8.4	4.7
Transport	7.2	6.3	7.3
Finance	2.4	3.0	9.9
Public Administration	1.1	2.6	0.5
Community Services	17.7	9.9	0.2
Personal Services (including tourism)	1.0	12.7	21.0
Total	100.0	100.0	100.0

(Source: AHURI, 1995a**)**

Figure 1.5 Percentage Shift in Contribution Regional Exports 1986 - 1994

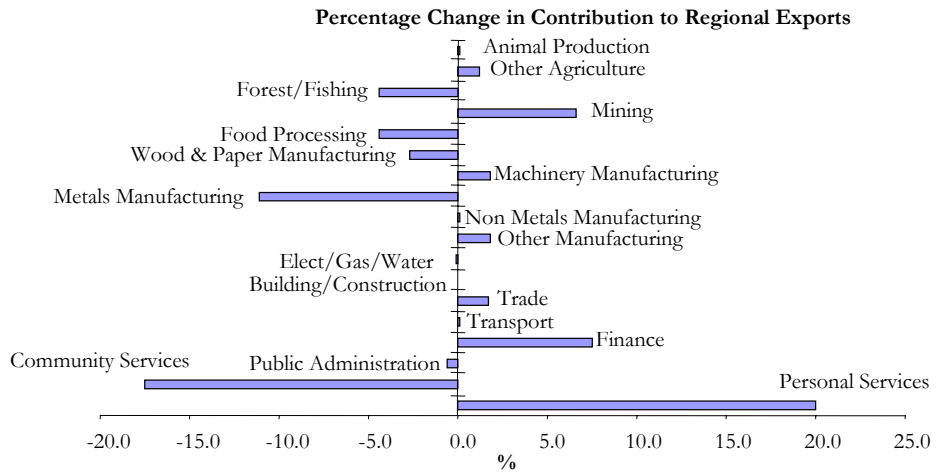


Figure 1.5 shows the percentage shift in the contribution to the economy by regional exports between 1986-94 for 18 industry sectors. The growing importance of tourism, finance and mining to the economy is shown clearly. The high increase in the finance sector is attributable to increased revenue earning from tourism, residential and superannuation funds. Other sectors of

the economy to have shown increased export earnings are transport, food processing, machinery manufacturing, other agriculture and manufacturing. The increase in machinery manufacturing is attributable to ship building, especially small catamarans.

The declining importance of forestry/fishing, metals and food processing relates to structural adjustment. The fish/forestry decline is primarily in forestry. Fishing has shown an increase in exports, but these have been offset by a significant contraction in forestry following the cessation of logging in 1990 when large covered areas of FNQ were designated as World Heritage and protected from logging. The decline in community services has been the result of cuts to grants and changes to accounting procedures.

Cairns has become an important service centre for Papua New Guinea (PNG) and the large mining service town of Freeport in West Irian Jaya, Indonesia. There has been significant growth in consulting services to the mining industry, and in para-professional and managerial education and training courses, although this is still a relatively small export business. Other service industries that have developed are computer software and medical services.

Regional Imports

By necessity the region has imported most of the capital, goods and services needed to support its rapidly developing economy. The growth in employment opportunities in the economy has also attracted significant inter and intra-state migration. This has led to the FNQ becoming one of the most import-dependent economies in Australia. Regional imports between 1986-94 grew by 17.6 per cent (12.2 per cent in real terms) increasing from $901 million to $3.296 billion. Per capita imports in 1994 for the region were $17,300 compared with $7,160 for Queensland for the same year. The high per capita rate of imports is not surprising given the investment and resources needed to support the rapid growth in the FNQ economy, and the smallness of the population and industry base.

Tables 1.5 and 1.6 show the value and proportion of imports for 18 industry sectors and direct consumption. The highest import sectors are finance (13.2 per cent), entertainment (7.3 per cent) and trade services (5.7 per cent). The high demand for imported capital is not unexpected, given the very limited regional capital base. However, without high foreign and interstate investment and working capital funds, the region would not have grown as fast as it has done. A product of the high level of external borrowing has been growing debt, with rising levels of repayments and dividends. There is anecdotal evidence that little capital is being reinvested in the region.

Table 1.5 Growth in Regional Imports ($ millions)

	1986	1990	1994
Animal	24.2	21.8	30.1
Other Agriculture	69.0	143.1	213.1
Forest/Fish	41.1	36.2	46.6
Mining	53.9	129.0	197.6
Food Processing	27.0	46.6	141.7
Wood &Paper Man	13.4	13.5	9.9
Machinery Man	16.4	35.0	51.4
Metals	38.1	11.1	33.4
Non Metals	6.9	21.0	14.2
Other Man	5.4	8.0	53.9
Elect/Gas/Water	14.3	57.3	71.4
Build/Construction	68.4	101.3	146.9
Trade	40.8	230.5	188.8
Transport	63.1	91.2	137.6
Finance	74.9	177.3	435.2
Public Administration	7.2	20.7	54.7
Community Services	23.8	42.6	122.3
Personal Services	14.6	123.6	240.5
H-Hold Consumption	298.3	965.1	1106.6

Source: AHURI 1995

Table 1.6 shows the effects on the region of the changing structure of imports. Primary industry imports between 1986-94 fell from 21 to 14.8 per cent of total exports and service sector imports grew from 32.4 to 42.4 per cent of total exports. The proportion of imports to household consumption has remained relatively stable at 33.5 per cent. This compares to 16 per cent for Queensland. In 1994, the value of imports was equivalent to 96 per cent of GRP. In 1993-94, imports for Queensland were equivalent to 33.5 per cent of Gross State Product.

Table 1.6 Percentage Value of Imports by Industry Sectors

	1986	1990	1994
Animal	2.7	1.0	0.9
Other Agriculture	7.7	6.3	6.5
Forest/Fish	4.6	1.6	1.4
Mining	6.0	5.7	6.0
Food Processing	3.0	2.0	4.3
Wood & Paper Manufacturing	1.5	0.6	0.3
Machinery Manufacturing	1.8	1.5	1.6
Metals	4.2	0.5	1.0
Non Metals	0.8	0.9	0.4
Other Manufacturing	0.6	0.4	1.6
Elect/Gas/Water	1.6	2.5	2.2
Build/Construction	7.6	4.5	4.5
Trade	4.5	10.1	5.7
Transport	7.0	4.0	4.2
Finance	8.3	7.8	13.2
Public Administration	0.8	0.9	1.7
Community Services	2.6	1.9	3.7
Personal Services	1.6	5.4	7.3
Household Consumption	33.1	42.4	33.6

Source: AHURI 1995a

Regional Balance of Trade

The economic performance of national economies is judged by the balance of payment figures, which comprise merchandise, invisibles and capital trade flows. It is possible to treat the FNQ region as a regional trading economy operating in a national and global context. Using the I/O data, it is feasible to indicate trends in the region's balance of payments. The I/O tables do not provide a detailed set of accounts, as this would require transaction tables for all capital transfers to and from the region. However, the relative change in the structure of imports and exports over a time period does provide some insight into how well the regional economies perform (Bendavid-Val, 1991:53).

Figure 1.6 indicates the trends in imports, exports, wages/salaries and other value-added inputs as a proportion of GRP. In 1986 imports exceeded exports by 0.3 per cent. In 1994 the imbalance between imports and exports had increased to 11.8 per cent. For Queensland, the imbalance between imports and exports is less than 0.7 per cent. The figure indicates underlying trends in the FNQ economy requiring attention to redress a growing trade imbalance problem. Imports have been rising substantially faster than exports and this imbalance is continuing to widen.

Households and the tourism sector consume a significant proportion of imports. While high household consumption of imported manufactured goods and food is not unusual for small highly export orientated economies producing specialised goods and services, the rate at which the trade imbalance in FNQ is increasing is cause for concern. The implications of this trade imbalance suggest that the regional industries are not import competitive, debt levels are rising to pay for imports, and repatriated earnings and capital outflows of profits, dividends, interest and superannuation are most probably increasing. This seems to be evident from the rapid rise in the export of financial services and other anecdotal evidence obtained from the financial sector[2]. More detailed investigative work is required on these issues related to stemming capital loss from the region.

An analysis of wages and salaries in the region shows these have declined as a proportion of GRP. The downward pressure being applied on local wages and salaries as indicated in Figure 1.6 is response to declining profit/yields in the tourism, retail, personal services, and transport and agriculture sectors. There is a growing number of international visitors, backpackers, participating in part-time or short-term employment that are prepared to accept lower wages and live in basic accommodation. Research by Bell and Carr (1994) indicate in some sectors of the economy, international visitor short-term employment was constraining access to employment by permanent residents.

The low wage and salary levels compared to the GRP suggests that there should be relatively high levels of productivity in the region and that it should be more cost competitive in terms of exports. This appears not to be the case. With foreign and some national corporation capital investment in the productive areas of the economy declining, established investors appear to be repatriating profits and using transfer pricing to minimise taxation and demonstrate low margins. Evidence of this is very difficult to uncover, because access to multinational corporate accounts is required. There is little evidence to show the pension funds of corporations are being reinvested in the region. Thus, the FNQ region appears to be experiencing high levels of capital out-flows, which in turn demand high levels of capital in-flows in the form of debt to cover the cost of imports for consumption and replace other capital outflows from the region.

[2] The CREDC is attempting to facilitate the development of a producer services cluster in FNQ. In a SWOT of the industry, low levels of local savings and outflows of superannuation funds were identified as a key issue in weakening the local capital market.

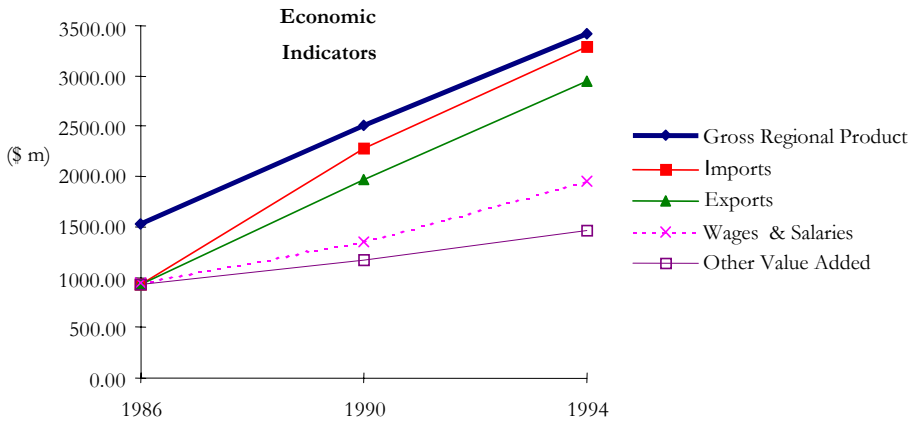


Figure 1.6 Change in Economic Contributors to GRP

A matter of concern for the region is its trade performance relative to international standards. Trade performance is a ratio measurement of the rate of growth in trade relative to GRP and is known as the Relative International Export Performance Factor (RIEF). In OECD countries, the RIEF ratio is approximately three (APEG, 1994). In most Asian countries the RIEF exceeds four. While Australia has maintained the OECD average, the FNQ region has a ratio of two. Therefore, despite the regional economy having a strong trade focus, the relative export performance by international standards is poor. It indicates the need to identify opportunities to increase value-adding industries in the region, which complement existing industry strength and capacity. Little research has been undertaken of what must be done to value add to the regions economy {Daly & Roberts 1998; Daly, et al. 1996}.

Employment Structure

Change in the Mode of Work

The FNQ workforce according to the 1996 census was just over 95,500 {FNQ Employment 1998}. Unemployment ranges between 7 - 11 percent due to seasonal factors and the nature of employment. Table 1.7 shows just over 56 percent of the workforce in FNQ are male. Almost 30.3 percent of the workforce in 1997 were part-time, compared to a national average of 26.4 percent. Part-time employment in the region continues to grow above national trends. Male part-time employment was 19 percent compared to 44.8 percent for woman. Recent research {Mangan 1999} shows that almost 60 percent of male new employment positions in Queensland are part-time. This trend will continue as more employees opt for contractual and flexible employment to reduce overheads and increase competitiveness.

Table 1.7 Employment by Type and Gender in FNQ

	Full-time	% Empl	Part-time	% Empl	Not stated	Total
Male	42,579	78.99%	10,003	19.02%	1,321	53,903
Female	22,439	53.85%	18,235	44.83%	992	41,666
Total	65,018	68.03%	28,238	30.28%	2,313	95,569

FNQ Employment Strategy 1988

Changing Structure of Employment in the FNQ Region Economy

Since the early 1970s, the structure of the Australian workforce has changed dramatically. Table 1.8 below shows the changes in employment structure that has occurred in the primary, secondary and tertiary industry sectors since 1978. In 1978, 19.9 percent of the Australian workforce was involved in manufacturing. This fell to 13.1 percent in 1996 and is expected to fall below 11.5 percent by 2000. The service sector, on the other hand, has grown from 72.6 percent of workforce in 1978 to 82.4 percent in 1996. Currently, just over 83 percent of the Australian workforce are employed in service industries.

Table 1.8 National Change in Employment Structure 1978 -1996

	1978	1981	1986	1991	1996
Primary	7.5	8.0	7.3	6.5	5.5
Tertiary	19.9	19.3	16.3	14.4	13.1
Services	72.6	72.7	77.4	79.1	82.4
Total	100.0	100.0	100.0	100.0	100.0

Table 1.9 shows the employment structures for Australia and the FNQ, South East Queensland (SEQ) and Sydney regions. The dominance of Sydney as the nations leading retailing, financial, communications and education centre is apparent. Melbourne (not shown in table) is the nation's principal manufacturing centre, with strong retailing, insurance and education sectors. SEQ has experienced much the lesser shift towards the producer services and communications sectors compared with southern state capitals, but is gaining some strategic advantages in the area of education, health, community services and tourism.

The increasing specialization of the primary industries sector in FNQ, especially mining, fishing, sugar and tropical fruit, together with tourism is a trend that is expected to continue in future. Manufacturing nationally continues to decline in terms of employment and investment; however, elaborately transformed manufacturing (ETM) using technology-based production continues to grow strongly, but not in FNQ. While the structure of

these three economies is very different, all show the nationwide trend of a major shift to service industry employment.

Table 1.9 Employment Structure, Australia, FNQ, SEQ and Sydney Regions

Industry Structure	Australia 1991%	Australia 1996%	FNQ 1991%	FNO 1996 %*	SEQ 1991%	SEQ 1996%	Sydney1991%	Sydney 1996%
Primary Industries	3.71	3.24	9.00	7.92	1.70	1.32	0.71	0.50
Mining	1.21	0.91	2.38	1.84	0.40	0.25	0.28	0.19
Process & Manufacture	13.91	12.37	8.07	7.36	12.80	11.26	14.59	12.38
Public Utilities	1.57	0.87	0.68	0.64	1.06	0.63	1.43	0.75
Construction	6.43	5.96	6.85	6.63	7.98	5.68	6.33	4.52
Wholesaling	5.57	5.94	4.43	4.06	5.88	6.05	6.35	7.16
Retailing	12.72	14.80	12.54	15.03	14.35	16.17	11.71	13.98
Accom, Restaurants	4.43	4.91	8.81	9.80	4.71	5.77	4.23	4.84
Transport	4.03	3.96	5.61	6.49	4.28	3.88	5.01	4.23
Communications	2.23	2.21	1.73	1.25	2.31	2.13	2.47	2.60
FIRE Business	14.97	15.05	11.56	9.85	15.56	16.00	19.63	20.43
Government Services	6.69	5.44	7.25	7.33	6.57	5.25	5.66	4.37
Education	7.17	7.39	6.39	5.88	6.90	7.57	6.40	6.99
Health, Com, Rec	11.75	12.81	9.96	11.97	11.81	13.72	11.65	13.03
Personal Services	3.60	4.15	4.74	3.94	3.69	4.32	3.54	4.02
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source ABS CDATA * Highlighted text shows above average representation of Employment

Table 1.10 shows the change in the regional employment structure for the FNQ, SEQ and Sydney regions since 1991. The table shows the shift in the FNQ economy to services especially - retailing, accommodation restaurants, tourism, health and community services - which have experienced major gains in employment share since 1991. The table shows the growing specialization occurring in metropolitan regions as the result of national structural change and the internationalization of the Australian economy. Over 84 percent of new employment growth in the FNQ economy in future will occur in the service sectors. This will have an induced effect of creating demand for land in different localities in the region predominantly for service industries and some manufacturing.

Table 1.10 Change in Industry Sector Employment Share1991 -1996 (Shift Share)

	Australia	FNQ	SEQ	SYD
Agriculture, Forestry and Fishing	-0.47%	-1.08%	-0.38%	-0.20%
Mining	-0.30%	-0.53%	-0.16%	-0.09%
Processing & Manufacturing	-1.54%	-0.71%	-1.54%	-2.21%
Public Utilities	-0.70%	-0.04%	-0.43%	-0.68%
Construction	-0.48%	-0.22%	-2.30%	-1.81%
Wholesaling	0.37%	-0.37%	0.18%	0.81%
Retailing	2.09%	2.49%	1.82%	2.27%
Accommodation and Restaurants	0.48%	0.99%	1.06%	0.61%
Transport	-0.07%	0.89%	-0.40%	-0.79%
Communications	-0.02%	-0.48%	-0.18%	0.13%
Finance, Real Estate & Business	0.08%	-1.71%	0.44%	0.80%
Government Services	-1.25%	0.08%	-1.32%	-1.29%
Education	0.22%	-0.51%	0.67%	0.59%
Health, Community and Recreation	1.06%	2.01%	1.91%	1.38%
Personal and Domestic Services	0.55%	-0.80%	0.63%	0.48%

Figure 1.7 shows the percentage growth in employment by industry sector for FNQ between 1991-1996. Retailing, accommodation and restaurants associated with tourism, transport and health and community services were the fastest growing sectors running above 7 percent per annum. Employment growth rates in other sectors were significantly less (2-3 percent) and running slightly above the national average. Mining and communications were the only industry sectors to experience a decline in employment. The 20 largest employment categories at 4-digit ANZIC level for the region between 1991-1996 are in Table 1.11.

Figure 1.7 Employment Growth FNQ 1991-1996

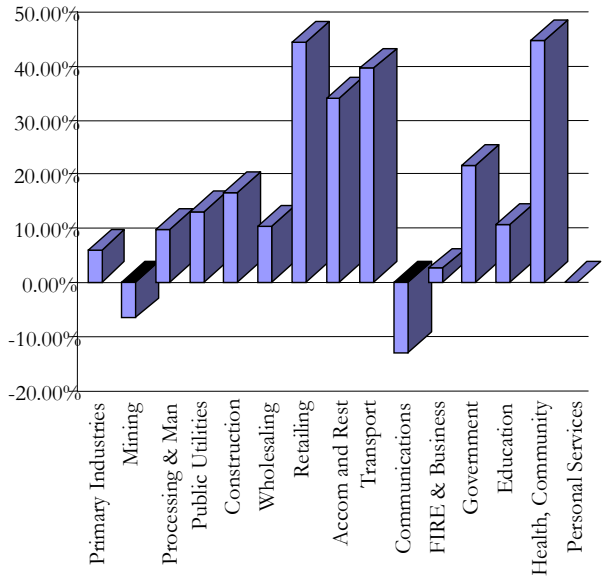


Table 1.11 20 Largest Increase in Employment Industries FNQ 1991-1996

ANZSIC	Description	Jobs
5110	Supermarket & Grocery Stores	1791
5710	Accommodation	1315
8729	Non-Residential Care Services	1194
8113	Local Government Administration	1124
5125	Takeaway Food Retailing	887
6641	Travel Agency Services	789
5329	Automotive Repair Services	639
5221	Clothing Retailing	482
8710	Child Care Services	470
2171	Sugar Manufacturing	470
0119	Fruit Growing	458
9322	Casinos	391
5730	Cafes & Restaurants	364
6110	Road Freight Transport	364
4539	Building Supplies	353
8621	General Practice Medical Services	353
8421	Primary Education	347
8440	Other Education	325
7861	Employment Placement Services	316
5210	Department Stores	274

Table 1.12 shows the 15 industries experiencing the highest decline of employment in FNQ between 1991-1996. Small business retailers and businesses servicing construction all experienced heavy loss of employment

relative to the size of the economy. The decline in retailing (mainly small businesses) is attributable to continued restructuring in the retail sector, changes in shopping hours, and economies of scale. The loss in the construction sector is due to the slow down in private construction and public works programs during 1995/96.

Table 1.12 15 Fastest Declining Industries FNQ 1992 -1996

ANZSIC	Description	Jobs Lost
5121	Butchers	-457
7742	Other Transport Equipment Leasing	-399
5269	Household Equip Repair Services	-396
7743	Plant Hiring or Leasing	-374
7112	Courier Services	-341
5129	Fish shops	-328
4121	Road & Bridge Construction	-240
4122	Non-Building Construction	-239
2822	Boat building	-196
4621	Car Wholesaling	-189
6200	Rail Transport	-170
7829	Technical Services	-163
0169	Horticulture and Market Gardening	-162
7741	Motor Vehicle Hiring	-153
0117	Kiwi Fruit Growing	-149
8410	Pre-school Education	-148

ABS Data Acquired for FNQ Employment strategy

The impact of structural change has had a significant impact on the gains in employment in some industry sectors. Figure 1.8 shows industry sector gain and loss (shift in share) of employment between 1991-1996 derived from Table 1.13 below. Four sectors, retailing, accommodation, transport, health and community services showed strong gains in employment. The rise in the retailing industry is due to a major new shopping centre developed on the edge of the Cairns CBD and expansion to other retail centres. Finance, insurance and business services experienced significant employment loss. The loss of employment share in the finance sector is due to restructuring of the industry with jobs shed in banking and insurance.

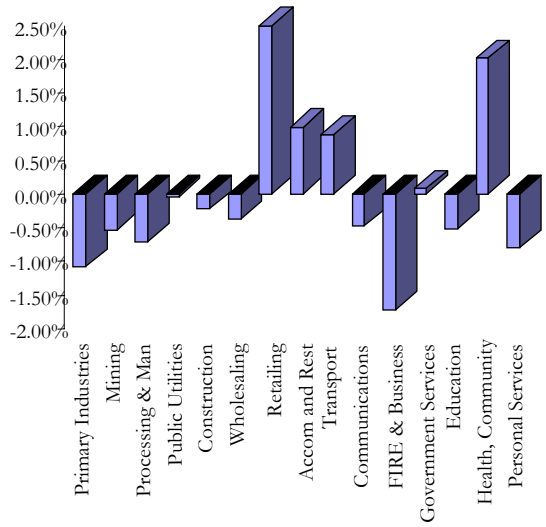


Figure 1.8 Change in Employment Structure

Table 1.13 Employment Change in FNQ 1991 -1996

Industry	FNQ91	%	FNQ 96	%	Change	Shift/share
Agriculture, Forestry & Fishing	6000	9.00%	6356	7.92%	5.94%	-1.08%
Mining	1584	2.38%	1480	1.84%	-6.57%	-0.53%
Processing & Manufacturing	5379	8.07%	5909	7.36%	9.85%	-0.71%
Public Utilities	456	0.68%	515	0.64%	13.06%	-0.04%
Construction	4566	6.85%	5322	6.63%	16.55%	-0.22%
Wholesaling	2954	4.43%	3260	4.06%	10.37%	-0.37%
Retailing	8357	12.54%	12065	15.03%	44.36%	2.49%
Accommodation and Restaurants	5872	8.81%	7870	9.80%	34.03%	0.99%
Transport	3736	5.61%	5211	6.49%	39.47%	0.89%
Communications	1153	1.73%	1004	1.25%	-12.89%	-0.48%
Finance, Real Estate & Business	7704	11.56%	7905	9.85%	2.61%	-1.71%
Government Services	4834	7.25%	5885	7.33%	21.74%	0.08%
Education	4261	6.39%	4721	5.88%	10.80%	-0.51%
Health, Community & Recreation	6638	9.96%	9608	11.97%	44.75%	2.01%
Personal and Domestic Services	3161	4.74%	3164	3.94%	0.09%	-0.80%
Total	66654	100.00%	80275	100.00%	20.44%	0.00%

Most primary industries and mining show a loss of employment share between 1991-1996. However, employment in mining is expected to increase in future with the development of the Century Zinc and other mining projects in the Gulf generating several hundred site and fly in fly out jobs.

Occupation

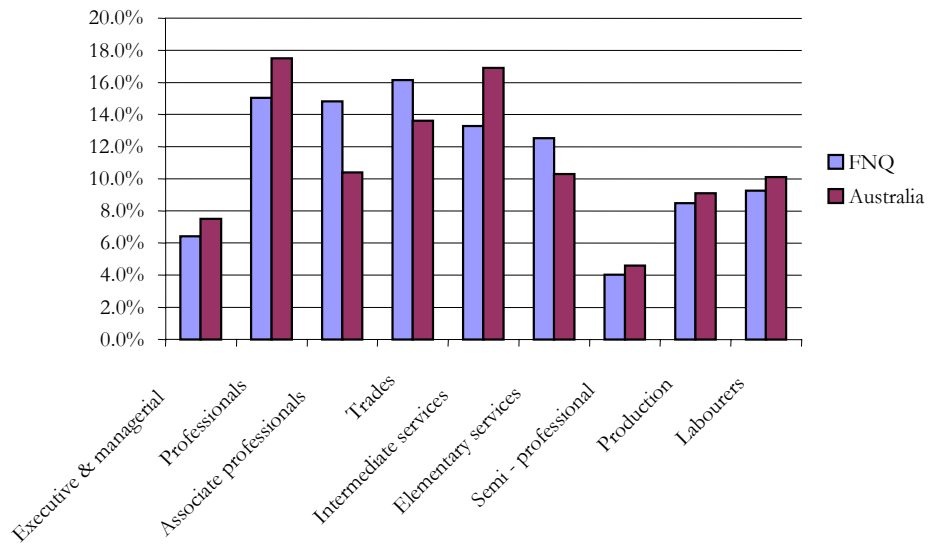
Figure 1.9 shows the Occupation Profile for the FNQ region. FNQ has a lower than national average percentage of the workforce in the executive, managerial and professional occupation groups (21.4 to 25 percent

nationally). However, executive and managerial occupations are continuing to rise in importance as the region takes on a more important role in serving PNG and the mining industry.

Associated professional, trades and elementary service occupations have a higher than national proportion of the workforce represented in the economy. This is because the structure of the economy requires higher levels of these types of skills. Semi-professional, production and labourers are under represented, because of the smallness of the manufacturing and declining importance of the construction sector.

The development of the economy will continue to require high levels of skills in the associated professional, trades and elementary services sectors. However, for the economy to develop more value-added industries, there will be a need to increase managerial, executive and professional representation in the economy.

Figure 1.9 Occupation Structure Australia and FNQ 1997/98



ABS CDATA 1996

Business Structure

The structure of the FNQ economy is entirely dominated by small-business. Table 1.14 above shows the number of businesses registered in FNQ by the size of business for different industry divisions. Almost 89 percent of businesses have less than nine employees, which is much the same as the State average. The retailing sector has the largest number of businesses in the region at just over 17.6 percent. This is followed in order of importance by

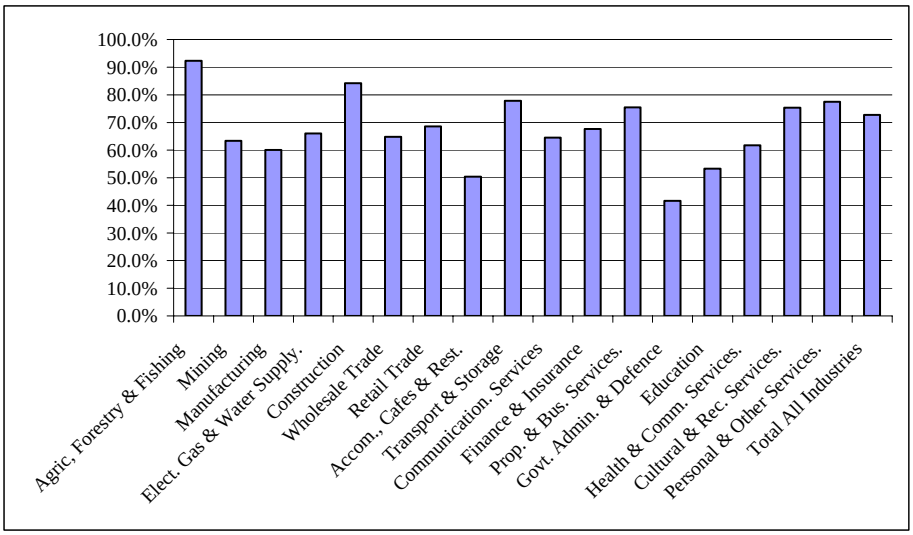
agriculture, forestry and fishing (12.9 percent) construction and property investor services (11.9 percent respectively).

The extent to which small business (< 5 employees) dominates industries in the FNQ economy is shown in Figure 1.10. Agriculture and construction have the highest number of small businesses represented in their industry group. Agriculture is dominated by small farm holdings. The size and rapid fluctuation in the region's economy has resulted in a highly mobile construction industry oriented towards housing construction.

Table 1.14 Number of Business by Industry Division by Size and Number of Employees

FNQ Industry Divisions	1-4	4-9	9 -19	20 - 49	50 - 99	100 +	Total	% total
Agric, Forestry & Fishing	1,435	80	24	14	1	1	1,555	12.9%
Mining	45	13	5	2	2	4	71	0.6%
Manufacturing	338	121	64	23	5	12	563	4.7%
Elect Gas & Water Supply	37	7	3	8		1	56	0.5%
Construction	1,211	150	53	17	5	3	1,439	11.9%
Wholesale Trade	424	154	51	19	6		654	5.4%
Retail Trade	1,456	467	130	47	9	16	2,125	17.6%
Accom., Cafes & Rest.	404	196	100	69	14	18	801	6.6%
Transport & Storage	745	126	46	25	6	9	957	7.9%
Communication. Services	51	12	9	2	3	2	79	0.7%
Finance & Insurance	211	56	31	12	1	1	312	2.6%
Prop. & Bus. Services.	1,085	234	78	35	4	2	1,438	11.9%
Govt Admin & Defence	50	16	18	19	10	7	120	1.0%
Education	146	43	30	38	12	5	274	2.3%
Health & Comm. Services.	457	157	69	32	14	11	740	6.1%
Cultural & Rec Services	244	39	20	16	3	2	324	2.7%
Personal	451	82	34	11	2	2	582	4.8%
Total All Industries	8,790	1,953	765	389	97	96	12,090	
Percent of Total	72.7%	16.2%	6.3%	3.2%	0.8%	0.8%		100.0%

Figure 1.10 Proportion of Small Business (Less Than 5 Employees) by Industry Group



There are only three large contracting and 28 medium size firms in the region. Medium and large-scale construction has had to compete with external contracts for large government projects, but has been disadvantaged by shortages in capacity and skills. Transport, financial and business services, cultural, recreation and personal services comprise more than 72 percent of small businesses. The high level of small business in FNQ is the product of the region's tourism industry. Many retail, transport and business services operate as agencies, consultants or contractors to larger tourism enterprises.

Economic Competitiveness

Location Quotients

A strong indicator of the competitiveness of regional business activities can be gauged from the measurement of location quotients. A location quotient is a ratio of the extent that regional business or employment is under or over represented in a local economy compared with the national average. Location quotients have been used to evaluate the competitiveness of the FNQ region at two digit and four digit ANZSIC level.

Table 1.15 shows 2 digit location quotients for the FNQ region. FNQ has high location quotients for the primary industry, mining, accommodation and restaurant industry sectors. These are industries in which the region has some competitive advantages over other regions of Australia. The region has low

location quotients in the manufacturing and public utilities sectors. Most other sectors are close to the Australian average.

Table 1.16 shows the 30 highest location quotients for the region. Industries with high location quotients are associated with mining, fishing, sugar and horticulture. Only two manufacturing activities, sugar processing and shipbuilding have high location quotients. Several key service industries associated with tourism have significant location quotients, ie., greater than 3.

Table 1.15 Location Quotient FNQ

Location Quotient	FNQ91	FNQ96
Agriculture, Forestry & Fishing	2.4	2.4
Mining	2.0	2.0
Processing & Manufacturing	0.6	0.6
Public Utilities	0.4	0.7
Construction	1.1	1.1
Wholesaling	0.8	0.7
Retailing	1.0	1.0
Accommodation and Restaurants	2.0	2.0
Transport	1.4	1.6
Communications	0.8	0.6
Finance, Real Estate & Business	0.8	0.7
Government Services	1.1	1.3
Education	0.9	0.8
Health, Community and Recreation	0.8	0.9
Personal and Domestic Services	1.3	1.0

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Table 1.16 Industries with High Location Quotients in FNQ

ANZSIC	Description	LQ
1312	Bauxite Mining	24.45
2171	Sugar Manufacturing	18.35
6302	Coastal Water Transport	16.04
0161	Sugar Cane Growing	15.77
0412	Prawn Fishing	13.63
0119	Fruit Growing	13.54
0169	Crop & Plant Growing	9.35
9510	Personal household Goods Hiring	8.28
0413	Finfish Trawling	6.18
5220	Clothing, Soft Good Retailing	5.62
6121	Long Distance Bus Transport	5.06
0420	Aquaculture	4.44
5710	Accommodation	4.43
0415	Line Fishing	4.26
6641	Travel Agency Services	3.87
6300	Water Transport	3.83
0160	Other Crop Growing	3.62
6630	Services to Air Transport	3.45
7741	Motor Vehicle Hiring	3.43
0400	Commercial Fishing	3.40
0219	Services to Agriculture	3.32
1314	Gold Ore Mining	3.31
2821	Shipbuilding	3.30
6403	non-scheduled Air Travel	3.28
0213	Aerial Agricultural Services	3.25
6623	Port Operators	3.20
7742	Other Transport Equipment Leasing	3.19
5245	Marine Equipment Retailing	3.19

Regional Economic Development Issues

Research Issues

There have been over 50 economic related studies, reports and other publications prepared on the FNQ region since 1985. A review of these publications and reports[3] and the issues raised in this chapter, highlights several critical matters related to research on the FNQ economy.

[3] The Author at the time of formulating the FNQ Region Economic Development Strategy in 1993 was a Senior Economic Adviser in the Premier's Department of the Queensland Government. Over 35 economic reports and documents were reviewed at this time to identify topics and issues covered in these reports. The Author is aware of over 20 additional studies, reports and publications related to the economy of FNQ have been prepared since then.

Data

The problem of obtaining reliable data on FNQ has curtailed opportunities to conduct detailed research on the economy. ABS series data and research by other government organisations related to tourism, transport freight and primary production have been cutback in recent years. Numerous qualitative studies have been undertaken in the region relating to the economy, including an employment census in 1996 (Carr 1996). Examination of these studies suggests that data quality and sampling techniques were not sufficiently rigorous to enable in-depth analyses to be conducted on qualitative aspects of the economy. Improving the quality and access to data is a high priority for improving research into the economy of the region.

Measuring Competitiveness

The Cairns Regional Economic Research Unit (CERU) based at James Cook University has been monitoring the FNQ economy for over 15 years. It publishes a regular series of indicators of change in the region using ABS and other Local Government Data. The reports, as a time series, provide a very useful indicator of regional change, and show elements of changing competitiveness in the region. The study by Hassell & Associates (1992) was the first to address competitive factors in the region. This report, like the CERU reports, used economic data as indicators of competitiveness. In an age of collaborative and competitive advantage, more than financial indicators must used to evaluate regional competitiveness. Increasingly, economic competitiveness is being shown to relate to other factors - including the level of social capital, knowledge, technology, quality of life, R&D, environmental management and production efficiencies. These factors are not easily identified and measured using statistical data and other information available publicly.

There is a major research gap in identifying and evaluating factors that underlie the competitiveness of the FNQ region. Identifying the factors that are most important to the development of the economy, and the relative strength or weaknesses of these, will be critical to redressing some of the problems identified during the preparation of the FNQ regional economic development strategy. Such research will lead to improved knowledge of capacity building, strengthened competitive competencies and the development of strategic infrastructure necessary to support the future development of the economy.

1n 1996 some initial work was undertaken to pilot test a technique called Multi-Sector Analysis to measure competitiveness factors {Roberts & Stimson 1998}. The initial work relied on the knowledge of a small, but well informed, working group overseeing FNQREDS, secondary data and other anecdotal evidence. More rigorous testing and evaluation of MSA in the region was required to refine the technique. This was undertaken as part of the research presented in the following chapters.

Regional Risk Management

FNQ is a region at risk from known natural events, as well as from environmental, social and financial factors. Managing regional risk is a high priority for government and business in the region. However, there are few benchmarks in place to measure regional risks, and, apart from civil emergencies, no strategies in place to manage risk. The failure of risk management leaves the economy very exposed to events and changes that could have a very negative impact on economic activities. Some risks, such as changes in the exchange rate cannot be controlled because they are exogenous. The potential impacts of many other risks, for example, industrial unrest, can be mitigated if government, business and the community take preventative steps. Understanding and evaluating regional risk is, therefore, a high priority for regional management, and will be addressed in detail in the next chapter.

Economic Opportunities

Strengths, Weaknesses, Opportunities and Treats (SWOT) analysis is used widely to set strategic directions for planning the development of businesses, organisations, industries and economies. Numerous reports citied throughout the chapter have identified a range of economic opportunities for the development of the economy. Most reports indicate that the greatest opportunities for development will occur within the leading industry sectors. Several studies indicate the need to diversify and broaden the economic base. No attempt has been made to identify the type and magnitude of opportunities that have the greatest potential to be realised. Many opportunities open to the FNQ economy will never be realised because the region does not have the competitive competencies, strategic infrastructure or resources to enable this to happen.

The future success of the region's economy will depend upon stretching the capabilities and range of existing industries. This will create new industries to capitalise upon the region's competitive advantages. The greatest opportunities will occur in leveraging between industries. This is a low risk

strategy for economic development in an area where competition is least. Identifying opportunities for stretching and leveraging existing competitive advantages will be a key success factor for the development of the region's economy. With increasingly limited resources available to develop the FNQ economy in future, utilisation of resources to maximise economic benefits to the region will become an important focus of strategic and detailed planning. In Chapter 3, MSA is used to identify the strength and magnitude of economic development opportunities by industries in the economy.

Summary

The FNQ economy has developed into one of the most dynamic regional economies in Australia. Once the region was a branch line economy of the state of Queensland. FNQ is now a major regional transport hub with a global tourism industry reaching into many other regions. While the Far North Queensland region is a success story, there are underlying structural problems in the economy that must be addressed in future if it is to continue to develop in a sustainable manner. The successful development of the economy has been built around a milieu of competitive competencies, strategic infrastructure and resources. Little is understood about the nature, magnitude and importance of these factors. Understanding these issues will be critical to ensuring that resources and infrastructure are used to maximum efficiency and competitive advantage is maintained.

2 MEASURING REGIONAL COMPETIVENESS

This chapter discusses the concepts and techniques used to evaluate the regional competitiveness of the FNQ Region. There is a range of tools used to evaluate competitiveness, from using simple comparisons of employment and Gross Regional Product to Multi-Sector Analysis (MSA) which looks at the competitive attributes of different industries that comprise a local economy. This chapter describes MSA and its application as a tool for regional analysis and benchmarking regional competitiveness. MSA provides the basic framework for analysing the competitiveness of competencies and infrastructure in FNQ, regional risk management and the economic development potential of the region. These will be covered in the chapters that follow in the book.

What is Competitiveness?

The Oxford Dictionary (1995) describes competitiveness as involving competition; low enough to compare with rival traders; having a strong urge to win. "Competitiveness has become one of the central preoccupations of governments and industry in every nation" says Michael Porter (1991:1). Much of our thinking on competitiveness has been driven largely by the ideas of Michael Porter (1980) Peter Drucker (1995), Charles Handy (1995) Garry Hamel and CNK Prahalad (1994) and has been focused on business strategy. Porter (1991) first began to explore the linkage of firm competitiveness to national competitiveness, through the interplay of factors, including industry clusters that achieve competitive advantage. But as Porter (1991:xii) states in the Preface to the Competitive Advantage of Nations:

"There is no accepted definition of competitiveness. Whichever definition of competitiveness is adopted, an even more serious problem has been there is no generally accepted theory to explain it".

This poses the question: if competitiveness is so important to business and economic development: why do we know so little about how to quantify it? And is competitiveness the only factor that drives economic development?

Tools Used to Evaluate Regional Competitiveness

There is a range of techniques used to analyse factors of regional economic competitiveness. Most involve some sort of comparison to measure differences between economic variables. These include:

- location quotient analysis, which indicates above average representation of attributes in a region;
- shift share analysis, comparing change between attributes measured;
- performance indicators of production, employment, trade and capital;
- comparison of inter-regional input output tables; and
- net worth analysis.

These techniques are useful in analysing economies, however, they do not provide a satisfactory explanation of the factors that contribute to regional economic competitiveness. The most important element in determining competitiveness in an economy relate to what we call base economy industries. These are industries involved in export development. In FNQ tourism, agriculture, fishing, transportation and mining are base industries. The non-basic economy represents all activities that service local consumption and industry needs. While this structure is a simplistic explanation of the way an economy functions, it is the performance of the basic economy that has a major impact on the competitiveness of a regional economy.

Benchmarking as a Tool for Monitoring Regional Competitiveness

Benchmarks are used universally as a tool for monitoring economic and other performance indicators. The state of Oregon in the US was one of the first to introduce benchmarking as a tool to monitor economic growth and performance. The U.S. Inter-agency Working Group on Sustainable Development {USIWGSDI 1998} has developed a comprehensive set of development indicators incorporating social, environmental and economic measures (see Table 2.1).

Table 2.1 U.S. Inter-Agency Working Group on Sustainable Development Indicators

Economic Indicators	Environmental Indicators	Social Indicators
• Capital Assets • Labor Productivity • Federal Debt to GDP Ratio • Energy Consumption per Capita and per Dollar of GDP • Economic indicators • Materials Consumption per Capita and per Dollar of GDP • Inflation • Investment in R&D as Percentage of GDP • Domestic Product • Income Distribution • Consumption Expenditures per Capita • Unemployment • Homeownership Rates	• Surface Water Quality • Acres of Major Terrestrial Ecosystems • Contaminants in Biota • Quantities Nuclear Fuel used • Status of Stratospheric Ozone • Greenhouse Climate Response Index • Ratio of Renewable Water Supply to Withdrawals • Fisheries Utilisation • Invasive Alien Species • Conversion of Cropland to Other Uses • Soil Erosion Rates • Timber Growth /Removal • Greenhouse Gas Emissions • Identification & Management of Superfund Sites • Metropolitan Air Quality Non-attainment	• Children Living in Families with One Parent Present • Teacher Training and Application of Qualifications • Contributing Time and Money to Charities • Births to Single Mothers • Educational Attainment by Level • Participation in the Arts and Recreation • People in Census Tracts with 40% or Greater Poverty • Crime Rate • Life Expectancy • Educational Achievements Rates in Mathematics • Percentage of Households in Problem Housing • Outdoor Recreation Activities

Source: USIWGSDI 1998

The Centre for Corporation for Enterprise Development based in Washington D.C produces an annual set of benchmarks ranking 50 competitive measures

of economic development for all US states and selective regions {Clones, et al. 1998}. The Federal Reserve Bank of Kansas City {FRBKC 1999}, the Philippines Economic Development Authority {NEDA 1996}, and the Bank of New Zealand {Edwards 1997} produce regular reports benchmarking the performance and competitiveness of regions. Silicon Valley Joint Venture produces annual quality of life indicators along with economic indicators of the region's development performance {Silicon Valley Joint Venture Network (SVJVN) 1996}[4].

There are no best practices for benchmarking regional economic development. The primary focus of benchmarking is to provide a set of performance indicators, such as growth in gross regional product, employment, industry productivity, exports and wages and salaries. The major problem in comparing performance indicators is that data between regions and nations is not consistent. Nevertheless, regions that have adopted benchmarking have been able to identify trends and changes in patterns of economic growth and have been able to make adjustments to strategies, before events occur that might have a significant impact on long term economic performance.

One of the major problems of developing benchmarks to monitor economic performance in regions is it does not provide an adequate explanation of why some sectors of an economy perform better than others. There has been little research undertaken to measure the way *'value factors*' affect the performance of different sectors of an economy. In FNQ, little is known about the level or importance of factors like entrepreneurship, networking, customer orientation etc, and what effect these have on the economic performance of the region as a whole and specific industry sectors. There are new analytical tools that can be used to measure and compare differences in the competitiveness of industry sectors. Multi-Sector Analysis (MSA) see below, is one tool. MSA can be used for benchmarking changes in value factors of economic performance.

Benchmarking can be seen as a tool for selling a region's competitiveness. The most successful economic regions of North America and Europe benchmark the performance of their economies and promote annual changes through a range of media outlets. Regions such as Nebraska and North Carolina are very skilled at utilising business leaders to promote the competitiveness of industries in their state. The ability to leverage competitiveness through promotion is a best practice that is essential for regions seeking to develop in the global economy.

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[4] Further details on Joint Venture Silicon Valley Network indicators on-line-http://www.jointventure.org/

Multi-Sector Analysis: A Tool for Evaluating Regional Competitiveness

Multi-Sector Analysis (MSA) is a regional economic analysis tool first developed in FNQ {Roberts & Stimson 1998}. MSA helps to create a multi-dimensional picture of how factors interact in supporting economic activities in a regional economy. There are similarities between MSA and input output (I/O) analysis, which describes the nature of economic transactions that occur between industry sectors of an economy. MSA is used to measure the competitiveness or importance of different criteria or factors across all and between different industry sectors of an economy. Factors that can be measured by this technique include:

- Competitiveness of Regional Competencies;
- Competitiveness of Strategic Infrastructure;
- Competitiveness of Regional Resources;
- Regional Risk;
- Potential Markets; and
- Economic Development Potential.

MSA involves using surveys or focus groups of industry, government and community leaders to collect information on attributes of competitiveness that are important to a region's economy. This information is record in a matrix which is then analyzed to identify features of significance to the competitiveness in a regional economy. The technique is most valuable where factual data relating to a regional economy is limited. FNQ, like most regions, lacks good data for economic analysis and planning purposes. The wealth of knowledge that exists in the minds of individuals involved with business, government, learning and community organizations in a region like FNQ can be collectively harvested and analyzed to develop a high level of understanding about what makes this and other regional economies tick. The theoretical basis for the using MSA as a tool to benchmark the competitiveness of the region is discussed below.

There are two basic sets of data collected for MSA applications. The first set of data measures the strength (S) of attributes or factors that are important to the aspects of competitiveness being measured in a region's economy. These are listed above. The second set of data related to the importance (I) of these attributes or factors to the competitiveness of a regional economy. Data is collected on all industry sectors. Table 2.2 shows the basic elements of the

MSA matrix. The relative strengths and importance of attributes X…. Z for industries (A….C) are recorded in a matrix table using a non-numeric or Likert scale usually 1 - 5. In its simplest format, the scores in each cell of the matrix are summed vertically and horizontally, and averaged. The average scores are then presented on a graph. The row score averages permit an index of relative strengths of attributes that support all industry sectors to be developed and used for analysis. The column score averages enable the relative strength attributes supporting industry sectors to be identified and analysed.

Table 2.2 ***Basic MSA Matrix Format Used for Data Collection***

	Industry Sectors (*j*)				
Attributes (*i*)	A	B	C	$\sum i$	Ave
X	0	2	0	2	0.66
Y	1	3	2	6	2.00
Z	0	0	2	2	0.66
$\sum$ j	1	5	4	10	
Ave	0.33	1.66	1.33		

Using this basic technique, it is possible to use the MSA framework to measure the different elements of competitiveness listed above and to analyse specific attributes contributing to the competitiveness and development of a regional economy. The number of industry sectors used in the analysis depends upon the level of detail desired. Best results have been obtained where the number of industry sectors ranges between 16 and 40. It is useful if industry sectors selected match the same sectors adopted for regional input/output tables (I/O). This enables comparisons to be made between I/O tables and MSA matrices.

The technique used to collect the data for MSA depend upon the quality of information available. Where information is poor or funding and time is a constraint, expert *panels, focus group and Delphi techniques* can be used to develop the matrix. Small numbers of generally well informed experts can usually complete a matrix in less than one day. For more detailed analysis, surveys are used. The analysis under taken for this book involved a survey of 206 businesses and organisations in the FNQ region.

Multi-Sector Analysis Explained in More Detail

It is important to recognise there are significant differences in the measurement of the competitiveness of attributes between industry sectors. The strength of marketing in tourism in FNQ for example would be expected to be much greater than marketing for government or health services. The differences in the measurement of the strength of attributes are often explained by the importance the attributes have to the competitiveness of an industry sector. It an attribute is not important, then in many situations, the strength of the attribute is weak. Comparing the differences between the strength (S) and the important (I) of attributes provides a useful insight into factors that are important to industry competitiveness. If the strength (S) of a competitiveness attribute is weak and the importance (I) is high, this may suggest the need for actions to strengthen weak competitiveness factors.

The measurement of the strength and importance of attributes provides important information about industry competitiveness. However, the MSA strength matrix assumes that the attributes measured for every sector carry equal weight or importance for the economy as a whole. This is seldom the case, as some sectors of the economy are always more important than others in driving economic development. For example, a competitiveness attribute such as *marketing intelligence*, will be expected to be much more important to the competitiveness of the tourism in FNQ than the community services. To make a comparison of competitive factors for all industries it is necessary to weight the measurement of the strength (S) attributes for each industry attribute. If there are *j* industries and *I* attributes being measured, the weighting factor applied becomes $\omega_{ij.}$ This can be done by using the importance (I) score as the measurement weight (ω). Thus, if I = ω, the product of S and ω gives a weighted score $\omega_{ij}S_{ij}$. $\omega_{ij}S_{ij}$ represents a measure of the magnitude (M_{ij}) of the relative strength of a competitive attributes and can be expressed as:

$$M_{ij} = \omega_{ij}S_{ij}.....(1)$$

The magnitude score enables comparisons to be made of attributes across industry sectors. The Magnitude (M) score can be applied to a wide range of competitive factors being assessed.

To measure the ***relative strength of competitive attributes*** in an economy, the $S_{ij}\omega_{ij}$ scores for each industry sector are summed across each row and averaged. The average $\bar{M}_i$ for each row is divided by the number of industry sectors (n_j) to provide an index measure the relative competitiveness of the attribute to the economy as a whole (2):

$$\overline{M}_i = \frac{1}{n}\sum_{j=1}^{j=n} \omega_{ij} S_{ij} \text{.....(2)}$$

To measure the magnitude of ***relative strength of industry sector attributes*** $\bar{M}_I$ the industry column scores are summed and divided the total by the number of competitive attributes (m_i) ….(3).

$$\overline{M}_j = \frac{1}{m}\sum_{i=1}^{i=m} \omega_{ij} S_{ij} \text{.....(3)}$$

Dividing the M_i and M_j line and row average scores by the maximum possible $\omega_{ij}S_{ij}$ score provides a common scale of 0-1 for measuring all competitive factors evaluated by MSA.

The above can be illustrated by way of a simple example. Assume we want to measure the ***Strength, Importance*** and ***Magnitude*** of 5 competitive factors (V……Z) across three industry sectors (A...C). A scale (1-5) is used to estimate the strength (S) and importance (I) for each attribute for the three industry sectors. The scores for the ***Strength*** matrix are shown in Table 2.3 with the mean and index score for the attributes strengths shown in the last two column on the left. The index shown in the last column is derived by dividing the mean score by 5 (the maximum score). Similarly, the row score average is derived from the column scores and divided by 5 to give the index scores. The row and column scores can be graphed. A graph of the column index gives a measure of the relative strength of the most competitive regional industry attributes. A graph of the row index gives a measure of the industries with the most competitive attributes.

Table 2.3 Matrix of Attribute Strengths (S)

Industries (*i*)		A	B	C	Mean	Index
Attributes (*j*)	V	3	1	1	1.6	0.32
	W	1	3	2	2.0	0.40
	X	0	1	2	1.0	0.20
	Y	2	4	3	3.0	0.60
	Z	2	4	5	3.3	0.66
Mean		1.8	2.6	2.6		
Index		0.36	0.52	0.52		

The second measurement of competitiveness relates to ***Importance*** (I) of industry attributes I*ij*. This is shown in Table 2.4. The matrix and graphs are prepared the same way as the above. The graph for the ***Index of Industry Attribute Importance*** is developed from the column index figures. The graph

for the ***index of regional attribute importance*** is developed from the row index figures.

Table 2.4 Matrix Showing Attribute Importance (I)

		A	B	C	Mean	Index
Attribute	V	2	4	2	2.6	0.52
	W	2	2	4	2.6	0.52
	X	0	1	5	2.0	0.40
	Y	3	3	4	3.3	0.66
	Z	3	2	5	3.3	0.66
Mean		2	3	4		
Index		0.4	0.6	0.8		

The third matrix measures the ***Magnitude*** ($\omega_{ij}\ S_{ij}$) of competitiveness factors. The measurement I is used as the weight ω. The matrix table, Table 2.5, represents the $\omega_{ij}S_{ij}$ values for all the S and I factors. Thus the strength score AV_S =3 (Table 2.3) is multiplied by the VA_I (ω) score= 2 (Table 2.4) to give an $\bar{M}_{ij}$ value of 6 in the VA cell of the matrix table, Figure 2.1. From this matrix the column and row score are averaged and divided by maximum $\omega_{ij}S_{ij}$ score to prepare the two magnitude indexes.

Figures 2.1 and 2.2 illustrate graphically the two indexes of Magnitude produced using the technique. The analysis shows clearly the criterion that is most competitive is Criterion Z (Table 2.3) and that Industry C has the strongest weighted competitive factors supporting it (Table 2.4). The analysis is then used to explain the reasons for differences between sectors, and which sectors have competitive factors that may need strengthening.

Table 2.5 Matrix showing Magnitude Scores

		A	B	C	Mean	Index
Attribute	V	6	4	2	4	0.16
	W	2	6	8	5.33	0.21
	X	0	1	10	3.66	0.15
	Y	6	12	12	10	0.40
	Z	6	8	25	13	0.52
Mean		4	6.2	11.66		
Index		0.16	0.25	0.46		

Figure 2.1 Index of Regional Attribute Competitiveness

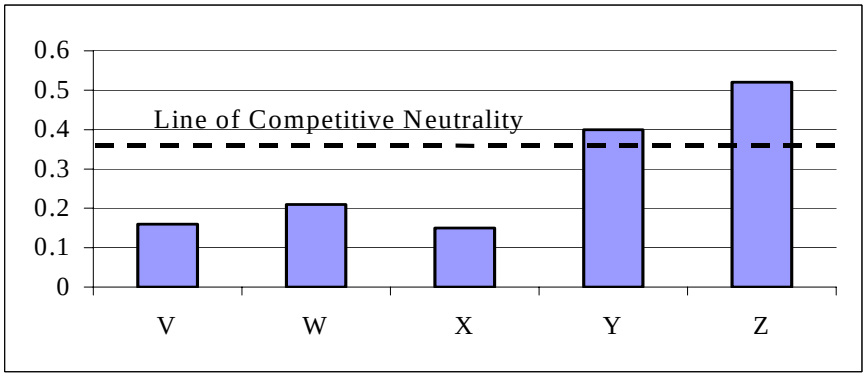
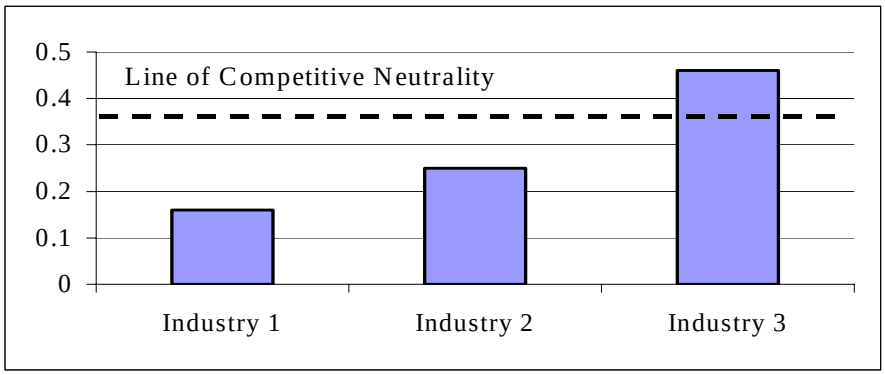


Figure 2.2 Index of Industry Attribute Competitiveness



Line of Competitive Neutrality

The relative strengths and weaknesses of competencies can be evaluated by comparing the differences between the magnitude and a score that is neutral. In the survey, scores ranged from 1-5, five being very strong, one being very weak. If the (S) and (I) score of 3 is considered neutral, then it is possible to develop an index representing competitive neutrality. When scores used for the analysis are calibrated into index scores, the index line of competitive neutrality (LCN) is given a value 0.36.[5] The line of competitive neutrality suggests that an industry is able to compete in the export market but may have difficulty doing so.

[5] LCN is obtained by multiplying (S) 3 x (I) 3 = 9 and dividing by 25 (maximum SxI) = 0.36.

Formula Used for Data Collected by Questionnaires or Surveys

In the case where the S and I scores are derived from a sample survey or questionnaire, the M_{ij} score is calculated by multiplying each score by (4):

$$M_{ij} = \frac{1}{r}\sum_{1}^{r} \overline{\omega_{ij}} S_{ij} \text{.....(4)}$$

Where r is the number of survey responses for each industry S_{ij} and I_{ij} attribute. An average of 8 responses per S_{ij} and I_{ij} were obtained for the FNQ survey. In most cases the industries selected for each industry sector were the largest and most competitive in the region.

Analysing the Competitiveness of the FNQ Region

In the chapters that follow different aspects of competitiveness in the Far North Queensland Region Economy are analysed using Multi-Sector Analysis. The analysis provides important information about the economy and establishes benchmarks for monitoring the future performance and change in the economy. Monitoring changes in the competitiveness of FNQ will be important to business, organisations, government and the CREDC to develop new strategies, manage regional risk, and develop new business and investment opportunities for the region.

The chapters that follow discuss and analyse the competitiveness of regional competencies, infrastructure and risk. The analysis in Chapter 3 covers the overall competitiveness of competencies in the economy with a separate case study of selective industry sectors that will be important to the future development of the region.

Chapter 4 analyses the competitiveness of regional strategic infrastructure. Chapter 5 analyses regional risk. The FNQ Region has one of the highest levels of risk exposure in Australia. The potential impact of natural disaster is high, but so are factors related to commodity prices and exchange rates. As the region becomes more internationalised much greater attention will need to be given to strategies to reduce risk.

Chapter 6 uses a different application of MSA to identify economic opportunities in the region. There is strong evidence that the weaknesses in inter and intra industry collaboration is undermining the potential of the region to expand its industry base. The analysis also provides a very useful insight into the future orientation of collaboration between local, national, and international business and markets. These findings will be important in developing strategies for markets and new products by business in the region.

3 AN ANALYSIS OF COMPETITIVE COMPETENCIES IN THE FAR NORTH QUEENSLAND ECONOMY

Introduction

This chapter analyses the competitive competencies of 28 industry sectors comprising the FNQ region. Competencies are not resources, but the unique combination and application of technologies, skills, resources, techniques and management practices that, when combined in certain ways, enable a firm or organisation to produce goods and services that are competitive in export and domestic markets. Building *core competencies* takes time and requires an understanding of the interrelationship between factors creating the right mix of skills and resources to remain competitive. It involves constant provision of missing infrastructure to create a powerful array of competitive competencies to advance firms and industry clusters in a region into the next stage of development. Developing core competencies is part of a learning process for organisations and regions.

To measure competitiveness competencies in the FNQ economy, a series of analytical processes were followed using MSA. In this chapter, the analysis presented measures three aspects of competitiveness:

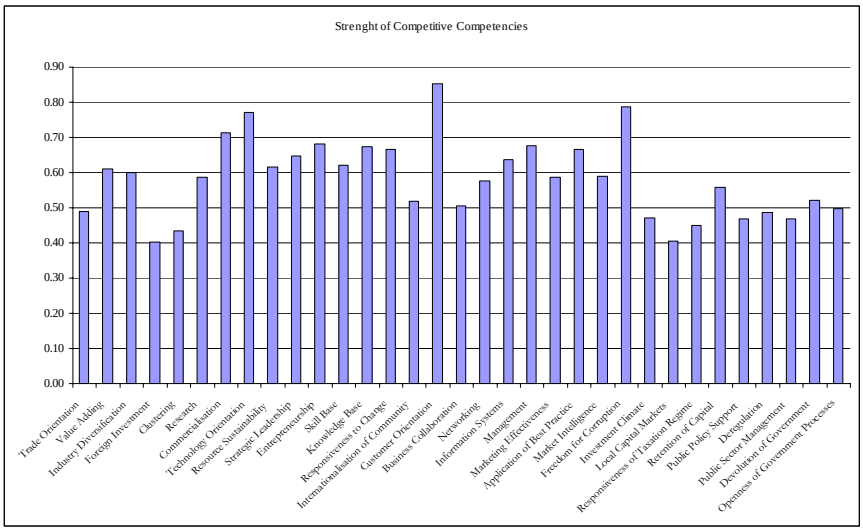
- ***Strength (S)***
- ***Importance (I)***
- ***Magnitude (M)***

Strength (S) of Competitive Competencies

Figure 3.1 shows an index of regional competitive competencies for the FNQ economy. The strongest competitive competency is ***customer orientation***, followed by a low level of business corruption and a strong focus on technology orientation. Customer orientation has been recognised as a significant factor in the competitiveness of regions {Action Asia 1995}. The Cairns Regional Tourism Strategy (1994) also recognised the competitive strength of customer orientation in the region. The strength of technology orientation can be attributed to the need to invest in advanced technologies to remain internationally competitive. Mining, agriculture, tourism, retailing and transportation have had to maintain a high level of technology spending to remain competitive. Heavy investment in technology has enabled the region

to maintain a competitive edge to overcome higher operating costs in the service sector.

Figure 3.1 Index Showing the Strength of Regional Competitive Competences



Two relatively strong competitive competencies are commercialisation and product development. The region has shown initiative in tourism, agriculture, machinery manufacturing and education services development in recent years. Tourism and environmental management sugar production systems and small catamaran class shipbuilding businesses are leading edge products and services in FNQ and are globally competitive. The focus on resource sustainability (FNQ 2010); strategic leadership (Action Asia 1995); entrepreneurship; skill and knowledge development; responsiveness to change; well developed regional network systems; quality of business management and use of best practices are important competencies supporting regional development.

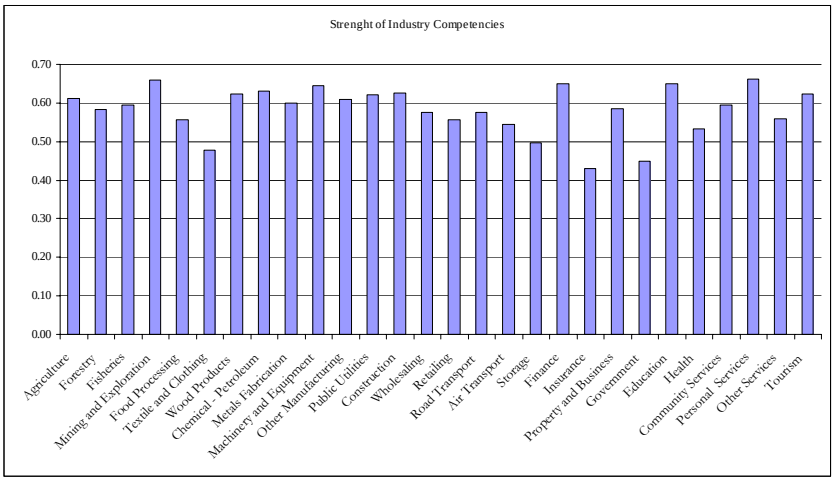
Competencies identified as weak in the economy are:

- attraction of foreign investment (which had a vital role in developing the region's tourism and mining industries);
- industry clustering due to a highly individualistic approach to industry development in the past;
- local capital formation and
- less than favourable tax regime for investment in the region - especially in new tourism products.

The slowness of deregulation by government is an identified weakness. Taxation and deregulation are Federal and State Government matters over which the region has little control; however, government should be made aware that these factors are an impediment to regional economic development. Current reforms to the Australian taxation system will greatly assist investment in new plant and equipment in FNQ with the removal of wholesale tax on many items, but GST will affect the competitiveness of the tourism industry. Overall, the strength of 23 competencies exceeds the index level 0.5, which is competitive neutral.

Figure 3.2 shows an index of industries that have the strongest competitive competencies. Mining, finance, education, community services and tourism are industries with the highest supporting levels of competitive competencies. These sectors also make the highest contributions to GRP. Sectors with weak competencies are insurance, textiles and government. Textiles are a small and insignificant industry - as are most manufacturing enterprises in the region. Insurance is a branch line business. Government, until recent years, was highly centralised in the state capital, Brisbane. There has been greater decentralisation of government functions of late, leading to stronger local decision making in the region.

Figure 3.2 Index of Strength of Industry Competitive Competencies



There are several competitive competencies that have strong statistical associations for all industry sectors in the region:

- technology orientation and commercialisation;

- skill base and strategic leadership;
- response to change and technology orientation;
- networking and business collaboration;
- best practice and business information systems, management competence and intelligence; and
- public sector policy and public sector management.

Importance (I) of Competitive Competencies

The situation where all industries need to have the same competency strengths to be competitive is unrealistic. There will always be some competencies that will be much more important to one industry than another. It is useful to understand what competitive competencies are considered important to regional industries. Defining the importance of competitive competencies helps public sector policy in allocating resources in setting priorities for strategies to support the local and regional enterprise development.

Figure 3.3 shows an index of the importance of competitive competencies for FNQ. The most important competitive competency is the focus on customer orientation. The next most importance competencies were the development of the skill base, information systems, management, and marketing and taxation reform.

Competitive competencies with low importance index scores are attraction of foreign investment, internationalisation of the community, development of local capital markets, devolution of government responsibilities and industry clustering. There was a significant distribution of means between industry groups for these competencies: for example, clustering in tourism has a means score of 4.4 out of 5 compared to 1.0 for public utilities. While differences are expected to occur between competitive competencies within industry sectors, the overall index is a useful indication of economic priorities.

Figure 3.3 Index Showing Importance of Competitive Competences

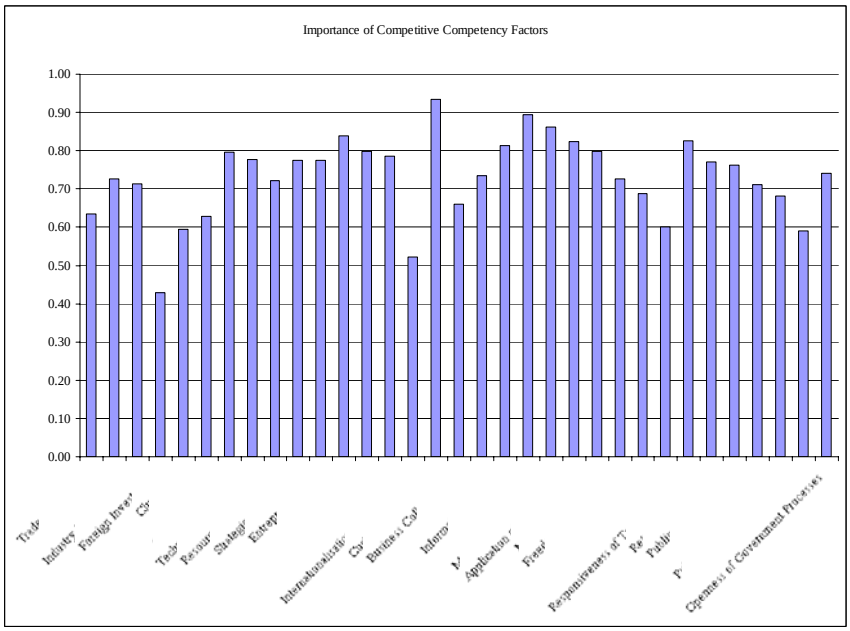
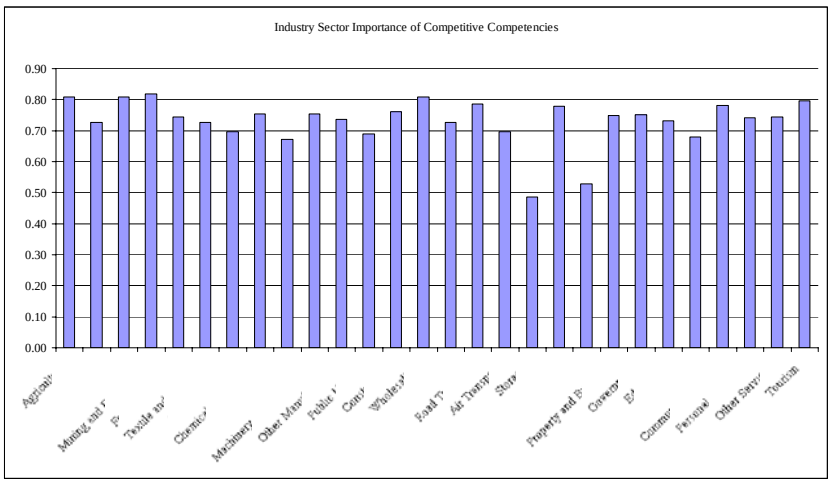


Figure 3.4 is an industry competitive competencies index. The overall distribution of importance factors is relatively uniform across sectors - except insurance and storage. The figure reflects a wide range of importance factors contributing to the competitiveness of the economy. To understand how these differ between industries, it is necessary to analyse each industry. This is undertaken for seven industries later in the chapter.

Figure 3.4 Index Showing Important Industry Competitive Competencies



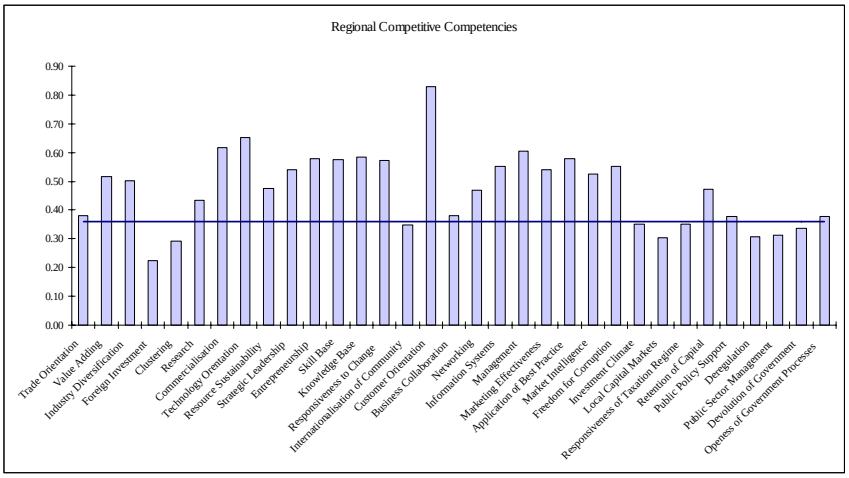
Several statistical tests were conducted to examine the relationships that occur between importance factors for different industries. These tests suggests that there are important relationships between the following in most industries:

- commercialisation, technology orientation, knowledge base response to change and business information systems;
- new technology and responses to change;
- clustering and business collaboration;
- strategic leadership, skills base, response to change, management and best practice;
- knowledge and information systems;
- customer orientation and networking;
- business information systems, best practice and marketing intelligence;
- investment climate and local capital markets;
- deregulation and public sector management; and
- importance of open government, public policy support.

Magnitude (M) of Competitive Competencies

Figure 3.5 shows an index of the magnitude of competitive competencies and the line of competitive neutrality for FNQ. Customer orientation is the strongest competitive competency. This shows businesses in the region appear to be highly focused on servicing the needs of customers. Commercialisation, technology orientation, entrepreneurship, skill and knowledge development, business management, best practices and freedom from corruption are competency factors that are relatively strong. Tourism, tropical agriculture and transport industries demonstrated strong leadership in the development and commercialisation of new export industries (Economic Strategy 1998). In recent years, mining {TSBI & CCC 1995} and education services have been successfully commercialised and exported. There are five international language schools associated with secretarial/management training colleges in Cairns compared to none five years ago.

Figure 3.5 Index Showing Magnitudes of Competitive Competencies



Management competencies in the region are perceived as weak {Action Asia 1995}. The results of the analysis suggest this perception is not correct.

There are 13 competitive competencies identified as neutral or weak. Foreign investment and industry clustering are particularly weak, and this has been acknowledged in several studies and reports {Stimson, et al. 1993}. Despite being a highly internationalised economy, internationalisation of the community is not strong. Several competencies involving the public sector are weak, suggesting the need for the public sector to improve areas of policy and practice for economic development. Other weak competencies such as trade orientation, clustering, business collaboration and local capital markets and deregulation need to be improved.

Figure 3.6 Index Showing Magnitude of Industry Competitive Competencies

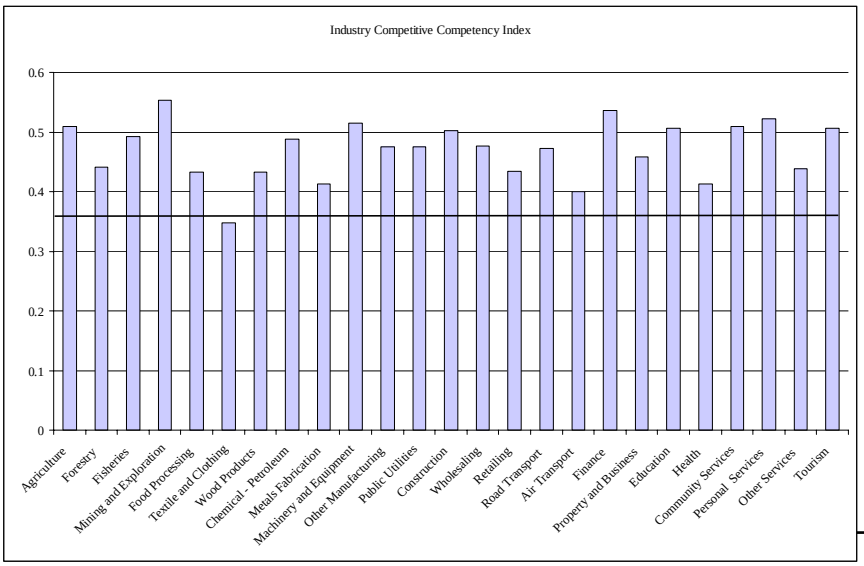


Figure 3.6 shows the magnitude of industry competitive competencies for FNQ. Industries with the highest competitive competencies are finance (the largest industry), mining, agriculture, construction, education, community and personal services and tourism. The finance sector is dominated by housing and superannuation (pension) funds. The commercial finance sector is very weak. This situation is common to most non-metropolitan regions. Personal services have grown in line with strong national and regional growth in this sector. The region has a high number of business franchises in retail, domestic and personal services.[6]

Since 1994, major public and private investment has occurred in the education and community service sectors. These two industries are dominated by public investment and have been under resourced for some time. The less competitive industry sectors of the economy are manufacturing, road transport and health services. Industry sectors that are the least competitive are forestry, textiles and clothing, paper and packaging, petroleum and chemicals, health, government and personal services.

Analysing the Competitiveness Industries and Clusters

MSA provides a useful technique for examining the patterns and strength of competitive competencies. It is helpful in setting strategic directions and priorities for the allocation of resources to support regional economic development. In order to be more strategic in the allocation of resources, it is

[6] The Author has access to the Dun and Bradstreet Database containing over 650,000 records of business types in Australia. FNQ has significantly high location quotients in franchise businesses in the domestic, personal and retail services sectors.

necessary to undertake more detailed analyses at a sector or industry cluster level. Such analysis enables weaknesses, strengths and combinations of competency factors that are important to the development of specific industry sectors to be identified. In some cases, it is possible to identify opportunities to mutually support the development of competencies beneficial to several industry sectors. This opens up opportunities for stretching and leveraging resources between industries to maximise economic output.

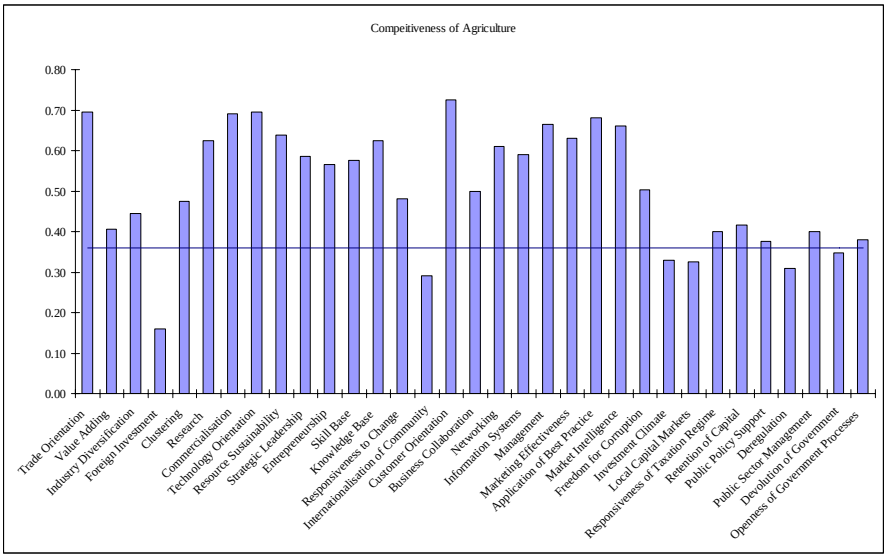
In FNQ, agriculture, food processing, mining, retailing, business services and tourism are the main driving sectors of the economy. The following analysis enables a more detailed understanding of the competencies that are important to the development of these sectors.

3.1.1 Agriculture Sector

Figure 3.7 shows the magnitude of competitive competencies for the agriculture sector. Agriculture has strong competitive competencies in trade orientation, commercialisation, technology orientation, customer orientation, management, application of best practice and marketing intelligence. These competencies were expected to be high, given the strong export orientation of the pastoral and tropical fruit industries. Of the 33 competitive competencies measured for agriculture, 16 are considered strong and 6 not competitive. Competitive strengths for the industry are clustered around research and development and management practice. FNQ is recognised as a leading topical agriculture providing region, applying world's best practice in production management and quality control.

There are six weak competitive competencies in the agriculture sector. Foreign investment is very weak, however, the importance of foreign investment is not considered high. Weaknesses in competitive competencies are clustered into two groups. The first relates to industry development, the other, to public sector management.

Figure 3.7 Magnitude of Competitive Competencies in FNQ Agriculture Sector



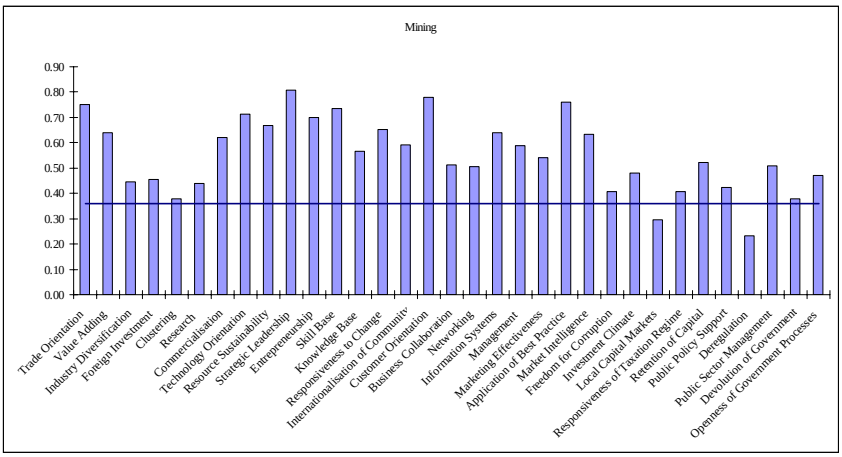
Significant statistical relationships were identified between the following competencies:

- industry knowledge, strategic leadership, networking and freedom from corruption;
- responsiveness to change, commercialisation and government delegation of responsibilities;
- networking, strategic leadership, knowledge base development and low levels of corruption;
- marketing, business information systems, best practices and public policy support for the sector;
- marketing intelligence, entrepreneurship, marketing and public policy support;
- freedom from corruption, leadership, knowledge, business collaboration, open government; and
- public policy support, management, marketing, best practice and taxation reform.

Mining Sector

The Mining sector contributes 7 per cent to GRP and is dominated by bauxite, gold, zinc and silica sand extraction activities. Most activities occur in remote areas, but Cairns is an important service centre for mining operations in PNG and Indonesia. Figure 3.8 shows the magnitude of competitive competencies in the FNQ region for the mining sector. Overall, mining has the strongest sets of competitive competencies of all industry sectors in FNQ. There were 23 competitive competencies with above average strength in the industry. Seven of these are close to the line of competitive neutrality. Competitive competencies indicated as very strong include trade orientation, strategic leadership, customer orientation and application of best practice.

Figure 3.8 Magnitude of Competitive Competencies in the Mining Sector



Only two weak competitive competencies were identified: the lack of a local capital markets and deregulation. The importance of developing a local capital market for mining was neutral. This is because most large mining projects in the region are medium to large scale and are funded by capital from national and international markets. The magnitude of deregulation in the mining sector is low, but the importance (I) of deregulation is high. As there is a good correlation between (S) and (I) competencies in the mining sector, this suggests that the industry recognise the importance of deregulation to improve its competitiveness. This finding was noted in the Mining Task Force Report (1996). It may suggest the deregulation associated with native title is being viewed as an impediment to investment in the industry. Since

the Mabo[7] decision in 1992, significant cuts in mineral exploration have occurred in Australia, with subsequent legislation[8] imposing further regulations on the industry.

There is a strong cluster of competitive competencies relating to factors affecting the development of mining such as leadership, resource management and technology orientation. Mining practices in the region are amongst the most advanced in the world, as are best practices in the management of mining operations. The competitiveness of resource sustainability is high, however, the importance (I) of this factor is higher than (S), suggesting that some aspects of resource management within the industry - possibly rehabilitation and catchment management - must improve in future. Overall, public sector management of the industry is competitive, except in the area of deregulation.

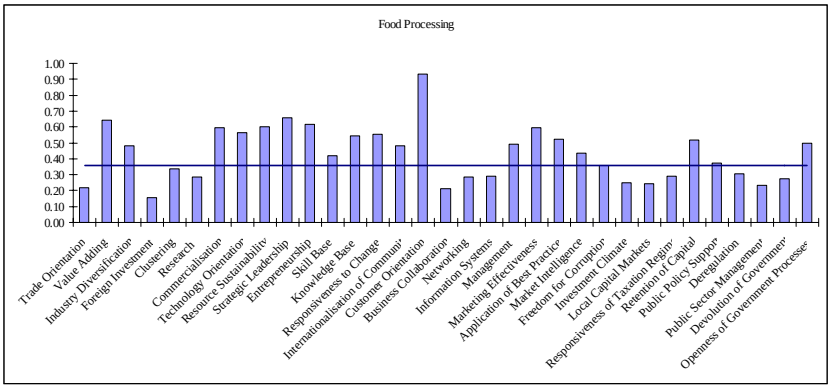
Analysis of Food Processing

The food processing sector is an important industry for FNQ. The sector is dominated by production sugar, which includes raw and refined, molasses and other sugar by-products. The industry also has a number of small-scale producers involved in processing tropical fruit, vegetables and specialised products such as coffee and tea. The food processing industry forms part of a wider food industry cluster that includes fresh fruit and vegetables, marketing and distribution systems.

Figure 3.9 shows the magnitude of strength of competencies in the food processing industry. Despite being an important food-producing region, the industry appears to have significant competency weaknesses. Only 18 competencies out of 33 were identified as competitive. Many factors are close to the level of competitive neutrality. Customer orientation is the only competitive competency identified as very strong for the industry. Two sets of competitive competency factors related to commercialisation and business development (marketing and business practice) emerged very strongly from the analysis.

Figure 3.9 Magnitudes of Competitive Competencies in Food Processing

[7] The Mabo High Court Decision in 1992 recognised the rights of Native Title on non-freehold land. This decision has resulted in uncertainty in the mining sector and new regulations.
[8] Native Title Act 1993.



Weak competitive competencies were identified as trade orientation, foreign investment, business collaboration, investment climate and capital markets and public sector management. These factors are operating significantly below what the industry expects is needed to be competitive. Competitive competencies that have significant differences between observed importance (I) and strengths (S) scores are: information systems; management; skills; marketing intelligence; collaboration; networking; investment climate; taxation; and public sector management.

The results of this analysis indicate there are problems in developing a competitive food processing industry in FNQ. While the sugar industry is competitive[9], the food industry must address a number of competency issues in order to diversify and develop. The food processing industry is becoming increasingly specialised, with Melbourne dominating the sector. The industry requires high levels of R&D, laboratory testing, quality assurance, marketing and distribution expertise. The FNQ food industry does not have many of these features.

The most important competency relationships identified by statistical tests for the industry are:

- clustering and trade orientation;
- technology orientation and commercialisation, entrepreneurship, skills base, knowledge, responsiveness to change, and marketing intelligence;
- skills and commercialisation, strategic leadership, entrepreneurship and knowledge;
- knowledge and commercialisation, technology orientation, entrepreneurship business information systems, marketing intelligence and public policy support;

[9] A small sample of three sugar producers showed stronger competencies than the sector as a whole.

- strategic leadership and entrepreneurship, skills base, business information systems, and public sector management;
- business information systems, and leadership and skills;
- management and knowledge and change management;
- marketing intelligence and commercialisation, skills and knowledge development;
- capital retention and foreign investment;
- public policy support and foreign investment, entrepreneurship, knowledge development; and
- public sector management and leadership.

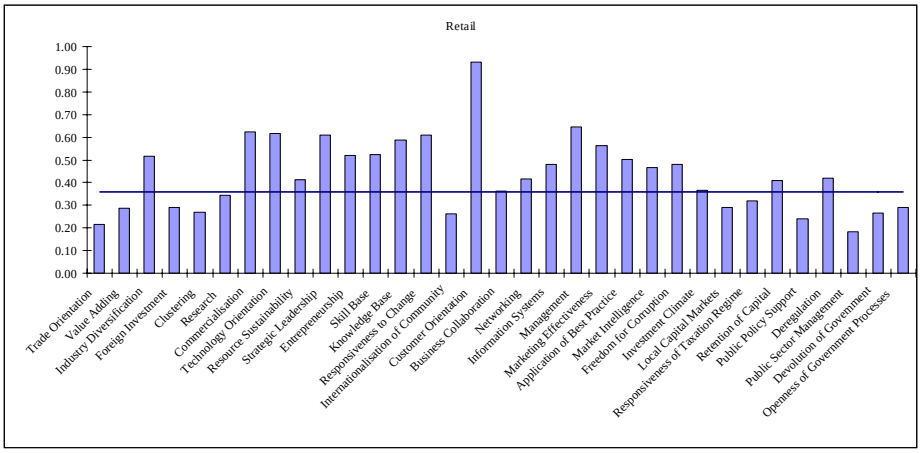
The above analysis indicates commercialisation, entepreneurship, strategic leadership, change management, knowledge and skills are competitive competency factors critical to the development of the industry. The analysis indicates the region has some strength in these competencies, but lacks capacity in many other competency areas. Specifically the industry must give priority to product development and trade orientation, collaboration, networking and clustering, an improved investment climate and policy and public sector management support from government.

Analysis of the Retail Sector

FNQ is a major retailing centre with over 2250 retail shops, 430,000 m^2 of floor space, a turnover of $1.8 bn and employment for over 12,000 people. An estimated 30 percent of retail trade outlets service the tourism industry. FNQ has recently opened the largest tropical shopping centre in Australia, and has a wide range of retailing facilities to service local and international customers. Thematic retailing in tropical cuisine, clothing and souvenirs, some of which are manufactured locally, has expanded in recent years to fill niche market opportunities.

Figure 3.10 Magnitudes of Competitive Competencies in the Retail Sector

Figure 3.10 shows the magnitude of competitive competencies for the retail



sector. Overall the competencies in the retail sector are weak compared with other industries. The industry has experienced a rapid period of expansion in recent years, and is dominated by a number of chain and franchise operators. Much of the control of local industry is in the hands of companies headquartered outside the region, mainly in Sydney and Melbourne. Local operators have little influence over the strategic direction of retail development. This is not peculiar to FNQ. There are 19 identified competitive competency strengths in the industry. Five are marginally above the line of competitive neutrality. Customer orientation is the strongest competitive competency, follow by commercialisation, technology orientation, strategic leadership, management, knowledge, responsiveness to change and marketing effectiveness. There are 14 competencies below the level of competitive neutrality. The weakest competitive competencies are trade orientation, internationalisation, public sector support and public sector management of the industry.

Large retailers have argued strongly for further deregulation of the retail sector in FNQ to satisfy the special needs of the tourism sector. Most tourism activities involve day travel to the reef, rain forest and other attractions outside Cairns, and shopping is an activity conducted during the late afternoon and evenings. The deregulation of trading hours to accommodate for tourism demands, however, has had a significant impact on small business retailers. Further deregulation of the labour market will reduce the number of small-scale retail businesses in the region. Other issues of concern to the retail sector relate to change management, in particular, maintaining skills, and knowledge and technology orientation in response to changes in consumer demand and industry structure.

Statistical analysis shows that the following important relationships were identified for the industry:

- entrepreneurship, research and technology orientation;
- skills base, industry diversification, business information systems, marketing and capital retention;
- business information systems, knowledge base, networking, collaboration and marketing;
- marketing intelligence, industry diversification and best practice;
- investment climate, technology orientation and local capital markets;
- retention of capital, strategic leadership, skills base development, networking, and openness of government;
- public sector management, research focus, public sector policy and delegation; and
- delegation of government functions, clustering, research, public policy support and public sector management.

The analysis suggests that the retail sector must concentrate on improving networks; collaboration; research and information systems. This will allow the region to become more competitive by diversifying and developing new products and services. The focus of developing competencies must be on niche products and services, as bulk and mainline retail services are dominated by national retail and wholesale chains over which the region has little control. The greatest opportunities for the sector will be to develop niche markets by leveraging competencies between industry sectors, such as agriculture, locally manufactured wood products and tourism. Clustering, product and market research, technology and trade orientation, commercialisation and local capital market development will be critical to support new products and services in the sector for local and visitor customers.

3.1.2 Analysis of the Transport Cluster

Transportation contributes 6 per cent to GRP and is one of the most important industries in the region. Cairns International Airport, located a few minutes drive north of Cairns City, is a 24-hour major international and domestic gateway for visitors. It is the fifth busiest in Australia in terms of short-term international passenger movements. The Airport contributes over 3 percent to GRP {Cummings 1996}. The Cairns Seaport handles over 1.1 million tonnes of freight annually, mostly in bulk cargoes, and is an important passenger

terminal for the cruise line industry {Cummings 1996 c}. Road transport is one of the fastest growing industries in both the long and short haul modes. Short-haul tonnage has grown rapidly with the expansion of the sugar industry - especially on the Atherton Tablelands. Rail tonnage has remained relatively stable, but passenger movements on the intra-state Sunliner train to Brisbane have increased. Rapid growth has occurred in private transport and car hire services to support the tourism industry. The tourism industry has had a very significant role in the development of the regions very efficient transport systems {Queensland Department of Transport 1993}.

Figure 3.11 Magnitudes of Competitive Competencies in the Transport

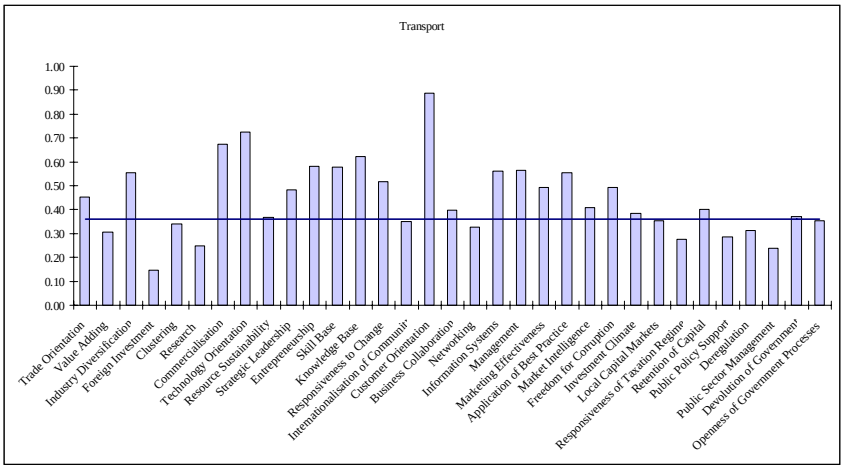


Figure 3.11 shows the magnitude of competitive competencies for the transport industry. The sector has a weak set of competitive competencies. Only 20 of the 33 competitive competencies measured were above the line of competitive neutrality. The strongest competitive competency is customer orientation, followed by commercialisation and technology orientation. These three competency factors were expected to be high, given the sector's close relationship with the highly competitive tourism industry.

Competitive competencies identified as very weak were: foreign investment, research, taxation, public policy support for the industry and public sector management. Research into regional transport has been severely hampered in the past by the lack of good statistical information and survey data on the quality and performance of the industry. These weaknesses are reflected in the difference in strength and importance factors for research and marketing intelligence. The strongest differences between identified importance and strength relates to public policy, deregulation and public management of the

industry. The transport industry is highly regulated across all regions of the state.

Statistical analysis of transport industry competencies shows significant important correlations between the following factors:

- value-adding and business information, low levels of corruption and open government;
- foreign investment and trade orientation, sustainable resources, entrepreneurship, capital retention and public policy support for the industry;
- commercialisation and technology orientation, entrepreneurship, skills and knowledge, responsiveness to change, customer orientation and market intelligence;
- technology orientation and knowledge, strategic leadership, entrepreneurship, skills and public sector management;
- entrepreneurship and commercialisation, technology orientation, foreign investment skills and knowledge, responsiveness to change and public sector management;
- skills and commercialisation, strategic leadership, entrepreneurship, business information systems and market intelligence;
- knowledge and commercialisation, management;
- responsiveness to change and commercialisation, knowledge, customer orientation, management competence, market intelligence, and policy support for industry;
- market intelligence and commercialisation, skills, responsiveness to change;
- public sector policy and foreign investment, knowledge, responsiveness to change and business systems;
- strong public sector management and technology orientation, strategic leadership; and
- open government and value leading, networking.

The development of the transport sector is important in supporting the development of many other sectors of the FNQ economy. The geographic location of the region in relation to national and global markets provides strategic advantages for the air transport industry. The road, rail, and shipping sectors, need to be more efficient to reduce cost structures for other industries. The above analysis suggests that attention to commercialisation,

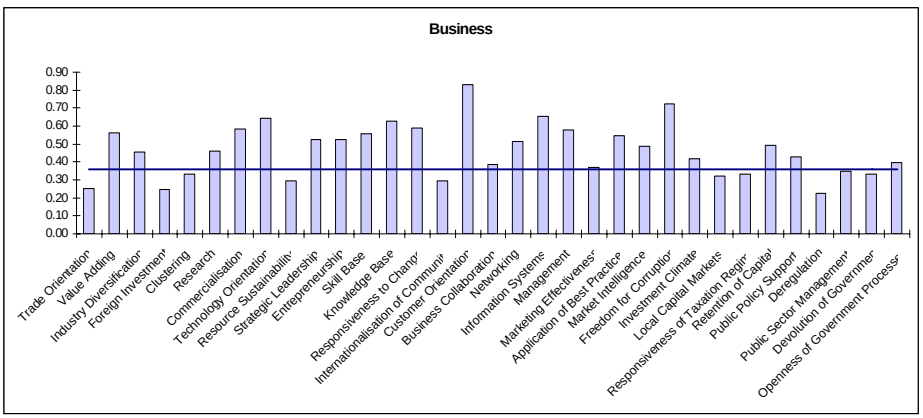
entrepreneurship, skill development and market intelligence will be important to the development of the industry along with research, networking, collaboration and clustering. The land and sea transportation systems have several weak competencies in the above areas. Addressing these factors will be a high priority for the transport sector.

Analysis of the Business and Professional Services Cluster

The business sector of FNQ is made up of a wide range of financial, insurance, property, consultant and other professional enterprises. The structure of the industry comprises a large number of small business enterprises and offices of national and international corporations and service companies. Most businesses service the local economy, but there are a small and growing number of enterprises involved in the export of services to national and international clientele. Cairns is also an important business centre servicing PNG.

Figure 3.12 shows the magnitude of competitive competencies for the business sector in FNQ. There are 23 competitive competencies above the index line of competitive neutrality. Only 10 of these have significant strength. Like other industry sectors in FNQ, customer orientation ranks as the highest competitive competency. Commercialisation and technology orientation are relatively strong. Entrepreneurship, skills, knowledge, information systems, management and the application of best practice are weaker but still competitive. Comparing the strength of these latter competitive factors in relation to their importance, significant differences are observed in competencies related to management, marketing effectiveness, information systems, knowledge and skills. These competencies are inadequate for businesses in the region to compete internationally.

Figure 3.12 Magnitudes of Competitive Competencies in the Business Sector



There were 11 competitive competencies identified as weak. Trade orientation, foreign investment and industry deregulation was very weak. Trade orientation and deregulation have very high importance (I) factors, suggesting these must be strengthened to develop a more competitive business sector. Clustering, local capital markets and business collaboration competencies show significant differences between importance and strength scores, indicating the need to enhance the strength of these factors.

Statistical analysis shows the following important relationships between competencies contributing to the competitiveness of the Business Sector:

- clustering and leadership, skills, knowledge, business information systems;
- leadership and knowledge, internationalisation of the community;
- entrepreneurship and networking, investment climate, knowledge, internationalisation of community, management, best practice, low levels of corruption; and
- public sector management and sustainable resources, retention of capital and public policy support for the industry.

Within the business sector, the level of correlations between competitive competencies is not as high as other industry sectors. This is probably because there is significant diversity within the sector and differences in management practices between locally owned businesses and those operated by franchises or branches of well know business names. Local businesses were more open to collaboration than branch office enterprises. There appears reluctance by well-known companies to help build local capacity through greater collaboration or information sharing, possibly through fear of potential loss of market share. Some local branches of well-known business names have little autonomy to act locally, with management decision-making taking place at state and national office level. These issues will impede the development of competitive competencies, but are part of the challenge of building and regional capacity to compete in the global economy.

Analysis of the Tourism Cluster

Tourism is FNQ's largest export industry. The potential development of the region as a major tourism destination was recognised as far back as 1947 in a parliamentary inquiry (Parliament 1947). It was not until 1984 with the opening of the International Airport and several large resort and accommodation facilities that the tourism industry took off (Roberts 1996). The industry is dominated by a small number of international hotel, duty free,

and tour operators, with a large number of local operators providing a range of services to the large industry operators. One of these operators, Daiyiko, has controlling interest in more than 10 percent of the tourism industry {Stimson et al. 1998}.

Figure 3.13 Magnitudes of Competitive Competencies in the Tourism Sector

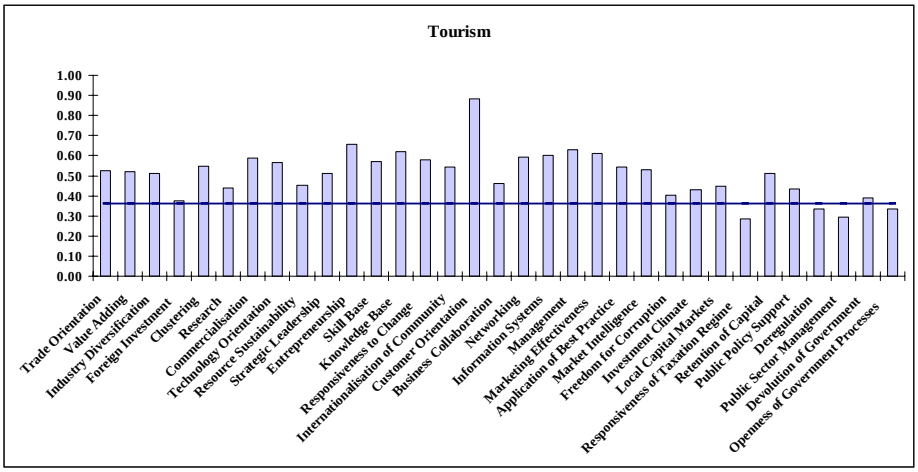


Figure 3.13 shows the magnitude of competitive competencies for tourism. These are 29 competitive competencies above the line of competitive neutrality. Customer orientation dominates the competitiveness of the sector. There are a broad range of competencies with significant strengths across the sector including research, commercialisation, trade orientation, entrepreneurship, management, best practice and public policy support for tourism. Only three competitive competencies, foreign investment, freedom from corruption and devolution of government functions are below competitive neutrality. Overall, the strength of competitive competencies within the industry is high.

Weak competencies occur mainly in public sector activities associated with tourism. Deregulation and public sector management is weak confirming anecdotal evidence gathered from focus group discussions. Retention of capital is also a problem. The importance of retaining capital is ranked highly. Public sector support functions are not sufficient to ensure the industry is as competitive as it could be.

Important relationships between competency factors contributing to the development and competitiveness of tourism were identified as:

- sustainable management of resources, industry clustering, technology orientation response to change, marketing intelligence and capital cattle investments and rehabilitation projects;

- technology orientation and commercialisation;
- skill base development, knowledge, low level of corruption and capital retention;
- business collaboration, clustering, commercialisation, technology orientation, strategic leisure, knowledge, and responsiveness to change;
- business information systems, clustering, commercialisation, strategic leisure, skills, knowledge, collaboration, responsiveness to change, marketing and marketing intelligence;
- local capital market development, foreign investment, research, technology orientation, skills development, marketing and marketing intelligence;
- capital retention, improving the skills base, collaboration, best practice, corruption free environment, industry support policy and improved public sector management;
- public sector management, commercialisation and capital retention; and
- open government and public sector support for industry.

The analysis of tourism shows it has some of the highest levels of competitive competencies for all industries in the region. There are competencies that are important to the industry that need enhancing, in particular, the strength of public sector competencies, related to policy support, management and deregulation. Trade orientation and marketing effectiveness are not as competitive as they should be. This suggests the need for better market intelligence and resource leveraging to assist with product development.

Summary

This chapter has identified important competitive competencies that support the development of the economy of the region. These analysis factors related to the strength, importance and magnitude of competencies provide an important basis for benchmarking against future development. Statistical tests have identified important relationships between competitive competency factors. The future development of the economy will depend upon developing these relationships.

Competitive competencies, however, are only one aspect of competitiveness affecting the performance of the region's economy. The role of strategic infrastructure is equally important and is evaluated in the next chapter.

4 AN ANALYSIS OF THE COMPETITIVENESS OF STRATEGIC INFRASTRUCTURE IN FNQ

The relationship between infrastructure and economic development has been studied widely. The roles played by different types of infrastructure in supporting the development of sectors within local economies are, however, not widely understood. The following chapter analyses the competitiveness of strategic infrastructure supporting the FNQ economy. The chapter commences with an overview of the relationship between infrastructure and economic development, followed by a discussion of the demand for infrastructure services in the FNQ region. An analysis is then undertaken of the strength, importance and competitiveness of strategic infrastructure. Statistical analysis has been used to identify important elements, links and combinations of infrastructure needed to support the development of the FNQ economy.

Strategic Infrastructure Investment in Far North Queensland

The development of the Cairns International Airport in 1984 has been the most important infrastructure investment in Far North Queensland. The airport is estimated to contribute directly to more than 3 percent of the GRP {Cummings 1996 b; Ernst & Young 1994}, but its significance in terms of driving other sectors of the economy is much greater than this. The airport has induced the development of international tourism, with over 180 international flights servicing the region weekly. Without the international airport, the region would have remained a branch line economy.

Table 4.1 Estimated Demand for Infrastructure FNQ 1991/92 to 2000/01 ($m)

Mode of Infrastructure	Estimated Expenditure 1991/92 to 2000/01	Estimated Shortfall
Aviation	$147	$8
Ports	$53	$24
Roads	$520	$182
Rail	$70	-
Water supply	$93	$19
Sewerage	$96	$8
Waste Management	$30	$4
Electricity*	$297	-
Telecommunications*	$47	-
Total	$1353	$245

Source: Blurton Russell 1993a; 1993b
*Figures excludes trunk infrastructure

Over the past 10 years, extensive studies have been conducted into planning for regional infrastructure {Blurton Russell and Associates 1991; Queensland Department of Transport 1993; Cummings 1999}. Two position papers by Blurton Russell and Associates (1993a; 1993b) prepared in 1993 for the Cairns Region Tourism Strategy {OCG 1994} estimated a demand for infrastructure between 1991/92 to 2000/01 of $1353 million, noting a short fall in public sector funding of $245 million over the decade (see Table 4.1 above). The FNQ 2010 regional planning project is currently upgrading the estimates for infrastructure services in the region for the next 10 years.

Despite the significant resources expended by public agencies to plan for infrastructure in the region, there has been little research conducted to investigate the relationship between infrastructure investment and economic development in the region. An investigation into the relationship between infrastructure investment and tourism in 1997 found a 4 year lag between investment in major infrastructure and rises in visitor numbers and revenue in the region {Roberts 1996}. This supports the research of Reitveld (1995) cited above who observed lag effects of between 3–5 years depending on the nature of the infrastructure. Research found that two specific elements of infrastructure, improvement to airport facilities and telecommunications, have a causal effect on economic performance – although this was not measured. This suggests that these two elements of infrastructure are of strategic importance to the tourism industry and other industries in the region.

Other studies suggest that some elements of infrastructure have a more critical role in supporting the development of some industry sectors over others. The study into agribusiness in the region identifies the critical importance of the local distributor road network and storage facilities {Department of Primary Industries 1996}. The mining industry Task Force studies {TSBI & CCC 1995} identified haulage roads as essential to the development of the industry in the Gulf of Carpentaria mineral province and Cape York Peninsula. Other studies {Blurton Russell and Associates 1991; Cairns Chamber of Commerce 1995; Cummings 1999} note the importance of roads and freight handling facilities as key strategic infrastructure in the development of the region. The Tradeable Services Strategy {Daly, et al. 1996} notes the strategic importance of communications and information systems in supporting the development of business services.

None of the above studies have attempted to examine the competitiveness of local infrastructure, or how important different elements of infrastructure are to the development of industry sectors. Consequently, it is very difficult for public agencies to determine what priorities should be given to strategic investment in regional infrastructure. Given the estimated shortfall of over

$245 million in region infrastructure investment over the decade ending 2000/01, there is a need to develop a better means of establishing priorities for infrastructure investment in the region.

Analysing the Competitiveness of Strategic Infrastructure

Using the MSA technique described in Chapter 2 this chapter analyses the competitiveness of strategic infrastructure in the FNQ region. Three aspects of strategic Infrastructure competitiveness were surveyed: Strength (S) Importance (I) and Magnitude (M) of Competitiveness of strategic Infrastructure. From this analysis, it is possible to identify overall strategic infrastructure priorities for the region and selected industry sectors, and using statistical analysis identify some of the reasons why combinations of different types of infrastructure have strategic significance. These are explored in more detail below.

The industry survey of the region sought to measure the strength and importance of 17 elements of key infrastructure for industry sectors. The total number of cases returned from the survey was 206. The overall response rate to the survey was not as good as desired so that a detailed analysis of only three industry sectors, retailing, tourism and food processing, was possible. Despite the weakness of the sample size, the analysis has enabled a better picture of the strength, importance and magnitude of competitive strategic infrastructure for the regional has been identified.

Benchmarking the Strength (S) of Strategic Infrastructure

Figure 4.1 shows the index of the strength of strategic infrastructure for the FNQ region. Telecommunications and electricity services are the most competitive infrastructure followed by air transport, local roads and transportation facilities. The region has very weak storage infrastructure and public transport services, with less than satisfactory levels of service in rail, marine port, library and community infrastructure.

Figure 4.2 shows the relative strengths of strategic supporting infrastructure in different industry sectors. The Food processing industry has the strongest supporting strategic infrastructure, followed by tourism, public utilities and fisheries. The importance of public utilities is reflected by the relative strength of electricity and telecommunications in the figure above. Weaknesses are perceived in the construction, wholesaling and government services sectors.

Figure 4.1 Strategic Infrastructure Strength Index

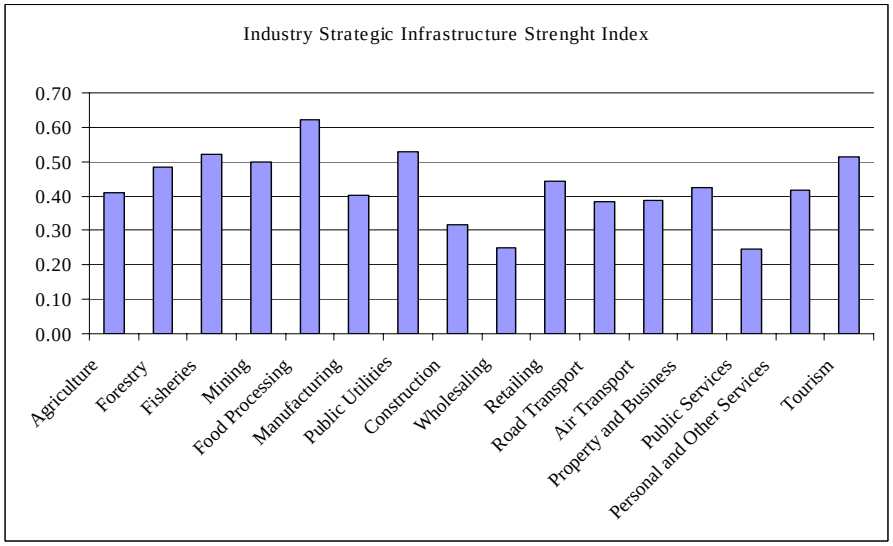
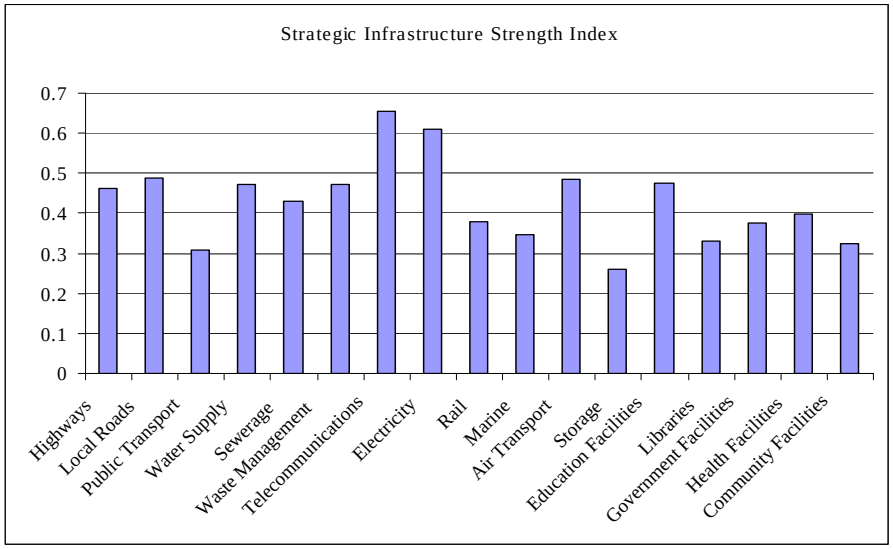


Figure 4.2 Industry Strategic Infrastructure Strength Index



Benchmarking the Importance (I) of Strategic Infrastructure

Not all types of strategic infrastructure carry the same importance in each industry sector; for example, water is less important to the retailing sector than food processing. To identify the importance of different types of infrastructure to the overall economic competitiveness of the region, it is useful to compare the importance of infrastructure to different industries. Using MSA to demonstrate these differences, Figure 4.3 shows the relative importance of different types of strategic infrastructure to the FNQ economy.

Figure 4.3 Importance of Strategic Infrastructure to the Competitiveness of the FNQ Economy

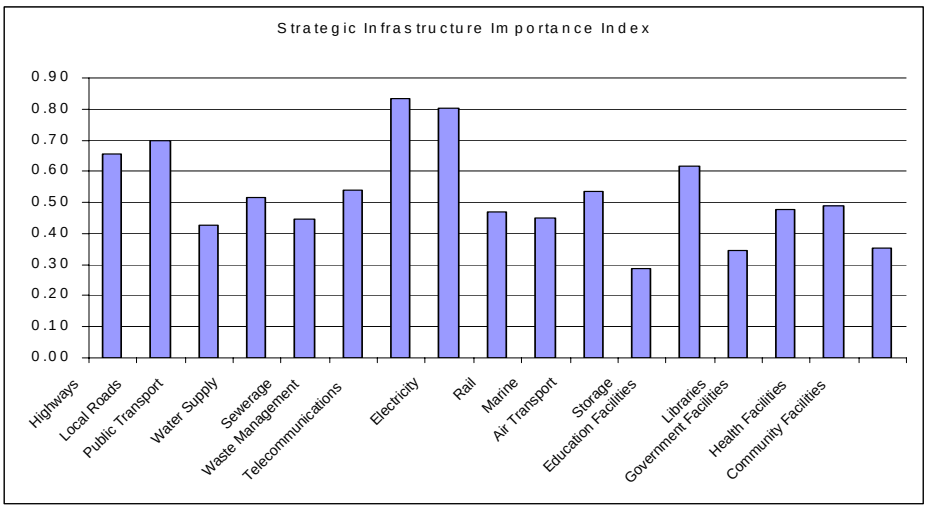
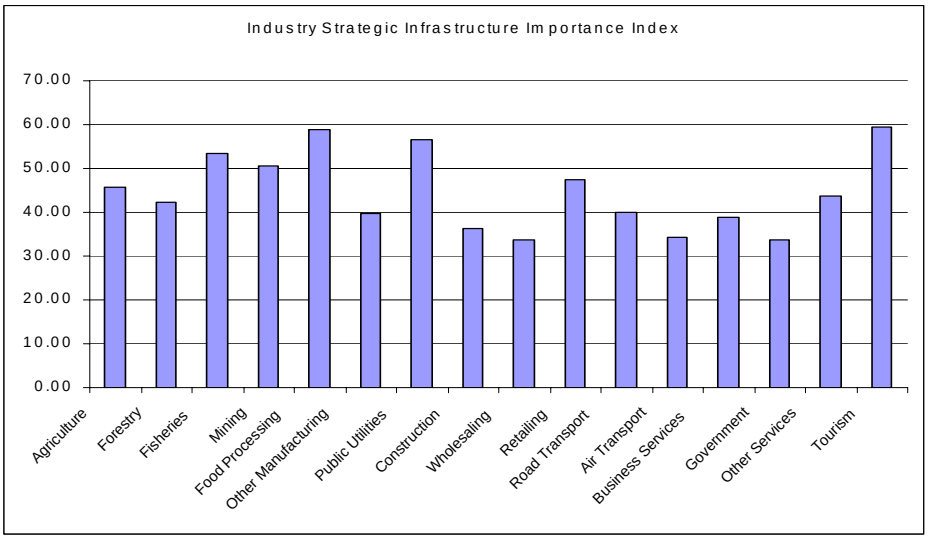


Figure 4.4 shows the industry sectors with the strongest strategic infrastructure. There are significant differences between the manufacturing and services sectors. This is expected, since many elements of physical infrastructure are not required as part of service production processes. In the primary and tertiary industry sectors, the figure mirrors Table 4.1, but the magnitude of the index score is lower. This suggests that most respondents consider the strategic infrastructure supporting their respective industries is below what is necessary to remain competitive.

Figure 4.4 Industry Infrastructure Importance Index



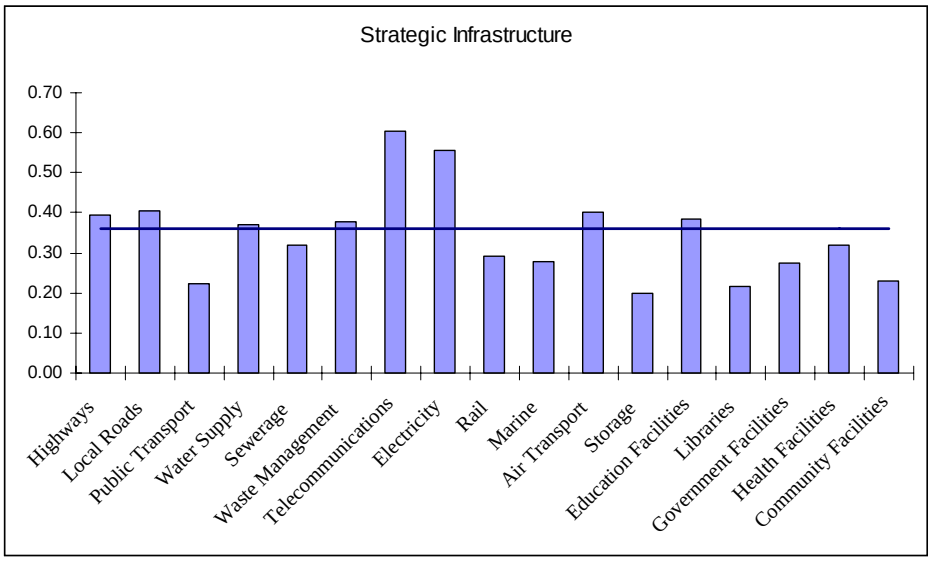
Magnitude (M) of Competitiveness of Strategic Infrastructure

To compare the relative strength of infrastructure between industry sectors, it is necessary to weight strength factors. This is done by multiplying the Strength (S) by the Importance (I) factor to give a weighted score. This is the same as the technique used to weight competitive competencies.

Figure 4.5 shows an index of the competitive strength of strategic infrastructure for the FNQ economy. Telecommunication and electricity services are the most competitive types of infrastructure in the region. Five types of strategic infrastructure: highways; local roads; water supply; waste management; air transport and education facilities have strengths marginally above the line of competitive neutrality. Public transport; sewerage, storage, rail, marine, libraries, government, health and other community facilities are weak or not competitive. The weakness of strategic infrastructure undermines the competitiveness and development potential of the FNQ economy.

An analysis of differences between strength and importance show highways and local roads have a significant difference, suggesting that the competitiveness of theses two types of infrastructure needs to be substantially improved. In most other industry sectors differences between strength and importance factors are not significant.

Figure 4.5 Strategic Infrastructure Index

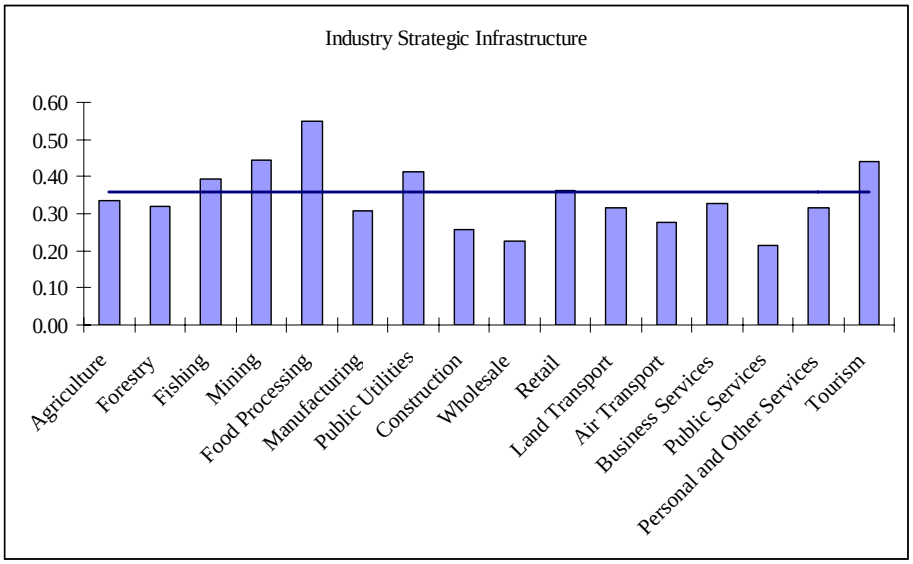


The weakness identified in soft infrastructure services is linked to weak competitive competencies in information, knowledge, training and governance.

Figure 4.6 shows the strategic infrastructure index for different industry sectors of the economy. The industry sectors with the strongest supporting infrastructure are food processing, followed by mining, tourism, public utilities and fishing. There are 11 industry sectors where the competitiveness of infrastructure is below the line of competitive neutrality. The weakest are construction, wholesaling and public (government services). In the last two years major improvements to services in education, justice, health and government agencies have occurred which are expected to substantially improve the competitiveness of infrastructure in these sectors.

The overall industry competitive index figures for infrastructure in the region are low. This suggests respondents to the survey feel the competitiveness of infrastructure falls below what is necessary for the region to operate in a competitive business environment.

Figure 4.6 Strategic Infrastructure Industries Index



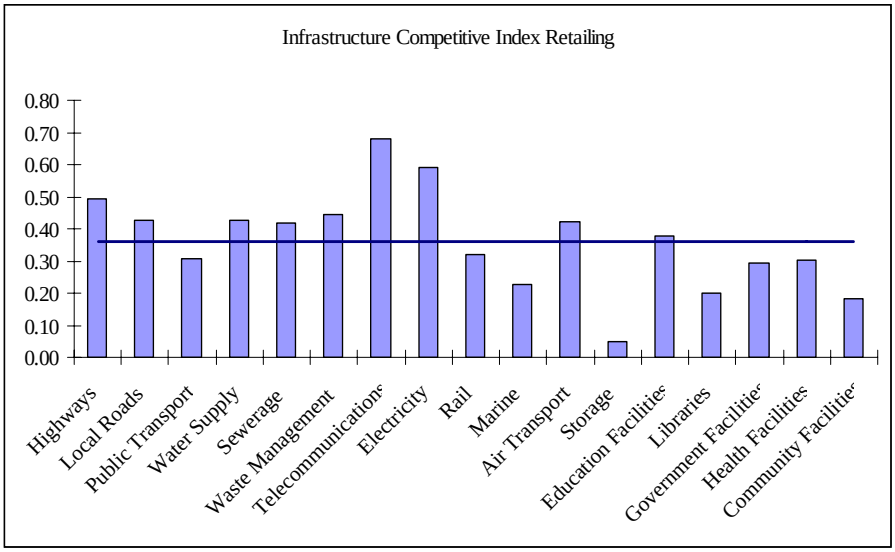
Industry Sector Analysis

The smallness of the sample size meant a detailed analysis of only three industries was possible. MSA and statistical analysis were used to analyse the competitiveness of the retailing, tourism and food processing industries. These are discussed below.

Food Processing

Figure 4.7 shows the infrastructure competitive index for food processing. The overall strength of infrastructure services to the food processing industry is high compared with other industries. Three infrastructure services, rail, shipping and public facilities have index scores close to competitive neutrality. Libraries/information service facilities are the weakest infrastructure for the sector. This is not ranked as a highly important element of infrastructure for industry. Differences observed between strength and importance factors in the sector are very small, suggesting the sector is very competitive.

Figure 4.7 Food Processing Infrastructure Competitive Competencies



Retailing

Figure 4.8 Infrastructure Competitive Index Retailing

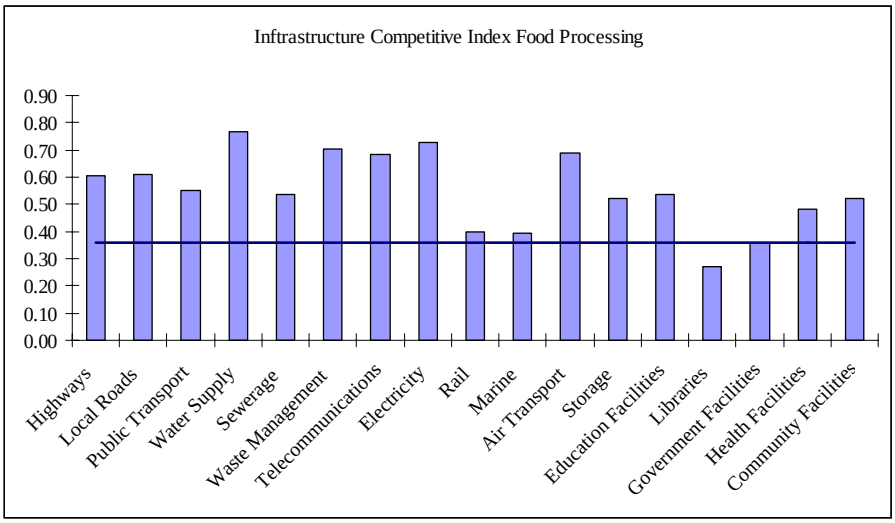


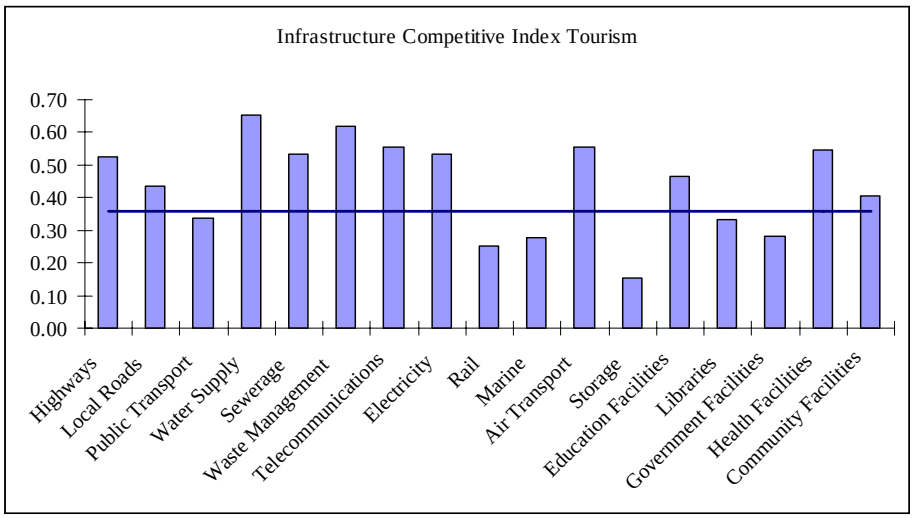
Figure 4.8 shows the infrastructure competitive index for retailing. The infrastructure needs for retailing are diverse and biased towards the provision of soft infrastructure. Only nine of the competitive infrastructure services in the sector have strength measurements greater than competitive neutrality. Basic services, such as water supply, roads, telecommunications and electricity, appear sufficiently competitive to meet the needs of the industry.

Roads, highways and public transport infrastructure needs are below what retailers expect to ensure the industry is competitive. Storage facilities and other public infrastructure servicing the industry are weak.

Tourism

Figure 4.9 shows the infrastructure competitive index for tourism. Nine elements of competitive strategic infrastructure are strong in the sector, with two further elements close to the line of competitive neutrality. The three weakest strategic infrastructure elements for tourism are rail, marine and public transport. Both the quality and quantity of these services are vital to ensuring a competitive tourism industry. Significant differences are observed between importance (I) and strength (S) factors. Economies of scale, location factors and land-use patents, however make it very difficult to operate a profitable service. Short of direct subsidies, it will be very difficult to improve the competitiveness of these key infrastructure elements

Figure 4.9 Infrastructure Competitive Index Tourism



Summary

The above analysis provides an important insight into the strength, importance and relative competitiveness of strategic infrastructure in the region. The low response rate to the survey precluded a more detailed analysis of the competitiveness of strategic infrastructure. A higher response rate would have enabled a more detailed analysis and comparison of strategic infrastructure competitiveness for all sectors of the economy. The low response rate to the infrastructure survey appears to be the result of respondents - especially in

service sectors - not seeing the relevance of infrastructure to the competitiveness of their business operations. The exceptions to this were telecommunications and electricity where response rates were higher.

The quality, intensity and efficiency of infrastructure can have a significant impact on the development and performance of regional economies. Competitive advantage requires regions provide, leverage and stretch infrastructure to maximise the performance capabilities of all sectors of the economy. The above analysis has shown that there are several key elements of infrastructure, telecommunications, roads and electricity that are critical to the economic performance of the region. These three elements of infrastructure were shown by respondents to be the most competitive. The relationship between strength of regional infrastructure and importance, however, suggests that most elements of infrastructure in the region are not competitive and need strengthening.

This chapter has examined the strength, importance and relative competitiveness of competitive strategic infrastructure in the FNQ economy. The result of this analysis provides a useful set of indicators of factors that are important to the competitiveness of FNQ. These findings will be important to the future development of building infrastructure and competencies in the region. Regions that fail to understand and capitalise upon their natural or created competitive advantages run the risk of losing their competitive advantage in future. The competitiveness of regions is constantly under threat from internal and external events and actions that bring about the need for change. An important element of change management in regions is risk management. The next chapter will examine regional risk management.

5 REGIONAL RISK ANALYSIS

Overview

Regional risk involves anticipating the likelihood of events occurring that may impact negatively on economies. Some regional risks are easier to anticipate than others. The risk of a natural disaster such as a flood or cyclone can be evaluated in terms of the probability of an event occurring during a specified time period such as a 1 in 100-year flood. Other events, such as political instability, rapid movement of exchange rates and public policy changes are much less predictable. The risk apportioned to events such as these is closely aligned to perception and is based on personal experience and professional judgement of the likelihood, timing and impact of identifiable events occurring. For many events, history is a good indicator of the possibility of events being repeated or demonstrating patterns with more predictable outcomes.

This chapter analyses regional risk in the FNQ economy. Using Multi-Sector Analysis 30 risk factors are assessed. Business and general managers will need to pay close attention to the management of these risk factors in future.

Three Types of Regional Risk

Risk Impact

The impact of an event perceived as a risk to economic development varies significantly between regions. Events that are perceived or known to have a high impact upon the performance and sustainability of a regional economy need to be considered and managed carefully. Two approaches are necessary for managing regional risk: the first are strategies to mitigate the potential impact of an event upon an economy (these are preventative strategies), the second are strategies to facilitate recovery after an event (or events) have occurred. These are recovery strategies. Both forms of strategy require an understanding of the potential impact of different events upon an economy.

Regional risk management involves an assessment of the impact of different types of risks. Events may be one off or interrelated. Some events will trigger other events in a chain reaction; for example, community unrest can lead to political instability, which in turn increases investment risk, the cost of capital and expected returns upon investment. Most regions in Australia have

well-developed disaster management strategies, but have no strategies for dealing with post-event recovery. This situation was exemplified in the experience of the Kobe earthquake in Japan where industrial recovery was very slow to rebound because of the lack of post disaster economic planning.

The perceived or known impact of an event upon an economy will have a significant influence on the formulation of risk management strategies. Regions exposed to high levels of risk need to allocate greater resources to risk management. Similar events occurring in several regions of a country will not necessarily have the same impact in each region. This is because regions have different economic and social structures, and physical environments, that enable some to manage adverse events better than others. Regions have different 'coping abilities' and mechanisms to manage risk. Risk management assessment is made complicated by events impacting differently upon industry sectors of an economy. A rapid rise in energy or utility charges will have a greater impact on the manufacturing sector than on services. Understanding the impact of sector industry regional risk is important. By assessing perceived or know levels of risk, regional organizations can improve the targeting and allocation of resources for regional risk management more efficiently.

Risk Possibilities

A second important element of regional risk management is the assessment of risk possibility. The possibility of different types of risk is uniform throughout an economy. Predicting regional risk possibilities is difficult, compared to say portfolio theory[10] where beta coefficients for risk can be calculated easily {Lumby 1984}. In portfolio analysis, there is always a significant amount of information available on corporations to evaluate the risk of return on capital. In regional risk analysis all economic units are included in the portfolio and information on these is either absent or imperfect. Regional managers need to have some basic appreciation of risk for proper strategic planning and management. Some events, using local knowledge and experience can allow for higher levels of possibility or predictability to be assessed. The possibility of most risk is much more open to conjecture. It is very useful if some framework for possibility can be assessed, as this enables regions to develop a state of readiness or

[10] See Lumby, S (1984) pages 125–149 for discussion on portfolio theory and analysis including the calculation of beta coefficients for assessing risk of return on an investment portfolio.

preparedness and set priorities for dealing with different types of risk as they arise.

Anticipated Risk

The impact of specific events upon a regional economy differs between industry sectors. If a risk impact factor is multiplied by its risk possibility factor, it is possible to gain an indication of the magnitude/time of events[11]. This give an indication of anticipated risk in terms of its relative impact upon different industry sectors. Thus

[risk impact x risk possibility] = anticipated risk

Anticipated risks allow priorities to be set for risk management in a regional and sector industry context. The impact of events like an earthquake, for example, may be significant in region A, but the possibility of the event may be very remote. For region B. located on a fault line the possibility of the event occurring will be very high. The level of anticipation of risk will be greater in region A than region B. The risk management strategies and priorities for the two regions will be different.

Within both regions, the risk management strategies for different industry sectors will vary significantly. The level of risk anticipation for an event such as loss of international markets will be greater in an export-orientated sector than a service sector in most economies. A much higher level of risk preparedness will be required in the export sector. Anticipated risk is important in discerning the priorities for strategic planning involving regional risk management. It enables planners and policy advisers to identify which sectors of the economy are anticipated to be most susceptible to risk and to set priorities to minimize economic shock.

Risk Impact (I) Assessment

Figure 5.1 is an index of the potential impacts of 30 possible events upon the FNQ economy. The index was developed from the questionnaire in which respondents were asked to rank on a scale of 1-5 the impact of each event on their industry. The data was compiled for all industry sectors in a matrix and the ***risk impact factors index*** developed by summing the column score for each risk factor and dividing this by a maximum possible score for all factors.

[11] This is similar to the way strengths were multiplied by importance factors to developed weighted competitive competencies score

The results of this analysis show a loss of telecommunication services, rapid changes in exchange rates, unstable industrial relations and a rapid change in consumer demand would have the highest perceived level of direct impact upon the region's economy. These findings reflect the high-level of dependency the region has on international linkages as discussed in Chapter 2. Other high level perceived direct impact risks in the economy are rises in production costs related to transport, communications, inflation and loss of markets. These results suggest there is a high-level of sensitivity to risk impact factors that affect export trade sectors (which are over 50 percent of the economy). Anecdotal evidence suggests many businesses in the region operate on very low profit margins and are not managing regional risk impacts well given the high levels of bankruptcy (ABS Cat. no. 1321.0). Consultation with industry groups suggests there is a low level of risk awareness and how to manage risk.

Figure 5.1 Risk Impact Index

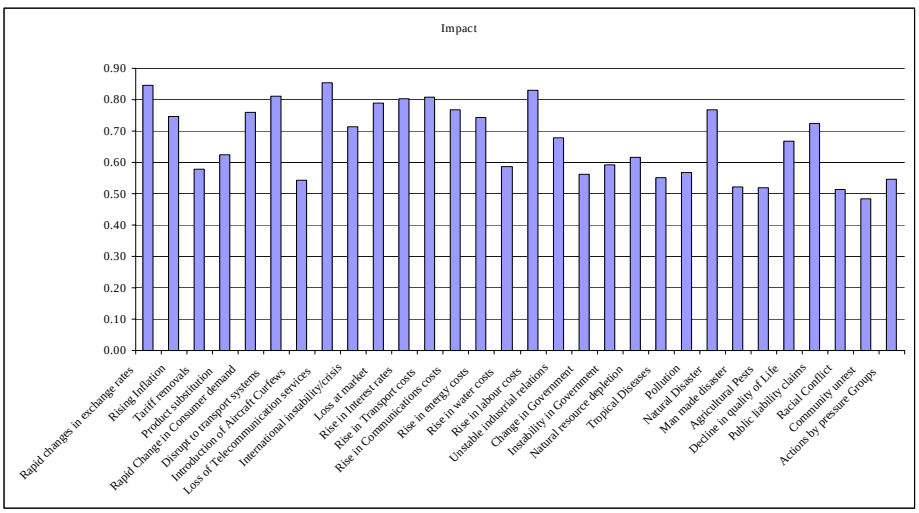
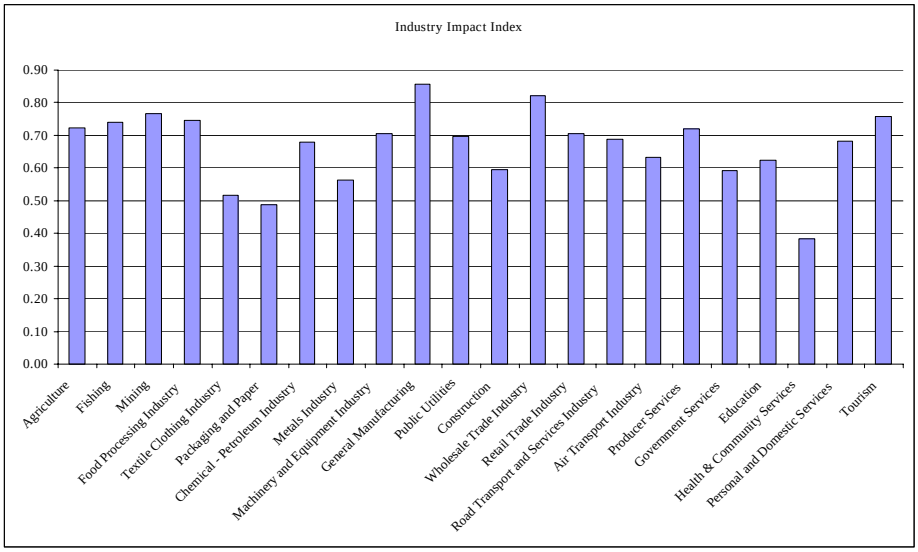


Figure 5.2 is an industry risk impact index for 22 industry sectors used in the analysis. Agriculture and wholesaling/training are industry sectors that are perceived to be most susceptible to events that would impact on the region's economy. These two industry sectors, from manufacturing and wholesale trade, have significant links with other sectors of the economy, and events which might occur in other sectors of the economy would significantly impact upon these two sectors. Other sectors of the economy with high levels of inter-related risk impacts are tourism, producer services, manufacturing, food processing, mining and fishing.

Figure 5.2 Industry Risk Direct Impact Index



Figures 5.1 and 5.2 are important benchmarks of the potential impact of risk to the FNQ economy. It is possible to test potential financial impacts upon the region's economy using the input/output model developed for the region in 1994 (AHURI 1995a). This is worthy of further investigation for use in regional risk scenario analysis and to develop regional risk management strategies. Such research may provide a very useful means of applying MSA for disaster management and economic recovery planning in the region in future.

Risk Possibilities

Table 5.1 shows the possibilities and ranking of 30 risk factors that have the potential to impact upon the FNQ economy. The table was derived from the average score of 202 responses for each risk category. A rapid change in exchange rate is the highest perceived risk possibility factor, followed by natural disaster and changes to government affecting economic policy. These factors are perceived to have more than 80 percent possibility of occurring in the region over the next 10 years. Other risk factors that have high possibilities of occurring include: a major international crisis; rising inflation; rapidly rising interest rates; disruption to transport systems and loss of markets.

Risk factors perceived by respondents to have a low possibility of occurring are: widespread actions by pressure groups; natural resource depletion; racial conflict; public liability claims; community unrest and man-made disaster.

These findings suggest survey respondents perceived relatively high levels of social stability and sound management of the region's resources and economic infrastructure. They also suggest that there is a very favourable climate for long-term investment in the region's economy.

Table 5.1 Risk Possibilities

Risk Factor	Possibility <10 years	Rank
Rapid changes in exchange rates	84.5%	1
Natural disaster	82.4%	2
Changes in government	80.2%	3
International instability/crisis	75.1%	4
Rising Inflation	74.6%	5
Rise in interest rates	73.7%	6
Disrupt to transport systems	72.5%	7
Loss at market	71.8%	8
Instability in government	69.7%	9
Rise in labour costs	67.7%	10
Rise in transport costs	67.0%	11
Rapid change in consumer demand	66.3%	12
Unstable industrial relations	66.0%	13
Loss of telecommunication services	65.8%	14
Tropical diseases	65.4%	15
Pollution	65.4%	15
Agricultural pests	64.8%	17
Tariff removals	64.1%	18
Product substitution	63.5%	19
Rise in water costs	63.4%	20
Rise in communications costs	62.5%	21
Rise in energy costs	61.7%	22
Decline in quality of life	61.0%	23
Introduction of aircraft curfews	60.7%	24
Actions by pressure groups	58.6%	25
Natural resource depletion	57.1%	26
Racial conflict	56.9%	27
Public liability claims	56.7%	28
Community unrest	51.5%	29
Man made disaster	48.3%	30

Table 5.1 provides a useful benchmark of the likelihood of certain events occurring that will impact upon the local economy. Some risks such as natural disaster can be measured more precisely and historical analysis of Chamber of Commerce data suggests there are risk patterns for cyclone activity in the region. Major destructive cyclones have hit the region at intervals of 10 to 12 years, and this would suggest the 82 percent likelihood of natural disaster occurring in the region in the next 10 years is a reasonable possibility. Other factors such as fluctuations in exchange rates, changes in

government, international crises etc. are far less predictable. Nevertheless, developing some estimate of the possibility of these events occurring is important in formulating strategies for regional economic management and risk. Such strategies need to be considered at the regional and firm level – especially for export businesses.

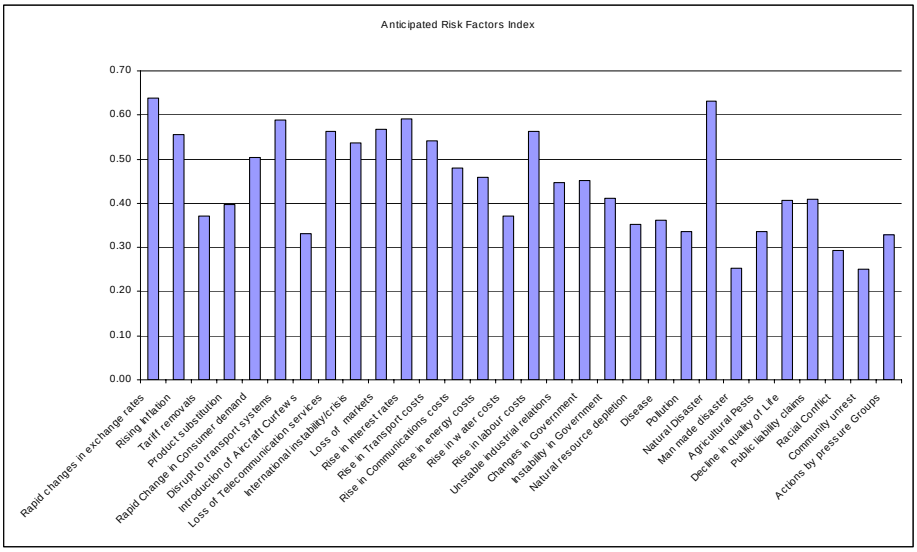
Anticipated Risk

Table 5.2 shows the anticipated risk scores for the 22 industry sectors and 30 risk factors that have a potential impact upon the FNQ regional economy. The scores were obtained by multiplying each impact assessment case by the possibility factor and averaging the score for each industry sector. From the table, indexes for ***anticipated risk factors*** and ***anticipated industry sector risks*** can be calculated.

Anticipated Risk Factors

Figure 5.3 shows the index of anticipated risk factors that have the potential to impact upon the FNQ regional economy. Table 5.2 includes a ranking of anticipated risks for the region. Rapid changes in exchange rates and natural disaster are the two highest anticipated risk factors affecting the economy. The internationalization of the economy makes the region very susceptible to fluctuations in exchange rates especially in the mining, agriculture and tourism sectors.

Figure 5.3 Anticipated Risk Index



Over 40 percent of the FNQ economy is linked to the use of natural resources. The impact of a natural disaster on the economy would therefore be very significant. The high-level of anticipated risk associated with disruption to transport systems, loss of markets and telecommunication services are location risk factors that have the potential to impact severely upon the region's economy. The region is not highly populated and is geographically isolated, subsequently many consumer goods and services must be imported. Disruption to the communication and distribution networks would impact upon most other sectors of the economy.

Other anticipated risk factors impacting significantly upon the region's economy are: rising inflation; an international crisis; rising interest rates and labour costs and a rapid change in consumer demand. The top eight ranked risk factors provide further evidence of the highly competitive nature of the FNQ economy and the importance that industries in the region be strongly focused on managing exogenous risks affecting local economic activity.

The low level of anticipated risk in the area of community/social unrest suggests the region is seen to be relatively stable and free from factors that may cause concern about long-term investment. Environmental risks too are perceived to be low overall, however, some sectors of the economy do have higher anticipated environmental risk.

Table 5.2 Ranking of Anticipated Risk Factors

Anticipated Risks	Anticipated Risk Index	Ranking
Rapid changes in exchange rates	0.65	1
Natural disaster	0.64	2
Disrupt to transport systems	0.57	3
Loss at market	0.57	4
Loss of telecommunication services	0.56	5
Rising inflation	0.54	6
International instability/crisis	0.54	7
Rise in interest rates	0.53	8
Rise in labour costs	0.53	9
Rapid change in consumer demand	0.52	10
Rise in transport costs	0.51	11
Rise in communications costs	0.47	12
Unstable industrial relations	0.46	13
Change in government	0.45	14
Rise in energy costs	0.44	15
Product substitution	0.44	16
Tariff removals	0.41	17
Public liability claims	0.41	18
Decline in quality of Life	0.40	19
Instability in government	0.39	20
Rise in water costs	0.39	21
Agricultural pests	0.38	22
Tropical diseases	0.37	23
Natural resource depletion	0.36	24
Actions by pressure groups	0.36	25
Pollution	0.35	26
Introduction of aircraft curfews	0.33	27
Racial conflict	0.33	28
Community unrest	0.28	29
Man made disaster	0.27	30

Figure 5.4 shows the anticipated risk index for the FNQ economy. The ranking of anticipated industry risk is shown in Table 5.2. The wholesale trade industry has the highest anticipated risk exposure in the region. As noted in the previous section, wholesaling has a high degree of interaction with other industry sectors, supplying a wide range of goods to the retail, tourism, construction, manufacturing and process industry sectors. The wholesale trade industry sector has both primary and secondary risk impacts, which is why it is so vulnerable. Rapid changes in exchange rates and changing markets in other industry sectors will trigger a major impact in the wholesale trade sector, but so will secondary risk factors such as disruption to

transportation. Retailing, manufacturing and business services have similar characteristics. Food processing is the second highest anticipated risk industry, followed by general manufacturing, retailing and mining. The high level of risk exposure in general manufacturing is due to the greatly increased competition in this sector resulting from tariff reduction, competition from labour costs, economies of scale and product change and substitution.

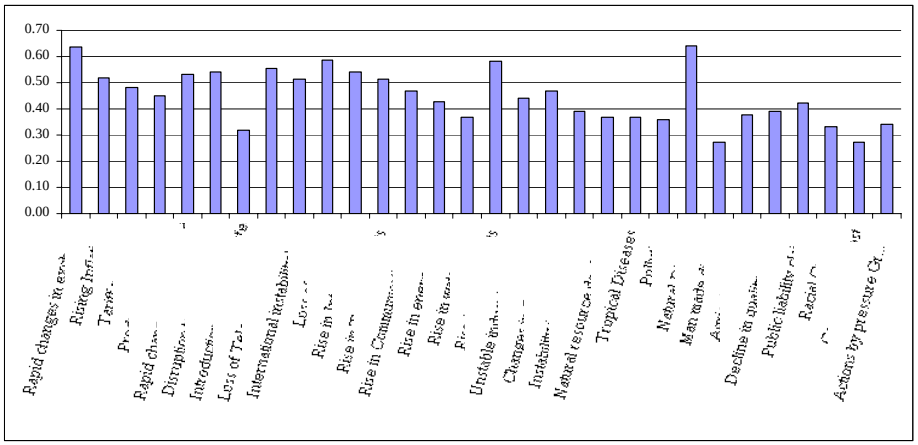


Figure 5.4 Anticipated Industry Risk Index

Most sectors that have a low exposure to anticipated risk are predominantly endogenous industries involved in servicing construction, community needs or small-scale enterprises. These sectors are not highly exposed to competition and trade – except where major construction is involved, such as the region's Casino and Convention Centre.

The economy of FNQ has diversified rapidly over the past 20 years and this has had the effect of reducing its dependency upon one or two industries. The high performance of the region's economy has been driven by the export sector – especially tourism and mining, which are high-risk industries subject to international market forces and competition. The region is thus much more vulnerable to risk, and this will increase in future as the economy becomes more internationalized. This suggests that risk anticipation will increase in those sectors of the economy most exposed to production and international economic factors in future. These include exchange rate exposure, changing markets, product competition and substitution. This will call for greater awareness of risk exposure to industry and strategies to monitor and manage regional risk more effectively in future. This is best applied at a sector level.

Table 5.3 Ranked Industry Sectors Most Exposed to Anticipated Risks

Industry Sector	Rank	Anticipated Risk
Wholesale Trade Industry	1	0.64
Food Processing Industry	2	0.59
General Manufacturing	3	0.57
Retail Trade Industry	4	0.54
Mining	5	0.53
Producer Services	6	0.53
Tourism	7	0.52
Agriculture	8	0.51
Fishing	9	0.48
Road Transport and Services Industry	10	0.48
Chemical - Petroleum Industry	11	0.46
Machinery and Equipment Industry	12	0.46
Public Utilities	13	0.45
Personal and Domestic Services	14	0.44
Education	15	0.41
Air Transport Industry	16	0.39
Government Services	17	0.37
Metals Industry	18	0.34
Construction	19	0.33
Textile Clothing Industry	20	0.31
Packaging and Paper	21	0.27
Health & Community Services	22	0.24

Sector and Industry Cluster Analysis of Anticipated Risk

The risk factor and sector industry analysis above gives a useful insight into the way risks impact upon the FNQ region economy. All events measured by this analysis are unlikely to occur at one time. Each event, when it occurs, will impact upon sectors of the economy differently. It is almost impossible for the region to control or prevent many of these events. Most are the result of exogenous activities. In most cases regional risk would best be managed on a sector industry basis, and will involve the development of strategies and delegation of responsibility to manage risk to local industry groups or firms. However, more detailed analysis is required to develop a strategy for regional risk management in FNQ. The following analyses the anticipated risk for eight of the most important industry sectors of the economy.

Agriculture

Table 5.4 shows the anticipated risk for the Agriculture sector. The sector is the 4th largest export industry in the FNQ economy. The industry is dominated by tropical fruit production and grazing. As would be expected,

natural disaster is the highest anticipated risk factor facing this industry sector. The region is highly susceptible to tropical cyclones and drought. The industry, however, is also significantly affected by tariffs, disruption to transport systems, rising interest and exchange rates, loss of markets and agricultural pests. In 1996, the region experienced a devastating impact on its $80 million tropical fruit industry from an embargo imposed as the result of tropical fruit fly infection. Monitoring and preventative management strategies could have significantly reduced the impact of this event on the economy.

Table 5.4 Agriculture Sector Risk Analysis

Agriculture Sector	Anticipated Risk	Priority
Natural Disaster	0.90	H
Tariff removals	0.73	MH
Disrupt to transport systems	0.70	MH
Rise in Interest rates	0.67	MH
Rapid changes in exchange rates	0.67	MH
Loss at market	0.66	MH
Rising Inflation	0.63	MH
International instability/crisis	0.63	MHH
Agricultural Pests	0.63	M
Rapid Change in Consumer demand	0.63	MH
Rise in Transport costs	0.62	MH

Most of the region's agricultural products,except sugar, are produced for domestic markets. This lower sensitivity to internationally competitive factors such as changes to exchange rates, labour and energy costs and communications disruptions. The structure of the industry is changing rapidly. It is becoming more export orientated, and this is expected to increase its anticipated risk in future. Like all commodity industries, prices and markets fluctuate greatly. This makes long-term economic planning and management of businesses involved in agriculture difficult. Increasingly, the region will need to look at a more collective approach to insurance related to natural disaster and hedging to ensure more stabilized income flow to the agricultural sector. Loss of markets will always be a threat to the economy, and this will require greater attention to marketing intelligence and product innovation and development.

Fishing

Table 5.5 shows the anticipated risk to the FNQ regional fishing industry. The industry generates over $120 million annually to the economy and is an

important export earner. Fishing has become a highly competitive industry as world fish resources decline. The high-level anticipated risk associated with rapid changes in exchange rates reflects the importance of exports to the industry and of imports needed to services its operation. Loss of markets and pressure from action groups over environmental concerns are also significant anticipated risk factors for the industry. The industry is currently experiencing significant pressure as the result of fishing techniques used along the Great Barrier Reef. Restrictions on current fishing activities will significantly impact on this industry. Factors such as aircraft curfews would impact on the export of high-priced fish products such as tuna and crayfish to Asia.

Depletion of fishery resources is a long-term concern for the industry. Steps are being taken to restrict and manage more effectively regional fish stock and breeding environments. This accounts for the industry assigning a lower level of anticipated risk to the depletion of resources. Demand for world fish, especially in Asia, will continue to rise which will create increasing pressure on the demand for existing resources and the need to protect coastal fisheries from illegal international operations. The region will need to look towards mariculture and aquaculture to offset the risk of over-exploitation of the region's natural fishery resources. This will also be necessary to offset increasing concerns by pressure groups about the impact of fishing on the region's natural environment. Collectively, the industry will need to work much more closely with coastal management authorities to secure land and coastal areas for fish farming use. Particular attention will need to be given to risk management of disease associated with this type of industry activity.

Table 5.5 Anticipated Risk Fishing Industry

Fishing	Anticipated Risk	Priority
Rapid changes in exchange rates	0.73	MH
Loss at market	0.64	MH
Actions by pressure groups	0.64	MH
Disrupt to transport systems	0.57	M
Natural disaster	0.57	M
Introduction of aircraft curfews	0.57	M
International instability/crisis	0.56	M
Rising inflation	0.55	M
Instability in government	0.55	M
Racial conflict	0.53	M
Loss of telecommunication services	0.52	M
Changes in government	0.52	M
Natural resource depletion	0.51	M

Food Processing Industry

Table 5.6 shows the anticipated risk for the food processing industry in the FNQ region. This is dominated by the sugar industry. The highest anticipated risk factors for the industry are a loss of markets and natural disaster. The region's sugar industry is one of the most highly efficient in the world, but it is subject to intense global competition. Subsequently, the sugar industry, is very sensitive to exchange rate fluctuations, changing international markets, disruption to transport systems, pests and other diseases as well as changes to labour costs. Other medium to high anticipated risk factors that currently impact on the industry relate to energy and water costs and concern with pollution. Anticipated risk factors will increase in future as the food processing industry develops on the Atherton Tablelands.

The high level of exposure of the food processing industry to international markets will require comprehensive regional and statewide industry strategies to manage regional risk. FNQ and the Queensland State Government are not in a position to influence global market supply, with Australia producing less than three percent of total world sugar demand. The region, and more specifically the State, needs to support initiatives to minimize the exchange rate risk and market change through schemes that allow greater hedging of prices and future options in support of regional risk management. Disease remains a high anticipated risk for the food processing industry, especially as farming practices are heavily biased towards monoculture.

This practice leaves producers very exposed to risk. Greater diversification in the food processing industry is necessary in future to lessen the high-level dependency on single crop production at the farm level. The industry will also need to address improved farming practices to offset growing environmental concerns related to pollution and the impact on inshore reefs caused by excessive nitrogen and other chemical runoff. The application of industrial ecology, emphasizing cleaner production, will be necessary to minimize pollution and rising production costs in future.

Table 5.6 Anticipated Risk Food Processing Industry

Food Processing Industry	Anticipated Risk	Priority
Loss of markets	0.89	H
Natural disaster	0.88	H
Rapid changes in exchange rates	0.79	MH
International instability/crisis	0.78	MH
Disrupt to transport systems	0.72	MH
Tropical diseases	0.72	MH
Rising inflation	0.70	MH
Rapid change in consumer demand	0.70	MH
Rise in labour costs	0.69	MH
Rise in transport costs	0.65	MH
Rise in interest rates	0.64	MH
Agricultural pests	0.63	MH
Rise in energy costs	0.61	MH
Rise in water costs	0.61	MH
Pollution	0.60	MH

Retail Trade Industry

Table 5.7 shows the anticipated risk for the retail trade industry in FNQ. The region has a very high-level of retail services, many of which are highly specialised in servicing the needs of tourists. The industry is characterised by a very large number of small businesses, specialised franchise or corporate brand-name chains. The highest anticipated risk factor affecting the sector is a rise in interest rates. This risk affects the purchase price and cost of holding, as well as the level of stock held by retail outlets. Natural disaster is a secondary impact linked to the tourism industry. Tourism trade may account for as much as 30 percent of retail turnover. The anticipated risk associated with transport costs, disruption to transport systems and rapid change in exchange rates are operational risks that affect in-time delivery and costs of commercial consumer products imported to the region. Not measured in this analysis was the demand for retail floor space in the region, which has experienced a substantial oversupply with high levels of shop vacancy.

The size and capacity for growth of the retail sector in FNQ region is determined by growth in population and tourism, income and credit levels of local business and consumers and visitors. Retailing is also a seasonal industry affected by visitor numbers during different times of the year. Public policy may be required to curtail further retail expansion in the region to

reduce investment risk in commercial real estate, given the increasing competition that will be offered to consumers through net and other forms of purchasing in future. An increase in thematic retailing through encouraging specific clusters of retail services may provide for a more competitive environment and choice, with some opportunities for cost sharing arrangements. This may reduce operating costs and increase profitability for selected sectors of the retail industry. Encouraging increased specialization in the retail sector is important, but also carries higher risks because of the degree of market segmentation and visitor flows through the region.

Table 5.7 Anticipated Risk Retail Trade Industry

Retail trade industry	Anticipated Risk	Priority
Rise in interest rates	0.87	H
Natural disaster	0.77	MH
Rise in transport costs	0.73	MH
Disrupt to transport systems	0.73	MH
Rapid changes in exchange rates	0.71	MH
Rise in labour costs	0.69	MH
Loss of telecommunication services	0.67	MH
International instability/crisis	0.64	MH
Rising inflation	0.61	MH
Rapid change in consumer demand	0.61	MH
Decline in quality of life	0.61	MH

Mining

Table 5.8 shows anticipated risk associated with the mining industry in the region. Mining is the second largest export industry, contributing over eleven percent of regional gross domestic product. Mining activities are principally confined to bauxite, gold and silica sand in the more remote parts of the region. The high levels of risk associated with rapid changes in exchange rates, rising inflation, labour costs to support transport systems, and international economic conditions are a reflection of the highly competitive nature of this industry, and its role servicing global commodity markets. The industry is affected significantly by local anticipated risks from pressure groups, industrial relations and racial conflict. The impact of the Mabo High Court decision on Native Title[12] has significantly increased the risk of

[12] In 1994, the Australian High Court in the Mabo Case recognised the rights of Aboriginal people as the original owners of land in Australia allowing claims for native title to public lands that had been in continuous occupation by aboriginal peoples and was not subject to freehold title.

exploration. This has had flow on effects involving royalties and compensation for mining activities on indigenous lands.

Mining is an important industry to the long-term development of the FNQ economy. It is a highly competitive industry, which will require significant attention to regional risk management in future. Most decisions related to mining investment are made by major corporations headquartered outside the region. However, the industry is expected to face greater local environmental and social risks in future. To help reduce these risks, the industry will need to work more collectively and enter into regional agreements that will involve participation by organizations representing non-mining concerns. There is also a need for public policy to give greater surety to mining interests on the rights of exploration and industry development policy. These are risk issues that can be managed and negotiated collectively by industry and government and enshrined in public policy documents. This would help reduce industry concerns over investment and social risk in the FNQ region.

Table 5.8 Anticipated Risk Mining Industry

Mining	Anticipated Risk	Priority
Rapid changes in exchange rates	0.77	MH
Rising Inflation	0.70	MH
Rise in labour costs	0.70	MH
Actions by pressure groups	0.69	MH
Disrupt to transport systems	0.67	MH
International instability/crisis	0.66	MH
Unstable industrial relations	0.64	MH
Changes in government	0.64	MH
Racial conflict	0.63	MH
Rise in transport costs	0.57	M
Natural disaster	0.57	M
Loss of markets	0.57	M

Business and Producer Services

Table 5.9 shows anticipated risk for the business and producer services industry in the region. This is the largest sector of the region's economy, and comprises financial, insurance, professional and related business services. The region has some strategic advantage in the service sector because of the rapid growth in the economy, and there is a heavy demand for specialized services supporting tourism and other export industries. The link with the region's export industries is shown in the table with high anticipated risks associated with natural disaster, telecommunication loss, and exchange rates.

Most of these are secondary or "knock-on" effect risks. The business and producer services industry is highly diverse. There are specialized firms offering services to the mining, tourism, agriculture and specialized service industries, such as environmental forest management, that have export development potential.

The service industry is expected to grow rapidly in future. Opportunities for developing the sector beyond the natural population base will only be created by further development of specialized export producer services to the Asia-Pacific region. The small nature of the industry means it will be particularly vulnerable to global competition and have to search out and develop niche markets. Economic risk for services will be best overcome through specialization and the development of more broad-based networks and strategic alliances with key industry operators external to the region. A more collaborative approach to external marketing and business development with government will be necessary to overcome export development risk and to build the network of expertise through strategic alliances to secure elements of major contracts and other business in the Asia-Pacific region.

Table 5.9 Anticipated Risk Business and Producer Services

Producer Services	Anticipated Risk	Priority
Natural disaster	0.71	MH
Loss of telecommunication services	0.69	MH
Rapid changes in exchange rates	0.67	MH
Changes in government	0.63	MH
Rising inflation	0.62	MH
Loss of markets	0.62	MH
International instability/crisis	0.61	MH
Rise in interest rates	0.61	MH
Rise in labour costs	0.61	MH
Instability in government	0.60	M
Rise in communications costs	0.59	M
Public liability claims	0.58	M

Tourism

Table 5.10 shows the anticipated risk for tourism in the FNQ economy. Tourism is the largest industry sector contributing to more than 24 percent of gross regional product. The industry is highly internationalised and amongst the most competitive in the world. The highest level of anticipated risks affecting the industry are natural disaster, rapid changes in exchange rates, disruption to transport systems and loss of markets. These reflect operating

conditions in global markets and consumer choice of the tourism product offered by the region. Understanding the degree of international risk exposure created by these conditions is essential as part of a strategy for risk management in the region.

The tourism industry will continue to remain high-risk because of its dependence on international markets for growth. There is little the industry can do to hedge against global conditions, as it is not in a position to influence tourism markets. Continued development and diversification of the tourism product, as well as attention to environmental, political and social risk management will be essential in maintaining a competitive position in global and domestic markets. This will require a more collaborative approach to risk management by different sectors of the tourism industry in the region, as well as by government and regional business. An important strategy for risk management in the region must be further leveraging of opportunities for development and promotion of regional products and services through the tourism industry. This will result in new value added industries for the region's economy. The tourism industry will also need to develop stronger strategic and cultural alliances with other regions and nations to overcome increasing competition from other tropical theme destinations.

Table 5.10 Tourism Sector Risk Analysis

Tourism	Anticipated Risk	Priority
Natural disaster	0.74	MH
Rapid changes in exchange rates	0.71	MH
Disrupt to transport systems	0.70	MH
Loss of markets	0.67	MH
Rising inflation	0.64	MH
Public liability claims	0.62	MH
Loss of telecommunication services	0.61	MH
Rise in interest rates	0.60	MH
Rise in transport costs	0.59	M
Rapid change in consumer demand	0.57	M
Pollution	0.55	M

Summary

The FNQ economy is one of the most internationalised regions of Australia. The internationalisation of the economy increases exposure to risk. Exogenous risks, those created by exchange rate moves, changes in commodity prices and markets pose the greatest risk to the region. A more collective and collaborative approach is required by the region and industries to address these potential problems. Endogenous risks, local production costs, environmental management and civic disruptions are issues over which the region has much greater control. These areas would benefit from more consultative and collaborative approaches by organisations in the region.

6 EVALUATING ECONOMIC DEVELOPMENT POTENTIAL

Overview

The FNQ Region has enjoyed an unprecedented period of economic prosperity capitalising on its proximity to export markets in Asia, and its role as Australia's northern gateway for international tourism. These factors provide little assurance for a continuation of economic prosperity. Faced with the difficulties of attracting investment and increased global competition, FNQ cannot rest on its past good fortune to maintain success in the future. Tourism, tropical agriculture, fishing, mining and sugar, are the region's core export businesses, but these are subject to significant swings in commodity prices and demand, and change within these industries. The future prosperity of the region depends on achieving greater economic diversification through a focus on the development of export and import replacement industries that capitalise upon the competitive advantages of the region.

The diversification of the export and industry base of the FNQ economy will not be easy. The population and industry base is small, the skill base narrow and there are weaknesses in some competencies and strategic infrastructure in need of attention. Although these features existed in the past, the region successfully managed to develop a large-international tourism industry, which resulted in substantial investment in the development of world class facilities to support growth. It will be a substantially more difficult task to mirror the success of tourism to create another boom industry in FNQ.

The core industries that form the basic economy of the region are unlikely to change significantly over the next 20 years. Subsequently, a high percentage of goods and services needed to maintain the economic growth of the region will continue to be imported until such time as the population reaches a threshold where there is sufficient critical mass to develop local industries that are import competitive. The strategy for the immediate future economic development of the region should, therefore, concentrate on broadening, as much as possible, the capacity of the industry base to service wider local and export markets {AHURI 1995}.

This chapter analyses the economic development potential of the FNQ economy. Many past studies undertaken to identify economic development opportunities for the region have involved little research, and assumptions

about future growth prospects for industries were difficult to justify. The report on the *Internationalisation of the FNQ Economy* {AHURI 1995a} was the first to attempt to relate economic development opportunities to market demands and regional economic capacity. The economic opportunity analysis conducted for the initial pilot work to develop MSA {Roberts & Stimson 1998} began to explore the concept of industry stretch and leverage and its application in the identification of economic development opportunities in the region. There are three ways FNQ can develop its economic potential. These involve:

Stretching which utilises or adapts industry or business resources, assets, infrastructure and competencies in a way to do or make things better. Stretching utilises slack or under utilised resources and ensures greater efficiency, innovation, invention, conservation and sustainability of business and regional resources. Applied research and innovation are driven by the need for continued stretching of business and industry capability. This enables the region to remain competitive by developing new or improved products and services. Stretching also involves improving efficiency through networking, collaboration and building alliances between industries in the same sector or cluster. Stretching carries less risk than leveraging, as it mainly involves improvements, extensions or re-inventions of products and services developed from previous applications or use.

Leveraging involves stretching the capacity and capabilities between industries to capture and create new opportunities. Two leading authors on business development, Hamel and Prahalad (1994), refer to this as "*white space*". White space represents areas or frontiers of opportunity that emerge at the interfaces of industry sectors. These frontiers are largely unexplored opportunities that are realised by combining or leveraging competencies, assets and resources of two or more industries to increase capacity to create new products and services for a range of consumer markets. W*hite space* frontiers are high-risk territories that are continually changing as the result of natural events, consumer preference and new research. *White spaces* are extremely rich and fertile areas for realising economic development opportunities. They have the advantages of being relatively free of competition and offer unique opportunities for the development of new niche businesses and industries.

The third approach to economic development involves the combination of the above. Many businesses and industries use a combination of both, but there is a tendency to favour stretch over leverage. Leveraging involves diversification and is often perceived to increase risks for new business

ventures. The extent to which enterprises decide upon stretch or leverage depends upon risk averseness. Industries and regions that demonstrate high levels of economic growth and innovation also demonstrate high levels of industry stretch and leverage {Saxenian 1995}. The advantages of combining stretch and leverage is that there is a greater potential to maximise development opportunities and minimise risk. Risk can be reduced further and opportunities maximised if stretch and leverage forms an extension of core business or industry activities that already have a competitive advantage.

For FNQ, the greatest economic opportunities for the future will emerge from stretching and leveraging industry competencies, assets and infrastructure in export sectors. This is expected to occur in the food industries, mining, retailing, and transport and tourism clusters. To identify stretch and leverage opportunities, 206 industries and organisations were surveyed and asked to identify the potential and the approximate value that might occur in joint or multiple industry ventures to develop new products and services.

The following chapter analyses the possibilities, scale and magnitude of economic development opportunities in FNQ by applying the Multi-Sector Analysis technique described in Chapter 2. This includes:

- estimates of the value of future economic opportunities involving industry collaboration;
- identifies opportunities for economic development potential involving local, national and international collaboration;
- analysis of economic opportunities for two-way industry collaboration for seven industries in the region.

Two way analysis examines differences in congruence between the way economic opportunities for development are perceived between, for example, tourism/agriculture and agriculture/tourism. This analysis provides a good indication of networking and realistic opportunities for joint venturing and other industry collaboration.

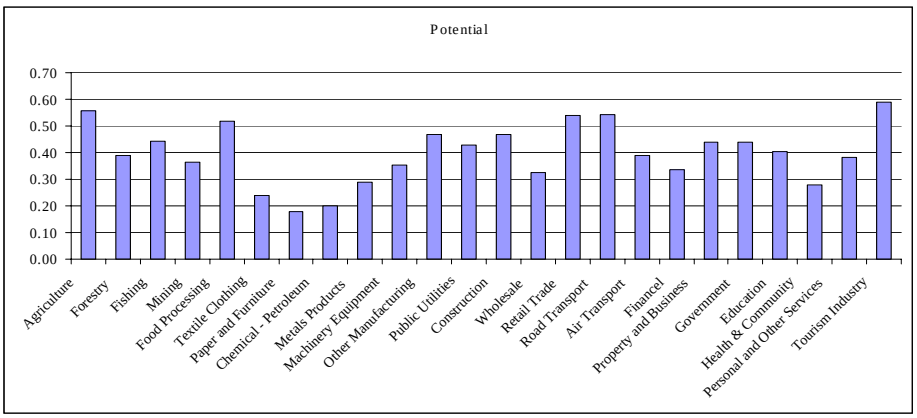
Potential for Business Collaboration

Table 6.1 is a matrix showing the scale of potential opportunities (the scale ranges from 1-5, 5 being highest) for economic development involving collaboration between industries in FNQ. The analysis from the survey identified 1769 opportunities for inter or cross industry collaboration. Scores were aggregated into 24 industry sectors and an average score of potential for

economic development calculated for each industry group. The diagonal line represents potential opportunities for intra-industry collaboration or stretch. Industry sectors indicating a high potential (>4) for stretch include agriculture, food processing, retailing, road and air transport, government services and tourism. Food processing and tourism have the highest potential for stretch. There are significant potential opportunities for inter-industry collaboration involving leverage. Average inter industry scores shown in the matrix > 3 represent significant opportunities. Sectors demonstrating strong levels of potential for leverage include agriculture, fisheries, food processing, retail trade, road transport, property and business and tourism.

Figure 6.1 is an industry index of combined stretch and leverage economic development opportunities for the FNQ economy. The index is based on combining two way averages[13] for 24 industry sectors. Sectors with the highest average economic development potential are tourism, agriculture, retail, food processing and transport. Manufacturing and community services are weak, with moderate development potential for government and education services.

Figure 6.1 Potential for Industry Collaboration



[13]The index is created by calculating the mean of (Ind $_I$ to Ind $_J$ + Ind $_J$ (columns) with Ind $_I$ (rows)) (two-way average scores) and dividing by maximum score of 5 for each industry sector.

Table 6.1 **Matrix of Potential Inter and Intra Industry Collaboration in FNQ Region**

	Agriculture	Forestry	Fishery	Mining	Food Processing	Textile Clothing	Paper and Furniture	Chemical - Petroleum	Metals Products	Machinery Equipment	Other Manufacturing	Public Utilities	Construction	Wholesale	Retail Trade	Road Transport	Air Transport	Finance	Property and Business	Government	Education	Health & Community	Personal and Other Services	Tourism Industry
Agriculture	4.11	2.8	1	3.17	2.83	1	1.8	2.2	1.6	3.17	2.4	1.4	1.6	2.6	2.4	3.14	2.5	3.4	1.75	3.17	2.75	1.75	2.2	2.5
Forestry	3.25	1.67	1.67	2	2	1.5	1.67		2	3	2	2	4	2	2	1			3	3.25	4	3	2	2
Fishery	3.57	1	2.67	1	4.33	1	2.5	2.67	1	3	2	1	1	3.75	3.75	3.33	3	3.75	1	1.5	2.5	2	2	3
Mining	2.8	1	1	1.67	1	1	1	1	1	1	1	1	3	1	1	1	2	4.33	1	1	1	1	2	3
Food Processing	3.75	1.5	3.25	2	4.63	1.5	3.33	1.5	1.5	1.67	3	1.67	2	4.17	4.2	3.25	2.75	3	1.5	3.33	2.5	2.33	2.5	4.71
Textile Clothing	3	1	1	1	1	2.75	1				4				4									5
Paper and Furniture																								
Chemical - Petroleum	3		1	1			3	1.5				2		2										
Metals Products	2.5	4	4	2.5				1	2	5		4	5		4									
Machinery Equipment	3	1	3	3	1	1	1	1	2	3	2	1	2	1	1	2	2	1	1	2	1	1	1	4
Other Manufacturing	4.33	4.5	1	2.33	1.5	1.5	2.5	1	4	1.5	2	5	4.67	2.5	4	2.33	2.33	1	2	5	5	1	5	5
Public Utilities	3	1	3	3	3.5	1	2.5	1	4	3	3	3	4		3	3				3		4	3	4
Construction	3.17	1.8	1.8	2.8	1.8	1.6	2.4	1.33	1.75	2	1.75	2.43	3.17	3	3.17	2.5	1.8	3	2.67	2.5	1.2	2.5	2.6	3.33
Wholesale	4	1.5	2	2.5	4		3	4			2.5	2	4	2										
Retail Trade	3.78	2.29	3.13	2.9	2.5	3	2.8	2.25	2.71	2.78	3.25	3.25	3.42	2.43	4.05	2.63	3	2.6	2.8	3.44	3.57	3.33	3	4.47
Road Transport	4	3.2	3.57	3.56	3.6	2.5	3.4	3.86	3.6	3.2	3.33	2.75	3.5	3.43	3	4.17	3	3	3	3.6	3.67	3.67	3	4
Air Transport	2.67	2	3.5	4.25	3.5	2	1.33	1	1	1	1.33	1	1	2.75	2.25	2.75	4	1.5	3	1.33	1	1	1	3.25
Finance	3	1	1	1	1	1	1	1		1	1	2	1	1	1	1	1	4	3	3	5	1	1	1
Property and Business	3.22	2.5	2.5	3.29	2.8	1.25	1.75	2.5	1.67	2.67	2.33	4.2	3.75	2.5	3	2.67	2	3.83	3	4	3.25	2.83	2.67	3.33
Government	5	4	1		5	1	1	1	1	1	1	1	1	4	4	4	1	2	2	4	3	2	1	4
Education	3.6	3	3	3	1	1	1	1	1	1	1	2	2	1	1	1	2.33	1.5	1	2	3	2.5	1	3.6
Health & Community					5								1			3	5		1		5	3.5		
Personal Services	3.11	1.8	2.71	3	2.71	2.2	2.25	1	1	1.75	1	2	2	2.25	2.83	1.8	2.2	2.8	2.6	2	2.43	2	1.67	3.67
Tourism	4.2	1.78	3.33	2.7	3.64	3	2.63	3.11	2.29	2.71	1.83	3.13	2.89	3	2.8	3.75	3.8	3.25	2.63	3.36	3.1	3.18	2.7	4.57

Magnitude of Business Opportunities

The identification of opportunities for economic development involving industry stretch and leverage is important to gaining an understanding of the options available to boost the development of the region. While many potential opportunities may be identified as significant, the scale of these may be very small. To determine which opportunities have the greatest economic development potential, in terms of value adding or employment to the economy, it is necessary to weight the potential opportunities by a measure of scale. Survey respondents were asked to scale opportunities in terms of potential dollar value on a scale of 1 -5. A score of 5 represented a potential economic opportunity > $10 million. A score of 1 was less than $500,000. The scale value (S) was multiplied by the potential opportunities (P) value for all 1769 cases (P) x (S) to give a weighted or magnitude score (M) of economic potential.

The magnitude score accommodates differences between a significant opportunity that has minimum economic development value, and a significant opportunity that has high value. Approximately 60 percent of the matrix is filled with identified opportunities, but less than 16 percent have magnitude scores considered significant. Table 6.2 shows three scales of magnitude used to assess economic development potential. High (H) > 20, Medium (M) > 15 and Low (L) >10. Industry collaboration demonstrating magnitudes of economic development in the above scales are shown in Table 6.2.

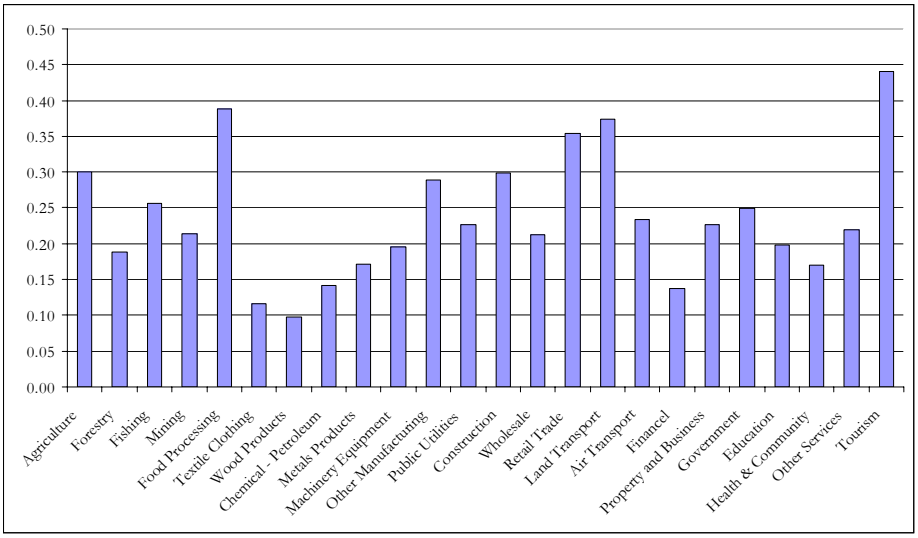
Figure 6.2 shows a Magnitude of Industry Economic Development Opportunity Index for the FNQ economy. Tourism has the highest magnitude of economic development potential for the region, followed by food processing, retailing and road transport. Agriculture, other manufacturing and construction show strong economic development prospects. Wood products, textiles, chemical and petroleum and finance have the poorest prospects for economic development. The index does not suggest that economic development opportunities in these sectors should not be pursued, but the potential for major developments are likely to be very limited.

Table 6.2 Significant Stretch and Leverage Opportunities for Economic Collaboration

	Agriculture	Forestry	Fishing	Mining	Food Processing	Textile Clothing	Wood Products	Chemical - Petroleum	Metals Fabrication	Machinery Equipment	Other Manufacturing	Public Utilities	Construction	Wholesale	Retail Trade	Land Transport	Air Transport	Finance	Property and Business	Government	Education	Health & Community	Other Services	Tourism
Agriculture	M				L					L								L						
Forestry		L											M								M			
Fishery			L		M			L						L	M			M						
Mining												L						L						
Food Processing	L		L		M		L				L	L		M	M	L	L	M		H	L	L		H
Textile Clothing						L					M				M									M
Wood Products																								
Chemical - Petroleum				L	M					M							L							
Metals Fabrication	L	L	H							L														
Machinery Equipment										L														M
Other Manufacturing	M	L							L		M		M		L					H	L		H	M
Public Utilities				L	L				L		L		M									L		L
Construction				L								L	L	L	L			L		L		L	L	M
Wholesale	M				M		L							M										
Retail Trade			L	L		L	L						L		L		L			L	L	L		M
Land Transport	M	L	L	L	L		L	L	L	L	L	L	L	L	L	L	L	L	L	L	M	M	L	M
Air Transport			L	M	L												L		L					L
Finance																								
Property and Business				L									L							L				L
Government		L			M									L	M	M				L				M
Education																					M			
Health & Community					L																L	L		
Other Services																							L	
Tourism	M		M		L	L		L	L				L	L	L	M	L	L		L	L	L		H

* derived from table above High = H (PxS = >20) Significant = M (PxS>15) Low = L (PxS) >10

Figure 6.2 Magnitude of Industry Economic Development Opportunity Index



Industries demonstrating economic development opportunities for stretch are shown on the diagonal line of Table 6.2. Five industries, agriculture, food processing, other manufacturing, wholesaling, government services and tourism are identified as having high-levels of industry stretch. The potential for greater inter-industry collaboration in the tourism sector was identified in the regional tourism strategy {Stimson, et al. 1993}. The tourism sector has worked hard to develop the convention industry business, Eco- and cultural tourism and tourism management services to widen the region's tourism product {Roberts 1996}.

The potential to use stretch to develop agriculture was identified in the Agribusiness strategy (1996). There are management, marketing and infrastructure development issues that need to be addressed for the industry to realise its development potential. Economic development opportunities within the government sectors involve greater outsourcing, information sharing and coordination, collaborative research, human resource development, resource sharing and equipment pooling. These were identified as national priorities for enhanced economic capacity and performance in regions in the Kelty Report (1994) and later in the report *Jobs in Our Regions* {Houghton 1997}.

Industries with low to moderate economic development prospects involving stretch include specialized manufacturing, wholesaling, retailing, transport, education and personal services. Other manufacturing includes specialize

marine equipment and agriculture machinery, plant and equipment. Greater collaboration within the education sector since the survey used in this analysis was completed has already yielded new education export opportunities[14]. Industries identified as having lower potential opportunities for stretch collaboration include fishing, forestry, machinery, public utilities, air transport, health and personal services.

Three industries, food processing, transport and tourism show the broadest range of economic development opportunities involving leverage. Agriculture, fishing, construction and government services also have significant opportunities for inter-industry collaboration. Section 6.5 analyzes these opportunities in more detail.

Potential for Local, National and International Collaboration

The internationalisation of the region's economy has resulted in many businesses looking beyond FNQ to collaborate in the development of new business and investment. To gain a better understanding of the different realms of opportunity for collaboration, survey respondents were asked to identify economic development opportunities involving collaboration with local (l), national (n) and international (i) business partners. From the 1769 counts, the scores for the three realms of collaboration were groups by industry categories and the proportions for each industry shown in Table 6.3. Where industries indicated multiple realms for collaboration, this was apportioned as one entry per group.

Table 6.3 shows there are significant differences in geographic location for potential industry collaboration. These differences reflect differences in the export/domestic market orientation of industry sectors. A precise estimate of the overall orientation for all industry sectors in the region is not possible because of the smallness of the sample sizes for industry groups. A crude estimate, based on the mean of the proportions, suggests that 54 percent of potential collaboration for economic development is orientated towards local business, 27 percent to national and 17 percent to international business.

[14] The Education Industry Cluster began developing joint marketing in January 1999 and has been successful in securing a contract in China for English language training.

Table 6.3 Proportion of Collaboration with Local, National and International Business

	Local Collaboration	National Collaboration	International Collaboration
Agriculture	0.5	0.3	0.2
Forestry	0.3	0.1	0.6
Fishing	0.6	0.2	0.2
Mining and Exploration	0.5	0.3	0.2
Food Industry	0.5	0.3	0.2
Textile & Clothing	0.5	0.3	0.2
Wood products	0.6	0.2	0.1
Chemical - Petroleum	0.6	0.3	0.2
Metals	0.6	0.3	0.1
Machinery and Equipment	0.5	0.3	0.2
Other Manufacturing	0.6	0.2	0.1
Public Utilities	0.6	0.3	0.1
Construction	0.5	0.2	0.2
Wholesale Trade	0.6	0.3	0.2
Retail Trade	0.6	0.3	0.2
Road Transport	0.6	0.3	0.1
Rail	0.5	0.4	0.1
Shipping	0.5	0.3	0.3
Air Transport	0.4	0.3	0.3
Storage	0.7	0.2	0.1
Finance	0.5	0.3	0.2
Insurance	0.5	0.3	0.2
Property & Business Consulting	0.6	0.2	0.2
Government Services	0.6	0.3	0.1
Defence	0.6	0.3	0.1
Health	0.6	0.3	0.2
Education	0.5	0.2	0.2
Tourism	0.5	0.3	0.3
Personal Services	0.6	0.3	0.1
	15.8	7.9	5.5

Potential for Local Business Collaboration

Industries demonstrating the strongest propensity for local collaboration include storage, property and business, government services, health, personal services, manufacturing and fishing. These industries have a propensity to source and market goods and services locally. Fishing is a major exporter, but supplies, maintenance, and services used in the operation of the industry are purchased locally. Most of these industries will continue to develop as the result of local population and urban growth. Education has good development potential locally, especially in the tertiary and professional sector, as many

people must travel elsewhere to participate in higher level courses of training and education.

Potential for National Business Collaboration

Industries showing high potential for collaboration nationally include transport, agriculture, food processing, specialized manufacturing, government services, health and tourism. The development of strategic alliances and other forms of joint venturing with national firms were noted in comments to the survey as important to developing national markets for local business. Comments in the questionnaire also indicate the importance of the development of market intelligence, information sharing, research and development and improved technology within the region. It is important that the region continue to develop those industries that were shown to have high location quotient values[15].

Potential for International Business Collaboration

Industries showing the strongest international orientation involving collaboration are tourism, shipping, air transport and forestry. As more than one-third of tourists to the FNQ region are international visitors, tourism, not unexpectedly, demonstrates the strongest orientation to international collaboration for economic development. This is expected to increase in future as the result of increased international competition and limited opportunities to develop the domestic first time and return visitor market. Like the airline and aviation industries, strategic alliances involving international wholesalers will be important to developing the international tourism market in the region in future.

The growth in air transport and shipping, like tourism, has the greatest potential for growth to service international markets. The Cairns International Airport will play a key role in developing international air transport business, however, this will require the Airport Authority to enter into strategic alliances between international airlines and airport operators to avoid being blocked out of negotiation processes on new landing opportunities. The airport will face increased competition in attracting international flights to the region because of global airline and airport operator alliances. Developing new links or collaborating with global international aviation alliances will be critical to the future development of the region's air transport industry.

[15] Chapter 1.1 lists industries with highest location quotients for the region.

Similar alliances with shipping - especially cruise shipping - will be necessary to secure further development of the marine and transport industries.

Forestry is a very small industry in FNQ which declined rapidly since with the listing of most forested areas as World Heritage. Tropical plantation forestry, however, is expanding and offers a long-term future for the industry. There is considerable expertise in the field tropical forest management and research in the region. This area has strong development prospects in Asia where tropical forests are being logged out and re-afforestation will become a critical issue for land management in the future. This will bring about a demand for international expertise in tropical forest regeneration.

Economic Benefits of Improved Collaboration

As a means of demonstrating the economic value that industry collaboration could bring to the region, average scale values (S) were used as weights to create the table and index for the magnitude (M) of economic development potential. This can be converted into dollar values and a conservative estimate of stretch and leverage opportunities evaluated. Thus, Agriculture/Agriculture averages 2.83 which lies between $1 - $5 on the value scale[16]. It is recorded as having a potential value $2.5. By summing the dollar value opportunities in the vertical and horizontal scores for each industry in the matrix a crude estimate of what business believes is the potential value of economic development opportunities for each industry sector can be estimated and graphed.

Table 6.4 shows the estimated economic development potential value of industry collaboration in FNQ. The total estimated potential value of new economic opportunities is $670m, which would add 15 percent to GRP. The estimated value of industry stretch is $50m which is probably under estimated. The greatest potential for economic development involves leverage. The industry with the strongest potential to benefit from stretch and leverage is tourism, estimated at $53m. Food processing is the second highest, potential value of $46m, followed by other manufacturing, transport and retailing. Care should be taken in utilising these estimates because of the range used to define the $ value of scales. The value of stretch is probably underestimated and leverage over estimated. Despite these recognised

[16] Value scale used 1 = $½ m - $1m , 2 = $1m - $2m, 3 = $2m - $5m, 4= $5m - $10m, 5 = > $10m

shortcomings, the overall distribution is a useful indicator of the potential opportunities for economic development in the region.

Table 6.4 Estimated Value of Economic Development Potential of Industry Collaboration

Industry Sector	$m	Industry Sector	$m
Agriculture	32	Wholesaling	20
Forestry	26	Retailing	35
Fisheries	29	Transport	37
Mining	31	Finance Industry	12
Food Processing	47	Property & Business	28
Textile	16	Government Services	27
Wood Products	10	Education Services	22
Chemical & Petroleum	18	Health Services	23
Metals Fabrication	23	Community Services	16
Machinery & Equipment	27	Tourism	54
Other Manufacturing	38	Personal Services	19
Public Utilities	27	Other Services	26
Construction	33		
		Total	670

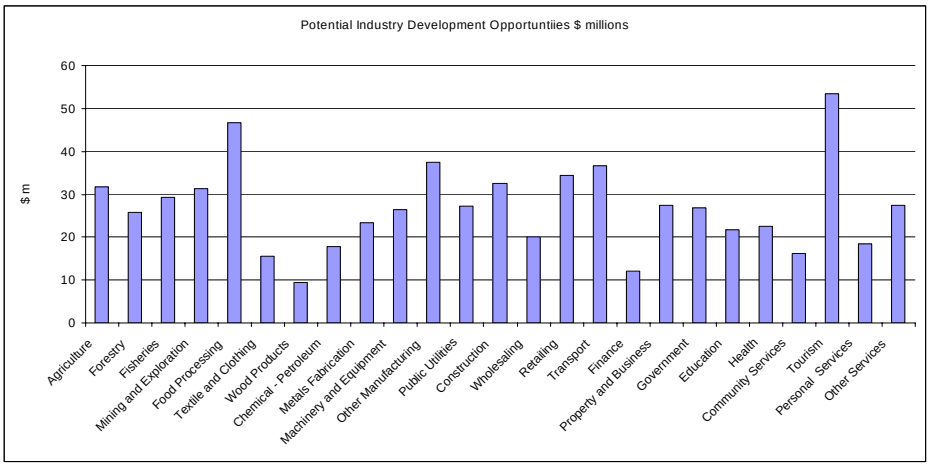
Selected Inter and Intra Industry Economic Development Potential Analysis

The analysis above used two way averages to develop the magnitude index of economic development potential. There are significant differences in the two-way measure of economic development opportunities between potential collaborating industries. The potential for collaboration between agriculture and wholesaling, for example, is 50 percent less than between wholesaling and agriculture. There are many reasons for these differences. In some cases industry sectors believe there are few opportunities to be gained from collaborating with other industries, or within an industry sector. Issues of competition, market and information protection, industry structure, purchasing policies and the degree of autonomy of local branches of large companies affect attitudes towards collaboration. In other cases, the value adding and production system within an industry provides few opportunities for backward linkages. The following section analyses the two-way assessment of economic development potential for stretch and leverage for seven leading industry sectors in the FNQ economy.

Agriculture

Figure 6.3 shows an index of the potential opportunities for economic development involving two-way industry collaboration in the agriculture sector. Agriculture is one of the most diverse industry sectors of the FNQ economy. It incorporates grazing, dairying, poultry, horticulture, tea and coffee, tropical fruit and specialized harvesting of native forest products. The diversity of the industry creates significant opportunities for inter and intra-industry collaboration. There are two broad types of collaboration identified in the survey for industry stretch and leverage, and all these apply to all industries. The first relates to industry capacity building, and respondents identified potential in the areas of opportunities for joint marketing, research, management training, resource sharing and technology. The need to strengthen capacity in several of these competitive competencies in the sector was identified in Chapter 3.

Figure 6.3 Potential Economic Value of Industry Collaboration in FNQ

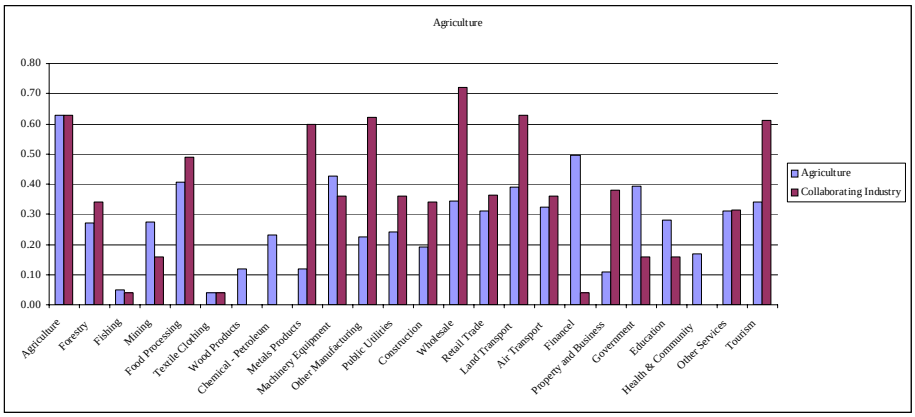


The second category relates specifically to examples of new industries that have the potential for development within the sector or in collaboration with other sectors. Specialized hybrid tropical fruit for selected Asian markets, expansion of regional coffee, tea and tea tree oil industries, sandalwood harvesting and plantations, sustainable harvesting of indigenous rainforest and Savannah land produce for use in the restaurant cooking and bio-technology industries {WTMA 1994}, are some opportunities recorded by the survey and other reports.

The opportunities for economic development involving leverage in the sector vary significantly. As shown in Figure 6.4 the sector has much lower levels

of economic development potential than perceived by collaborating industries. The only industry sectors where the agriculture sector is dominant are machinery, finance, government and education. These are mostly forward or supplier linkages to the sector. Collaborating Industries where there are strong perceived development possibilities involving collaboration include food processing, mental fabrication and other manufacturing, wholesaling, transport and tourism. Several studies have identified opportunities involving cross industry collaboration with the agriculture sector {Paul 1993; Action Asia 1995}. The application of MSA has enabled for the first time the multi-sector opportunities for economic development in the sector to be identified.

Figure 6.4 Two Way Economic Development Potential for Agriculture Sector



The lack of congruence in two-way opportunities for economic development potential highlights some important issues the industry will need to address in future. Personal and other services are the only sectors where congruence was identified. This represents a small opportunity for economic development.

The reasons for the significant differences in the measure of economic development potential between industries are not easily identified. The agriculture sector comprises a number of small specialized industry groups and a small number of large industry associations. Significant networking and some collaboration occurs in the industry, but the analysis shows very clearly that cross industry collaboration is weak. The sector needs a more cohesive approach to working with other industries. This might involve collective marketing and education programs with other sectors to develop economic opportunities. Tourism presents an obvious area for closer association. Tourism has many competencies and strategic infrastructure assets that could be combined with the sector to increase capacity support to the development of new economic opportunities. New Zealand, has been particularly effective

in promoting new agriculture products to unfamiliar palettes through its hotel and hospitality industry.

A second important factor to realizing economic development potential in the sector is a need for more effective networking development of alliances internationally to enable the industry to open up new markets for specialized agriculture products and services from the region. This will involve networking and collaborating with other regions to develop virtual alliance structures to build a critical mass for competencies the industry currently lacks. The New Zealand Berry Network (www.trade.nz) is an example of inter-regional networking and collaboration that has led to the successful development of blueberry, blackberry, raspberry and loganberry grown in different regions through sharing resources to overcome weak local networks and infrastructure. Weaknesses in regional infrastructure, especially cold storage have been identified as a major impediment to the development of the tropical fruit, flower, and frozen fish export industries[17].

There are other factors constraining the economic development potential of the sector such as weaknesses in the road network, communications, skills development and business support. A multi-sectoral approach to capacity building in these areas will be necessary to address some of these weaknesses. Overall the sector must become much more focused, collaborative and diversified in its approach to economic development. Some of the experiences from reinventing the tourism industry in the early 1990's provide valuable lessons for the sector. Tourism, like agriculture, is diversified, but it has successfully developed a cohesive strategy to address structural difficulties, and diversified interests while at the same time it has developed the tourism product through stretch and leverage with other industries.

Mining

Figure 6.5 shows economic development opportunities for collaboration in the mining sector. Opportunities for industry stretch in the sector are low. The sector comprises a very small number of large corporations extracting mainly gold, bauxite and silica sands in remote locations hundreds of kilometres apart. These three principal mining activities service unrelated markets, and all use very different extraction methods. As a result, the opportunities for

[17] The lack of storage and cold store facilities in the region is recognised as a constraint on the development of export boutique tropical fruit and fish from the region. Several reports have been prepared for the Cairns Port Authority in support of initial government assistance for cold store facilities.

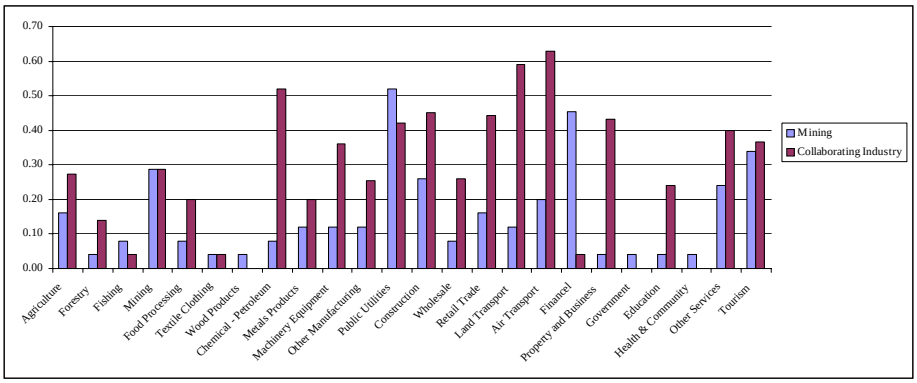
industry stretch are minimal. Within the gold mining and associated minerals sector there are prospects for sector collaboration involving training, research, exploration and testing as indicated in the Mining Task Force Reports {Department of Industry 1996; TSBI & CCC 1995}. Development of the western mineral province, 800 km west of Cairns, and new developments in PNG and West Irian Jaya (Indonesia), barring political instability, offers opportunities for the development of the sector.

There is a strong indication by other industries of the potential for new economic development initiatives with the mining sector. These perceptions are generally not shared by the sector. The only sector where the mining sector indicated significant potential for development was with the finance sector. This is more of a wish than a reality, as the capital markets of Sydney and Melbourne dominates mining finance. The prospect of local capital market development to service the mining sector is almost zero, because of risk and the level of capital needed for most mining operations. The only industry sectors showing high levels of two way congruence with mining are public utilities and tourism. These prospects are moderate, and relate to projects for co-sharing infrastructure, co-generation, sundry income from tourism, marketing and promotion opportunities. The construction, retail, road and air transport and business and personal and other services show moderate prospects for economic development opportunities with the sector. There are low levels of congruence for collaboration with these sectors.

The prospects for road and air transport are the result of perceived opportunity gains from fly in fly out operations in the region[18]. The new Century Zinc Mine noted above, will produce 9 percent of the world's zinc, and introduce fly in fly out operations. Cairns is expected to be a preferred residential base for many staff working at this mine. Cairns is currently a place of residence for many people involved in PNG and West Irian Jaya mining operations. Road transport has been recognized as the significant problem in servicing the mining industry {TSBI & CCC 1995} and proposed improvements to the road network will significantly enhance opportunities for inter-industry collaboration in mining {Cummings 1999}.

[18] Most new mining developments are moving away from the development of mining towns towards the practice of fly in fly out staff on10 day rosters.

Figure 6.5 Two Way Economic Development Potential for Mining Sector FNQ



There are good prospects for economic development involving collaboration between the mining tourism and education sectors. Figure 6.5 shows a strong convergence of opportunity between mining and tourism, and a strong perception by the sector of opportunities to work with education. Mining has become an important part of the tourism and education sector in places like Kalgoorlie in Western Australia, Broken Hill in the South Wales, and Cooper Pedy in South Australia.

The figure shows moderate opportunities for economic development by local manufacturing industries, however, this view is not shared by the mining sector. The regional manufacturing sectors are precluded from many mining contracts by competition from larger and more specialized external suppliers, and the capabilities and capacity of local business and high risks associated with doing business with the industry. The logistics of servicing such a highly specialized industry in remote locations has an impact on holding costs of equipment for services or products that are not purchased on a regular basis.

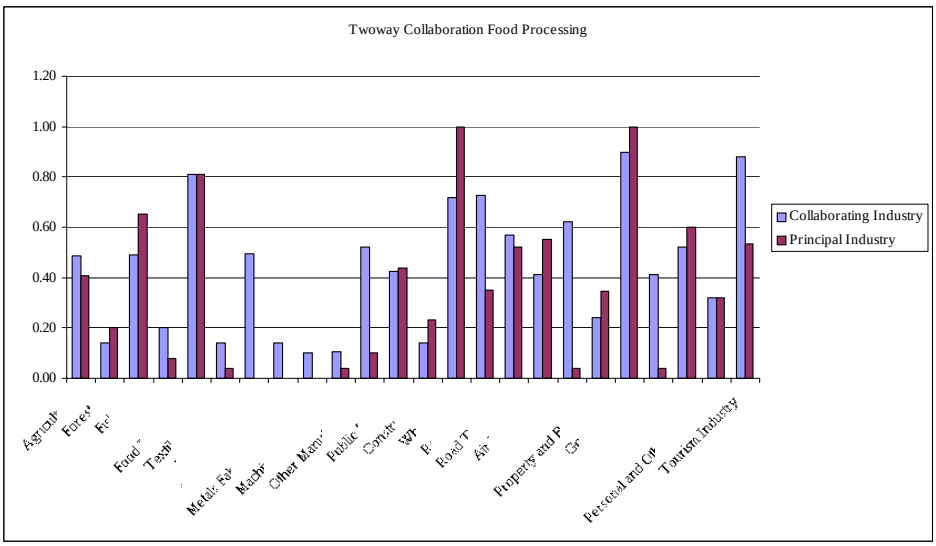
Achieving a more cohesive approach to mining development in the region will be difficult. Most of the decisions related to investment and operations in the region are made by corporations and businesses headquartered outside the region. The strongest potential for developing opportunities in the mining sector in the region rests with the service sector. Tourism, air services to mining operations, education, laboratory and legal services have moderate prospects. The MSA analysis has been useful in identifying different industry sector perceptions of the potential for collaboration. As discussed in Chapter 5, mining is a high risk sector, in which cross-industry investment in new economic ventures must be considered very carefully.

Food Processing

Figure 6.6 shows economic development opportunities for the food processing sector. There is a reasonably high level of two-way congruence for potential economic development opportunities in the sector. The potential for stretch in the sector is high and involves opportunities for research, marketing, and skills and improved information systems within the sector[19]. Weaknesses and the need to improve these competencies were identified in the analysis contained in Chapter 3.

The economic development potential for inter industry collaboration in the sector is strong but linked to the value chain production process. The highest levels of congruence occur with transport, wholesaling, government services (forward linkages to markets) fisheries and agriculture (backward linkages to suppliers) and tourism and health (ancillary beneficiaries to the industry). Wholesaling forms part of the value adding chain from agriculture to retailing and improvements in efficiencies and diversity of product would be expected to create a wide range of new economic opportunities for the wholesale sector and vice versa.

Figure 6.6 Two way Potential for Food Processing Sector FNQ



The economic development potential for leverage with the government sector relates to infrastructure, financial and marketing assistance. The factor and

[19] These factors were mentioned several times in written comments to the survey.

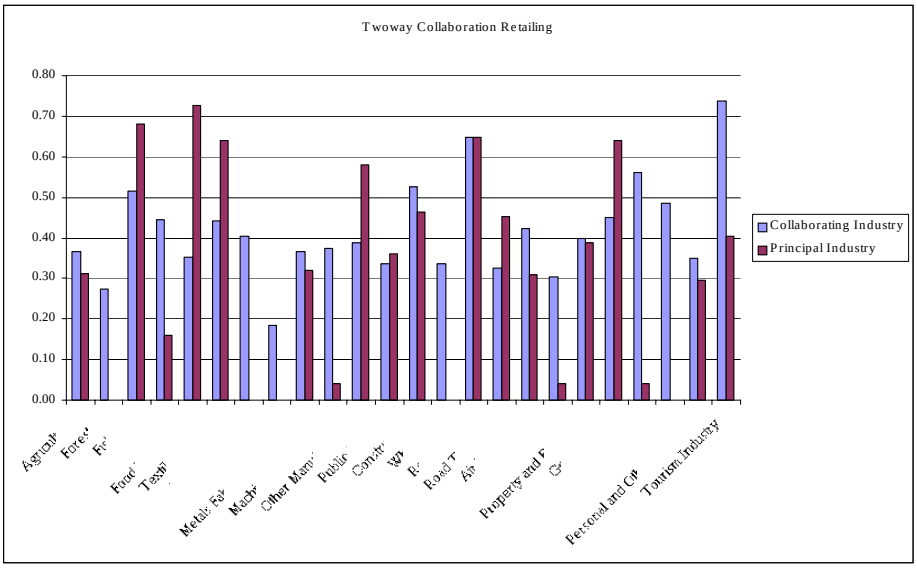
correlation analyses of competencies indicated an underlying role for government in facilitating the development of the sector. Further diversification of the fishing industry into mari and aquaculture, and agriculture into dried fruits, juices and conserves creates leverage opportunities for value adding activities to the sector. The opportunities for leverage are an expectation by the transport sector that food processing will continue to grow in the region and create increased demand for freight services. The potential for leverage with public utilities relates to opportunities created by recycling and the potential for co-generation of electricity and steam for industry consumption and sale to the regional electricity commission.

The figure indicates the sectors has a high expectation of opportunities for collaboration with tourism. This expectation is not shared by the tourism sector. This suggests either the tourism sector sees limited opportunities to collaborate with the food sector or the industry is not promoting opportunities to collaborate with tourism effectively. A stronger alliance between the tourism industry and food processing industry would have significant benefits for both. Many countries use food as a major sales promotion feature for tourism. This link is not obvious in FNQ, where the regional food theme provides little differentiation from other parts of Australia. Efforts are being made to address this issue, and regional dairy and tropical fruit promotion campaigns have been successful in lifting local awareness of food products. Developing better networks outside the region, developing unique regional food products and promotion themes, and regional brand naming are initiatives that have the potential to result in greater industry collaboration and increase the output and range of processed food in the region.

Retailing

Figure 6.7 shows the economic development opportunities in the retail sector. The sector is dominated by small businesses and is a major employment generator in the region. The overall opportunities for developing the sector are not as high as that for food processing and tourism, nevertheless, there is a potential to develop a stronger and more diversified retail sector in FNQ. In Chapter 6, an analysis of the retail sector revealed significant weaknesses in competitive competencies for clustering, collaboration, value adding and trade orientation. These competencies are important to the development of the sector and represent opportunities to stretch industry capacity to develop more specialized retail services in the region.

Figure 6.7 Two Way Economic Development Potential for Retail Sector



A major weakness in the sector is that it has few specialized retail activities that are unique to the region and exportable. Most of the souvenir products purchased through the retail sector are imported. Local art, footwear, pottery and clothing lines are fledgling industries and need greater support to develop into higher value-adding local export industries. This is a problem not peculiar to FNQ but also to other regions of Australia. Greater networking and collaboration involving product development, information systems, market intelligence, networking and local capital market development is needed for the development of new local products and services to expand the base and diversify the industry. The structure of the retail industry, which is controlled from outside the region, will make external networking all the more important to develop the depth of the retail base in the region.

The degree of congruence for two-way industry collaboration with the retail sector is not high. The overall potential for economic development involving leverage is moderate to high. There are very strong opportunities for economic development identified by the primary production and food processing sectors. The structure of the sector and its purchasing practices, however, means opportunities for collaboration with the primary production sectors are not strong. This situation is reversed in relation to service industries such as education, health and tourism, where the retail sector has a stronger perception of economic opportunities. The high-level of expected potential for collaboration by the primary industries reflects an expectation

that new and increased produce and product developed by these industries will be taken up by the local retail sector. These expectations are over optimistic.

The capacity to develop the local retail market is constrained because of the control national supermarket chains and franchisees have over supply. These operators tend to purchase from outside the region, rather than purchase locally. This practice is affected by economies of scale, continuity of supply and quality control. Securing a higher level of local product purchase will require a much more coordinated marketing and lobbying effort by the agriculture and food processing sectors. There is an identified weakness in these areas.

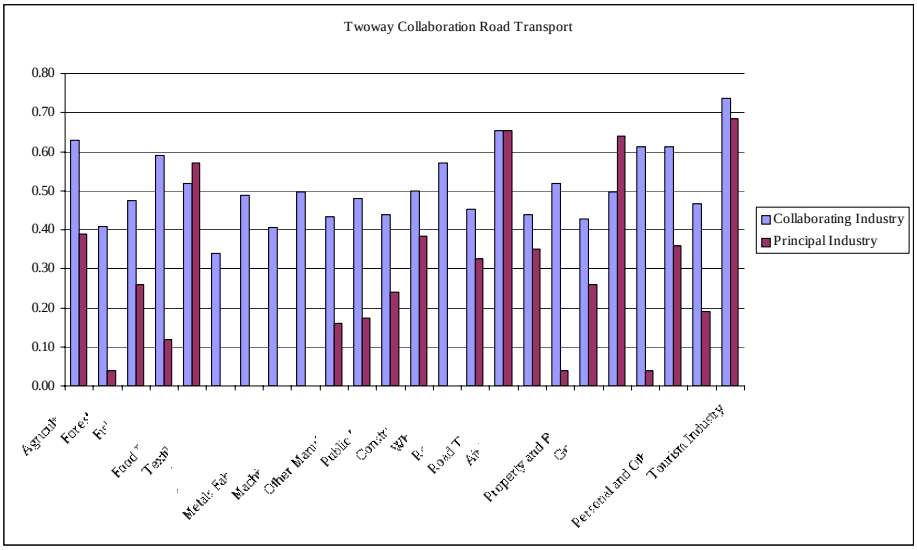
The high-level of opportunities for leverage with other service industries is a reflection of sector expectation rather than collaborating industry demand. The two-way congruence with education, community and health services are almost zero. The opportunity for leverage with the tourism sector is high but the level of congruence is not as strong as expected. This suggests that the tourism sector sees limited opportunities for the development of regional retail product. The fragmented nature of the retail sector may be a factor reducing the potential to collaborate.

The significant differences in congruence between perceived opportunities for economic development between the retail and other industry sectors suggests an overall weakness in market intelligence and market research. Networking and clustering are weaknesses in the sector. The strengthening of these and other competitive competencies addressed in Chapter 3 will be critical to realizing opportunities for stretch and leverage in the retail sector.

Transport

Figure 6.8 shows the index of economic development opportunities for the land transport sector. Overall opportunities for enhanced economic activity in the sector are perceived as high. The prospects for developing the transport services sector are constrained however, by the overall development of the economy. Opportunities for economic development identified in the analysis for the land transport sector fall into four broad categories. The first is haulage services to the agriculture and food processing sectors. The second is transport services to tourism. The third is transport services to the retail and wholesaling sectors. The final sector includes a broad range of services such as public transport, fuel supply and transport for the construction sector. The vehicles and equipment used to service these four categories of transport services are specialized and prospects for vehicle pooling in the sector are limited.

Figure 6.8 Inter and Intra-Industry Collaboration Potential for Road Transport Sector



There are significant opportunities to enhance economic performance of the sector through stretching industry capacity. This will involve the development of improved: information systems for the sector; business management practice; technical training; marketing and leadership to lobby for improvements to the regional road network. Improvement to the regional road network will increase the efficiency and low costs in the industry {FNQ 2010 1996}.

The opportunities for economic development involving leverage by the transport sector are high. Industry expectations however, are much greater than that indicated by potential collaborating industries. Overall two-way congruence levels are weak, except in food processing and tourism, where high congruence levels were recorded. Other sectors with lower congruence levels but strong development potential were agriculture, construction, retail, government, health and community services.

The high level of congruence shown with the tourism and food processing sectors reflects the close relationship and needs these industries have for transport services. The development of tourism and food processing will create new opportunities for the expansion of the transport sector. The reason for the high level of opportunity for economic development with the government service sector is not obvious and warrants further investigation.

There is a high perceived level of opportunity for economic development by the sector with the manufacturing sectors. This expectation is not reciprocated by the manufacturing and public utilities sectors. These differences are explained by the low use of long haulage transport services by the manufacturing sector. The size of the regional manufacturing sector and its heavy dependence upon rail to coastal shipping reduced demands for transport services. Best prospects for the industry lie in fostering leveraged developments with the agriculture, food processing and tourism sectors and focusing on industry stretch to enhance capacity and efficiency of the transport sector.

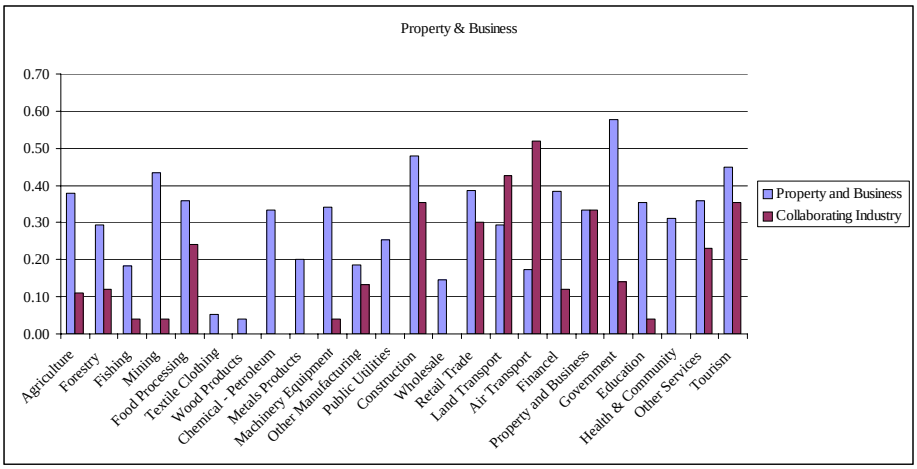
Business Services

Figure 6.9 shows the index of economic development opportunities for the property and business sectors. The economic development opportunities identified for the sector are weak overall compared with other industries. The property and business sector has traditionally been highly competitive, and showed little willingness to collaborate in the past. The sector grew rapidly in the 1980 and early 1990s and competition plays a major role in ensuring efficiencies within the sector. The slowdown in the regional economy of late has compressed the market for services and forced a change in thinking in the market[20]. The industry has not traditionally looked externally for business - except to PNG - and the current market has seen business generally accept smaller margins rather than collaborate, to expand local exports of business services.

The core competencies analysis indicated significant weaknesses in the business sector in trade orientation, technology orientation, business collaboration, management, and clustering. These competency weaknesses need to be address by the sector to enable it to capitalize upon new export opportunities in Asia as regional economies there recover. By strengthening industry capacity, new opportunities to develop import substitution industries can be expected to emerge.

[20] The North Development Industry Association (NDIA) Conference in 1998 had as its theme close industry collaboration.

Figure 6.9 Economic Development Potential for Property and Business Sector



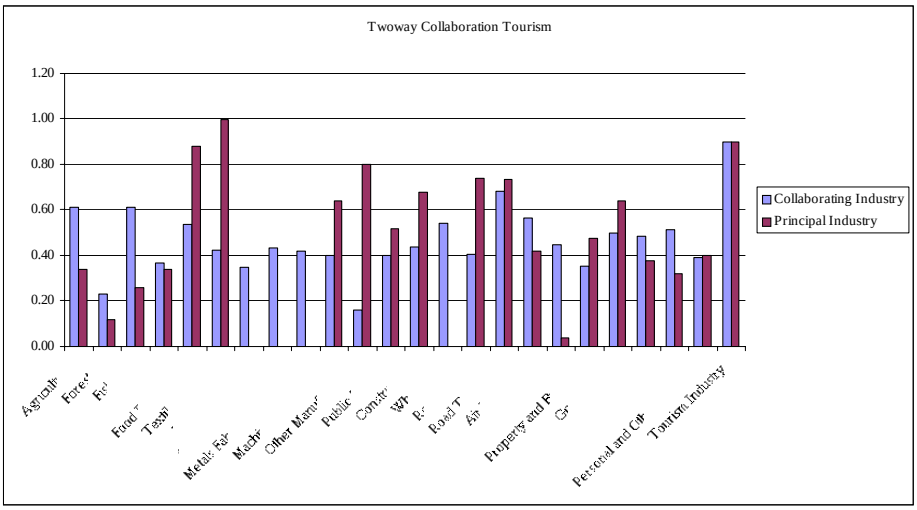
The business and property sector has indicated much greater opportunity for economic development with other sectors than do potential collaborating industries. Part of the reason for this is that many potential collaborating sector industries purchase products and services from outside the region, rather than using local service industries. This was identified by the high level of regional finance and business service imports shown in the Input output tables in Chapter 2. There is a perception, confirmed by comments in the survey, that many local businesses lack expertise and business infrastructure. This is not the case in reality but many large scale developers and companies in the region are headquartered elsewhere and prefer to use consultants and other business services in those locations.

The two-way congruence between the sector and other potential collaborating industries is strongest in the food processing, construction, retail trade, tourism and transport sectors. Most other sectors show zero or very low levels of congruence. The business sector is expected to be one of fastest growing industry sectors in Australia over the next twenty years. The analysis above suggests the industry is not well prepared to take advantage of this growth. There is a need for a more collaborative approach to the development of the sector. Attention must be paid by the industry to addressing weak competencies and building virtual industry networks to fill these weaknesses in situations where it is not possible to develop local service industry capacity. There is substantial capacity building needed in the industry for it to realize its full potential.

Tourism

Figure 6.10 shows the index of economic development opportunities for the tourism sector. The overall economic opportunities for the tourism sector are very strong. The industry has undergone substantial restructuring since its initial boom period in the late 1980s and loss of foreign investment capital during the 1990s. In the mid 1990s it experienced a slow down in international tourism due to the Asian economic crisis. These threats to the industry have forced the sector to become more cohesive and focused on new product development. The industry has a well-developed tourism strategy in place which has helped to facilitate a wide range of new and diversified tourism product and infrastructure. The sector has been able to substantially stretch its capacity to develop new product, but this was driven by the threat of competition and market change and the need to develop a consolidated approach to regional tourism management {Roberts 1996}.

Figure 6.10 Industry Economic Development Potential for Tourism Sector FNQ



Economic development opportunities for industry leverage by the sector are significant. The degree of congruence between perceived economic development opportunities with the transport, government, services, education, mining and public utilities is strong. There are significant congruence differences between the food processing, textile, other manufacturing, construction, retail trade and air transport sectors. Generally, the perception of opportunities for economic development is stronger from collaborating industries than from the tourism sector. The principal reason for this is that these sectors would benefit most from a closer collaboration with

the tourism sector. The tourism sector, however, has a major impact on presenting the image of the region, and its potential to promote other products and services should be harnessed. There are, however, very few incentives for the industry to promote cross industry products.

Tourism is the most important industry to FNQ. Without the development of the tourism industry, the region would have remained as a non-entity and would probably be experiencing progressive closure of many local industries. Instead, the tourism industry has provided the strategic leadership, entrepreneurship, innovation, asset backing and drive that has enable FNQ to develop as one of the most highly competitive and internationalized regional economies in Australia. Tourism will play a key role in facilitating the development of new industries in the region, however, it must be given the incentive and the encouragement to collaborate much more closely with other sectors. This may need selective government support and incentives to develop the capacity of economic infrastructure in the region to use tourism more effectively to promote other industries. New opportunities that will emerge in future for the tourism industry are education, sports, and cultural tourism, medical services associated with post operation recovery and extension of the tourism product to incorporate primary and extractive industry activities.

Summary

This chapter set out to identify the potential for future economic development opportunities in FNQ. The overall results of the research are encouraging and enabled a much deeper understanding of opportunities for industries to collaborate in the Region. While the survey revealed few specific examples of new enterprises that might result from greater collaboration, a high number of potential opportunities for economic development is encouraging. This suggests that business in the region has a very good understanding of the potential for collaboration. The magnitude of economic opportunity index (M) shown in Figure 6.2, is a very a useful benchmark of sectors of the economy that have the greatest potential to help diversify the economic base of the region. It is important to relate these opportunities to the capacity of regional competitive competencies, strategic infrastructure and risk management strategies discussed in previous chapters. Unless many of the weaknesses shown in the analysis in previous chapters are addressed then the potential economic development opportunities identified in this chapter will not be realised.

7 DEVELOPING A MORE COMPETITIVE ECONOMY

The Importance of Benchmarking Regional Performance

Globalisation is leading governments, business and communities around the world into new learning processes to understand what makes regions and communities competitive. Not a lot of research has been undertaken to analyse the competitiveness of regions, nor are techniques for evaluating and analysing the competitiveness of regions well developed. Much of the research in this field is hampered by the lack of good regional data.

The paucity of regional analysis affects the quality of planning for economic development. The new dynamics of economic development resulting from the processes of globalisation and structural change means we can no longer plan with the degree of precision or confidence to a level possible in the past. The future development of regions like Far North Queensland can no longer be planned by extrapolating past development trends, predicting or guessing future infrastructure requirements or creating wish lists of new regional business opportunities which governments are expected to fund. We are moving into an age where regional business and organisations must learn to anticipate the future, create opportunities based on strategic advantage and more skilfully manage economic outcomes. This will not be easy, given the rapidly changing conditions that shape trade and investment, and the ever-changing demands of society.

Benchmarking the economic capacity and performance of regions is important for the development of future strategies, the management of risk, and the development of infrastructure that forms the strategic architecture for regional economies to develop. The benchmarks developed by this study of the FNQ region economy provide important information about what must be done to improve the competitiveness of the local economy. The research also provides valuable information about opportunities for industries in the region to collaborate.

Much greater attention must be given to benchmarking the performance of the FNQ region in future. There are over 80 competitiveness factors benchmarked for the region. Further benchmarking factors will be added to these in future. All these factors affect decisions by investors and developers on the viability of investment in the region. This final chapter draws together conclusions on the benchmarks used to evaluate the competitive

competencies, strategic infrastructure, and regional risk in FNQ economy. Other conclusions are drawn with respect to realising the economic potential of the economy. The final section of the chapter discusses best practices for regional economic development. Adoption of these practices will be important for the FNQ region to remain competitive in future.

Competitive Competencies

Regional core competencies are of strategic importance to the development of competitive economies. Competitive competencies are not resources, but unique mixture of skills, technology, human capital and other resources which combine in different ways to enable business, government organizations and communities to function. Regions and industries demonstrating high levels and combinations of competencies tend to be highly competitive, resourceful, and have high levels of economic performance. There are no unique sets of competencies that ensure competitive advantage or superior economic performance in a region. The types of competencies developed in regions depend on the economic base and structure of an economy.

Three sets of regional benchmarks to measure competitive competencies were developed for the Far North Queensland regional economy. Thirty-three different factor values were measured and benchmarked. The three benchmarks are:

Strength, which provides a measure of the strength and depth of competencies supporting the development of the FNQ economy. From this analysis, it was possible to identify sectors of the economy that had the strongest competitive competencies.

Importance is a benchmark to identify what competencies are important to the competitiveness of industries in the economy. This analysis enabled comparisons to be made between the strength and importance of competency factors. Where strength factors are weaker than importance factors, the competitiveness of the sector is weak. Where importance and strength factors are high, the sector is generally very competitive.

Magnitude is a benchmark that represents a weighted score of strength. It takes into account differences in importance, size of industry and export orientation factors. If only strength factors are measured, some industries, which are of minor significance, can be given the same score and weighting as more important industries. Unless these differences are taken into account,

the importance of strength factors can be misrepresented in the technique used for analysis.

Strongest Competitive Competencies

The strongest competitive competency in the region is customer orientation. This is explained because of the high export focus of many industries in the region. Other competencies that are strong include commercialization capabilities, technology orientation, business management and use of best practices. There are, however, several competency weaknesses in the economy that require attention. These include the overall low levels of business collaboration and clustering, accessibility to capital markets and public sector policies. These do not apply to all industry sectors.

The most competitive sectors of the economy are mining, finance, tourism then agriculture. The strength of competitive competencies across these industries varies significantly. The MSA technique is useful in providing an overall analysis of the competitive position of the region's economy, but more detailed analysis shows significant weaknesses in several important competencies in some export industry sectors. The food processing sector, in particular, while having global strength, has weaknesses in clustering, research and networking. Strengthening these competencies in this and other industry sectors is important to enhancing the overall competitiveness of the region's economy.

Strategic Directions for Developing Competitive Competencies.

A much more collaborative approach is required to the development of competitive competencies in the economy. The industry clustering process will help to build the competency base of industries; however, competency capacity building is required to address weaknesses in public sector support and management. Encouraging greater cross industry collaboration in marketing, network development and information sharing is an important capacity building outcome for the region. Achieving a more integrated approach to planning and public policy development is important. There is a need for specific taskforces to be created as part of the regional planning process under FNQ 2010. These would develop improved procedures for development approvals, regional industry policy development and public agency coordination at the three levels of government. This is necessary to ensure the public sector has the capabilities to respond quicker to change and events that may impact adversely upon the development of the region.

Strategic Infrastructure

The relationship between infrastructure investment and economic performance has been studied in considerable depth at the macro-economic level. At a regional level, little research has been undertaken on the role of economic investment. Numerous reports have been prepared describing regional and sector industry infrastructure needs. No research has examined the competitiveness of strategic infrastructure in FNQ. The competitiveness of regional infrastructure has had a very significant impact on the development of the region in the past. Many elements of regional infrastructure are considered not competitive.

Three infrastructure benchmarks have been developed for the region. Seventeen elements of strategic infrastructure are measured for each benchmark.

Infrastructure Strength, benchmarks the strength of strategic infrastructure supporting the development of a region.

The Infrastructure Importance, benchmarks the importance of different types of infrastructure to the development of sector industries and the economy as a whole. Like the benchmarks used for competency analysis, comparisons can be made between infrastructure strength and importance factors that affect the competitiveness of the FNQ economy. The importance factor is also used as a weight to develop the Strategic Infrastructure Index.

The Strategic Infrastructure Index, benchmarks the competitiveness of industry sectors and the economy as a whole. This index, similar to the magnitude of competency benchmark index above, measures differences in the competitiveness of Strategic Infrastructure accounting for the importance, scale and scope of factors across industry sectors.

Strongest Competitive Infrastructure

Telecommunications and electricity are the most competitive strategic infrastructure in the region. All other types of strategic infrastructure are either marginally competitive or significantly below a standard considered to be internationally competitive. The competitiveness of transportation infrastructure and the road network is considered weak. Community infrastructure is weak overall. Education and Public health facilities are below what is considered necessary to support strong local and export industries. While the region has adequate basic infrastructure to meet the

needs of the region's population, this is not of sufficient standard to enhance the competitiveness of the region's export sectors.

The industry sector with the strongest supporting infrastructure is food processing. Only four other industries: fishing, mining public utilities and tourism have infrastructure that is considered competitive. The analysis suggests that substantial new investment and improved performance of regional infrastructure, especially roads, is required to raise the standard and efficiency of local infrastructure to maintain a competitive economy.

Strategic Directions for the Development of Regional Infrastructure

There are several elements of strategic infrastructure needed to support the development of the region. Regional public transport systems, airport cool storage facilities, the regional trunk road network and key community facilities such as hospitals, schools and a more regional industry based University are priority infrastructure investments needed in the region. Public sector funds for the level of investments required to restore the competitiveness of infrastructure will not be forth coming. Thus, strategies to develop regional infrastructure though the fostering of a wide range of partnerships with industry will be critical if the competitiveness of regional infrastructure is not to deteriorate further.

Regional Risk Management

Three Benchmarks of Regional Risk

Risk is a perception or estimation of factors or events that have the potential to impact adversely upon economic, natural or social systems. There are many types of risks that affect regional economies. The risk of natural disasters and the like are generally well appreciated by regional communities, and government and business normally have contingency plans to deal with these situations. Other risks, involving social, political and financial events, are often overlooked or not adequately considered by people and organizations involved in regional economic management.

Globalization will continue to raise the level of external risk facing many regional economies. Thus, the failure of regional businesses and organizations to manage external risk will have a significant impact on economic competitiveness and performance. Hence, there is a need for FNQ

to develop strategies and initiatives to manage regional risk. This is essential to maintain regional competitiveness.

Three benchmarks have been developed by the study to analyze and monitor regional risk. For each benchmark there is a sequences of 30 risk variables measured. The variables are grouped under five broad risk headings: economic, production, societal, environmental and political risk. The three risk management benchmarks are:

Risk Impact, which provides measurements of the severity or consequent of risk. Severity includes the extent and duration of the event or events, which may impact on the region's economy.

Risk Possibilities are a measure of the probability of events occurring that will impact on the economy. The index of risk possibilities developed provides a useful indication of the likelihood or possibility of specific events occurring in the region over the next 10 years.

Anticipated Risk is a measure of preparedness or an indication of priorities that regional organizations and business should give to the management of specific risks. The overall analysis of anticipated risk in the economy gives a good indication of what sectors of the economy are most exposed to risk.

These high-risk categories need to be considered carefully in strategic risk management planning processes. The individual analysis of industry sectors is important in identifying factors that are specific to industries and the risk factors contingency plans should concentrate upon.

Priority Areas for Regional Risk Management

The results of the anticipated risk analysis indicate FNQ has a high-level of exposure to exogenous (external) risk factors such as fluctuations in commodity prices, markets and exchange rates and technology change. Strategies for managing these exogenous risk will involve more collaborative approaches to networking, the development of strategic alliances, product diversification within the capacity of existing industries, resource leveraging, using futures markets, and hedging to protect regional income.

The anticipated risk analysis shows greater consideration must be given to the management of endogenous (local) factors related to production, social and political risk. Reducing these risks will require collective industry action in partnership with government and the community. Local production costs for

utilities, rises in labour costs, environmental quality and action by pressure groups affecting industry sectors like agriculture and tourism are risks requiring management attention. Most endogenous risk factors are best managed on an industry basis. Some risks such as pollution and community concerns are best addressed by collaborative initiatives.

The wholesale/distribution sector is the most at risk industry sector. This is because the industry is highly exposed to changes in prices in external markets, which in turn affect local prices of imports and exports. Food processing and mining have high-risk exposure because of their strong export focus. Tourism and retailing have lesser but generally high levels of risk exposure. The high levels of exposure by industries to external events, especially movements in market prices and exchange rates, points to the need for industries to make greater collective use of futures, options and insurance to protect regional business income. A more collective industry approach to quality assurance and human resource development would also help to reduce regional risk.

Economic Possibilities

The economic performance of the FNQ economy can be improved greatly by the adoption of three strategies that focus on industry stretch, leverage and combinations of each. The survey of industry economic development potential for regions showed strong evidence that business (especially smaller business) recognises cross industry collaboration is important to new business development and employment growth. ***Industry stretch*** involves mobilising resources, infrastructure and other assets to create new investment or development opportunities within industry sectors or clusters. One of the benefits of industry clusters is they enable businesses to pool resources for the collaborative net benefit of cluster members. This can overcome economies of scale and scope for smaller industries in the region.

Industry leverage involves inter-industry collaboration between new opportunities. Leveraging seeks opportunities in what we call 'white space'. That is opportunities that fall between industries. Industry leverage is often referred to as cross industry collaboration. Industry leveraging is important to FNQ. Utilising industry leverage reduces risks in new product development, as it results in the sharing of risks.

Combining stretch and leverage opens up the greatest opportunities for economic development in the region.

The analysis indicates several industries in FNQ have the potential to generate significant new economic opportunities through leveraging and stretching endowed resources, competencies and strategic infrastructure. Two types of analysis were used to assess economic potential. The first examines the average opportunities for collaboration between industries. This analysis suggests the economic development potential of inter and intra industry collaboration may exceed $670m. However, average figures can be misleading. Collaboration between industries is seldom equal. One industry tends to dominate or benefit to a greater extent than another in collaborating processes. This is partly the result of the way industry purchasing and the value-adding process operate in the region.

The analysis of the two way level of collaboration between 24 industry sectors in FNQ shows that where there are significant mismatches in the potential for collaboration between industries. (Two way collaboration is the potential of one industry to collaborate with another industry and vice versa.) Where a mismatch occurred, prospects for economic development were likely to be poor. When industries demonstrated a high average potential, but there were slight differences in economic development potential between one industry and another (***congruence***), strategies to enhance collaboration and resource sharing may increase the economic development potential of two-way collaboration. The research shows each case for inter and intra-industry collaboration needs to be looked at on its merit. Improved information flows, resource sharing and collective strategic leadership are initiatives that can significantly enhance regional economic development opportunities in all industry sectors of the FNQ economy.

Strongest Economic Opportunities for Collaboration

Tourism, transport and the food industries have the strongest prospects for intra-industry (stretched) collaboration. The tourism industry has diversified into eco-tourism, backpacker and outback tourism in recent years. The tropical fruit industry has also diversified significantly. It is expected that these two industries will continue to offer the greatest opportunities for stretching the capacity of industries to develop new industry product in future.

Tourism, agriculture, food processing retailing and transport services offer the greatest opportunities for inter-industry (leveraged) business collaboration. The development of business, sports and education tourism offer significant opportunities for cross industry collaboration in the region. The potential to develop collaboration between tourism and the food industry is very

significant and represents major opportunities. This is beginning to develop with the dairy and tropical fruit industries. Tourism potentially opens up the greatest new opportunities for collaboration with retailing, manufacturing and transport services. Most of the opportunities for two-way inter industry collaboration with these industries are small and will need to be focused on niche markets.

Orientation of Collaboration

The potential for local industry collaboration between local, national and international businesses varies significantly between industries. This is accounted for by differences in the export/domestic market focus of industries. The largest regional export industries, tourism and transport, have the strongest orientation towards international business collaboration. A rough estimate of the orientation of business collaboration suggests that 54 percent is orientated towards local business, 27 percent to national and 17 percent to international business development.

Best Practices for Maintaining Regional Competitiveness

The adoption of regional development best practices is important for business and communities seeking to create competitive advantage in the global economy. Benchmarking is universally accepted as best practice for monitoring regional economic performance. However, benchmarking, is one of many tools that can help facilitate and manage economic development. Research to develop benchmarks for FNQ suggest several other best practices will enhance the competitiveness of industries and clusters in the region. The following best practices are recommended to strengthen economic capacity and competitiveness of the region.

Fostering the Development of Partnerships

Partnerships are a relatively new tool in regional economic development. As public resources become scarcer, governments are looking to the private sector and communities to provide much of the strategic infrastructure needed to support the development of regional economies. Due diligence must be given to the development of partnerships to ensure protection of public values and equity issues are incorporated into partnership arrangements. The industry clustering process in FNQ has resulted in the development of new partnerships for business. Social partnerships, however, involving, government, community and business in providing soft and hard infrastructure

are falling below world's best practice. Specific types of best practice partnerships are needed to improve regional business information systems, marketing intelligence, community infrastructure and community programs to alleviate poverty and create employment.

Focus on Industry Clusters

The focus upon industry clusters as catalysts for economic development is recognised best practice. The key success factors associated with cluster building are leadership, networking and capacity building. Cluster building is also a learning process which involves identifying and quantifying specific skills, knowledge, personnel, technology, resources, infrastructure, markets and management factors. Collectively these factors create a kind of critical or strategic architecture that supports industry cluster development. All clusters require a strategic architecture, however, strategic architecture varies from industry to industry. For instance, the strategic architecture requirements to support the tourism industry cluster are very different than that needed to support the development of the food processing industry.

Best practice suggests that the members of FNQ industry clusters must spend more time defining the core competencies, strategic infrastructure and marketing intelligence systems needed to facilitate their development. There must be a cluster learning process as development of the 15 identified clusters will take several years to develop. They are not something than can be manufactured quickly. The focus of the CREDC will be critical in facilitating the learning process, however, such organisations will no longer have the responsibility to lead the development of clusters. Clustering is a process that should be encouraged to grow from within the membership. The role of CREDC in facilitating the development of clusters in future will become more that of a coach: providing tutoring or training to build capacity within clusters and brokering support across industries and government to secure key infrastructure and develop competencies to enable the clusters to grow.

Focus on Import Replacement

Globalisation and restructuring has resulted in the rapid growth of outsourcing. However, changes in technology, transportation and 'just in time management' have created latent potential for import substitution. Import substitute industries often strengthen the base of industry clusters. Industries of the FNQ economy that offer unique opportunities to encourage import substitution are: building construction materials, the food industry,

information technology, producer services, and tourism services. These were identified in the Import Substitution Strategy (AHURI 1996). Import substitution is often dismissed as best practice by many economist arguing that free market conditions will create the most efficient means of securing resources, commodities products and services. Strategies that encourage import substitution are considered best practice if they also foster the development of supply side enterprises for industry clusters and niche export industries.

Focus on Stretch and Leverage

Expanding regional economic capacity through stretch and leverage is best practice and forms an important tenet of sustainable development. The opportunities for economic development collaboration have been discussed in the previous section. Stretching and leveraging resources goes beyond these economic development issues. There are numerous opportunities for FNQ to ensure more efficient use of resources between public sector agencies, business and community organisations. Resource leveraging in the FNQ region could also be used to minimise development costs, for example, development of multiple infrastructure and transportation corridors, common user equipment and energy conservation through cleaner production and industrial ecology. These are opportunities that can be actively encouraged by resource leveraging and stretch.

Focus on Economic Defence

Strategies designed to protect or retain established industries in regions are not strongly supported under free market economic processes. However, the loss of a key industry in FNQ in future might cause the collapse of support systems that are part of an industry cluster in the region. It may be necessary in future to defend core industries from competitive raiders. Many regions in Europe have mounted successful strategies to retain core business activities because they are critical to a wider cluster development, and because of the contribution they make to employment. Industries that may require defence strategies in the region include education, marine, and food processing and mining services. Intelligence systems and quality assurance management also need to be addressed in the region.

Focus on the Presentation of Value Factors

The way regions present 'value factors' such as competencies, endowed resources etc., has a significant impact on investment allocation. For FNQ, the presentation of its value factors in the global market place will be of critical importance to securing foreign and domestic investment. The image of natural beauty, lifestyle and climate are important to the region, but they are not the most important competitive values to investors. Best practice suggests that regions that promote the strength of human capital development, networking, expertise with technology, education and research facilities, multicultural values, openness of government structures, quality of communication services and social cultural values are more likely to be attractive to business and investors. These factor values need to be promoted more effectively in future.

Focus on the Development of a Learning Community

Learning or smart communities are those that invest in infrastructure, knowledge and networks to maximise the distribution of information and technology from a local to global level. Learning communities use all levels of education, media, and social and business networks to inform the community about business, science and technology and cultural and social events in the community. The informing processes used help to enrich and enhance the knowledge base, cultural and spiritual edification of the community. Several towns in the U.S. have used local Internet services to greatly improve knowledge within their communities. More informed communities tend to become more innovative and outward looking. They overlook parochial issues to secure new economic opportunities. They tend to have a clear vision for their future that is firmly based on learning.

The focus on increased Internet linkage for households is an important indicator of a smart community. Indicators of education and high school graduation levels, literacy and newspaper reading are useful indicators of the status of community knowledge. Such indicators are closely examined by businesses in selecting new sites for expanding operations. Smart or fast learning communities tend to have high levels of intellectual capital, which many high-tech industries require. There is growing evidence that many producer services and technology-based industries are gravitating towards areas of higher intellectual capital. This suggests that encouraging the growth of a local smart community in FNQ will have a positive effect on local higher-level service employment.

Focus on Sustainability

In many developed and successful regional economies, questions are being raised about the sustainability of economic development and its effects upon quality of life. The shift in focus of regional economic development policy economic growth to sustainable development reflects these concerns. This implies that quality of life must form the fundamental basis for economic development strategies. A focus on sustainability suggests that the FNQ region must develop more detailed quality of life indicators that reflect the value systems of the community and promote these as an economic attribute of the region.

Focus on Industrial Ecology and Cleaner Production

An important principle of sustainable development is the adoption of the practice of industrial ecology and cleaner production. Industrial ecology involves co-location of industries that have natural synergies related to waste streams and by products. The waste or radiation product from one industry becomes the resource of another. The OECD and the American EPA are citing industrial ecology as a best practice initiative. The new Integrated Planning Act for Queensland provides unique opportunities for industrial ecology and cleaner production policies and guidelines to be introduced into strategic and other planning documents in the region. It is important that this is done, as industrial ecology and cleaner production are realised as best practices than can bring significant economic benefits to regions.

Concluding Comment

For regions to compete successfully in the global economy, businesses and organisations that comprise a local economy must be able to respond quickly and take advantage of the opportunities created by change. Decision makers must also understand what gives a region its competitive advantage, and how to maintain and build upon this. One of the principal reasons for the successful development of the FNQ is that business and organisations learned quickly how to integrate into the global economy and to appreciate factors that are important to making the region competitive.

Globalisation will expose FNQ to greater competition and external influences than ever before. The region must learn to manage these factors better in future. To prepare for the future, the region will need to work more collaboratively and selectively in what it does to maintain its economic

advantage. The research undertaken to prepare benchmarks for the FNQ economy indicates the region will need to concentrate much harder on its strategic management effort to support the development of competitive competencies, strategic infrastructure, asset and risk management. Continuous monitoring of benchmark factors identified and discussed in this book will be important to the future economic success of the region. There is also a need to respond much more quickly to changes in benchmark sequencing in future. If FNQ does this well, then it will have few difficulties remaining as one of the leading regional economies in Australia and the Pacific Asia region.

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