



The Development of Horticulture in the Peel Region

The development of the horticultural industry in
the Peel Region

Prepared for the Peel Development Commission

June 2004



ACIL Tasman

Economics Policy Strategy

© ACIL Tasman Pty Ltd

Copyright in this document is and remains the property of ACIL Tasman Pty Ltd. This document must not be reproduced in whole or in part without ACIL Tasman's prior consent. Its content must only be used for the purposes of evaluation with a view to contracting ACIL Tasman to carrying out the work that is the subject matter of the document. No other use whatsoever can be made to any material or any recommendation, matter or thing in the document without ACIL Tasman's prior written agreement.

ACIL Tasman Pty Ltd

ABN 68 102 652 148

Internet www.aciltasman.com.au

Melbourne office

Level 6, 224-236 Queen Street

Melbourne VIC 3000

Telephone (+61 3) 9600 3144

Facsimile (+61 3) 9600 3155

Email melbourne@aciltasman.com.au

Brisbane office

Level 15, 127 Creek Street

Brisbane QLD 4000

GPO Box 32

Brisbane QLD 4001

Telephone (+61 7) 3236 3966

Facsimile (+61 7) 3236 3499

Email brisbane@aciltasman.com.au

Perth office

Level 12, 191 St Georges Terrace

Perth WA 6000

PO Box 7035

Cloisters Square

Perth WA 6850

Telephone (+61 8) 9485 0300

Facsimile (+61 8) 9485 0500

Email perth@aciltasman.com.au

Canberra office

103-105 Northbourne Avenue

Turner ACT 2612

GPO Box 1322

Canberra ACT 2601

Telephone (+61 2) 6249 8055

Facsimile (+61 2) 6257 4170

(+61 2) 6249 7455

Email canberra@aciltasman.com.au

Darwin office

Suite 1/63 Marina Boulevard

Cullen Bay NT 0820

GPO Box 1000

Darwin NT 0801

Telephone (+61 8) 8981 2101

Facsimile (+61 8) 8981 2702

Email darwin@aciltasman.com.au

Sydney office

PO Box 170

Northbridge NSW 1560

Telephone (+61 2) 9958 6644

Facsimile (+61 2) 8080 8142

Email sydney@aciltasman.com.au

For queries on this proposal

Please contact:

John Roberts

Telephone (08) 9485 0300

Mobile 0404 052 330

Email j.roberts@aciltasman.com.au

Contents

1	Understanding of the task	1
2	Methodology	2
2.1	Inception meeting	2
2.2	Phase one: potential for horticulture	2
2.2.1	Literature search	2
2.2.2	Identify constraints and opportunities for horticulture	2
2.2.3	Suitable development options	3
2.3	Phase two: cluster feasibility	3
2.3.1	Literature review	3
2.3.2	Cluster options	4
3	Reporting of study outcomes	4
4	Project Plan	5
4.1	Resources	5
5	Project reporting	6
6	ACIL Tasman	6
6.1	Relevant experience	7
6.2	Referees	9
6.3	Personnel	10
6.3.1	John Roberts – Project Manager and Senior Consultant	10
6.3.2	Antonia Hodby – Senior Consultant	11
7	Price quotation	12
A	Résumés	A-1

Boxes, figures, tables and charts

Figure 1	GANNT chart	5
Table 1	Schedule of hours, rates and fees	13

1 Understanding of the task

The Peel Region encompasses an area of 5,500 km². It includes the Shires of Serpentine-Jarrahdale, Murray, Waroona and Boddington, and the City of Mandurah.

The Peel region is home to some 79,000 people or 4 per cent of Western Australia's population. It has the second highest population of Western Australia's regions and an annual population growth rate of 3.2 per cent which is the second highest behind the Perth metropolitan area.

The Peel Region has a vibrant and dynamic economy that is dominated by the mining and mineral processing industries. In 2001/02 the Peel produced \$1.85 billion of alumina and \$62 million of gold. Other significant industries are agriculture, forestry and fishing, retail, construction and tourism.

The 2001 Census reported the largest source of employment for people living in the Peel was in the service industries, with retail trade the biggest employment sector. The manufacturing, construction and service sectors are also significant employers. The agriculture sector employs around 5 per cent of the workforce in the Peel region.

The horticulture industry in the Peel consists primarily of fruit and vegetable production, cultivated turf, nursery production and cut flowers. In 1999/00 the industry contributed \$15.9 million to the Regional economy.

The Peel Development Commission would like to develop the horticulture industry further. To assist potential investors in making informed business decisions, the Commission is seeking a consultant to undertake a study into the potential for expanding the industry in a sustainable manner. As part of this investigation, the potential for a cluster mode of operation in the Shire of Waroona will also be considered. The study will mainly be a desktop analysis building on the reports *Invest for Success – Investing in Agriculture in the South West Irrigation Area* and *Land Use in the Wagerup Area*.

This proposal outlines ACIL Tasman's approach to this task. The proposal addresses each of the selection criteria outlined in the Request for Quotation and acknowledges the timing and reporting requirements of the Commission. A small team of consultants has been selected with experience in the agribusiness sector, with analysis of cluster opportunities and with recent experience in examining the economy of the Shire of Waroona and the Peel Region.

For further information regarding this proposal, please contact Project Manager John Roberts at telephone number 9485 0300 or on email address j.roberts@aciltasman.com.au

2 Methodology

The approach ACIL Tasman will take for this study will be in two phases. The first will identify the potential for horticulture development in the Peel Region and the second will investigate the feasibility of a horticulture cluster. The following sections outline our methodology in greater detail.

2.1 Inception meeting

Whilst we intend to follow the methodology presented in the following Sections, we feel it is important to confirm the detailed scope of work with the Peel Development Commission before commencing the study. We therefore propose an inception meeting between the consultant and Commission representatives to review our proposed methodology, timelines and key reporting dates and to agree on the way forward.

We will also use this meeting as an opportunity to obtain any information that the Commission may hold including previous reports, planning information, statistical information, and any other relevant information. These reports will include all those listed in the Request for Quotation.

2.2 Phase one: potential for horticulture

2.2.1 Literature search

Our first task will be to locate and source all known documents relevant to this study. Many of these are listed in the Request for Quotation. In addition, ACIL Tasman will undertake a desktop search for other information that may be relevant to this study. All relevant studies will be listed in a bibliography that will be included in the Final Report. The desktop search will include a search of publicly available reports, the consultants' own libraries and telephone conversations with key stakeholders to identify any unpublished reports.

2.2.2 Identify constraints and opportunities for horticulture

The literature search will provide a database of information relating to the horticulture industry in the Peel. This information will be sorted into groups including;

- Availability of suitable land
 - Soil types
 - Water availability (supply, infrastructure, licenses etc...)
 - Land zoning
 - Other land users – urban, industrial, other rural etc...
- Suitable crop varieties
 - Given availability of suitable land
 - Crop varieties currently grown
 - Opportunities for niche/alternative crops including hydroponic crops
 - Environmental considerations
- Market analysis
 - Demand analysis (brief analysis of local and export demand)
 - Competitors (brief analysis of local and import supply)
 - Proximity to markets
 - Opportunities for processing
 - Transport and other infrastructure

This information will be presented in a table for discussion at a Steering Group meeting. The aim of the analysis will be to identify the constraints and opportunities for horticulture development in the Peel and also for individual crop varieties given growing requirements, market conditions and access to markets.

2.2.3 Suitable development options

The aim of this task will be to identify those crops that are most suitable for production in the Peel Region given the analysis undertaken in the previous task. Development options will be presented for each crop including comments on likely markets, major competitors, and opportunities for processing and so on.

The analysis will examine new varieties as well as options for expanding existing crop operations.

2.3 Phase two: cluster feasibility

2.3.1 Literature review

A literature review will be undertaken to investigate the existence of other horticulture clusters around the world. This analysis will be important in understanding how these clusters have worked and what lessons can be applied

to the Peel. The consultants already have a good database of clusters in other industries. The experience of these clusters can be applied to this project.

2.3.2 Cluster options

We note that the Request for Quotation defines a cluster as “a cooperative mode of operation consisting of geographically separate production units sharing common infrastructure”.

The analysis of cluster options for the Shire of Waroona will further define the Waroona cluster and what components it may include and what ownership options are available. For example, the horticulture cluster could include processing infrastructure as well as growing infrastructure and it could include complementary industries such as the aquaculture industry, the transport industry, the tourism industry and so on. The opportunity for a horticulture R&D facility within the cluster will also be investigated.

Drawing on the previous analysis, options for a Waroona cluster. The study will identify:

- Suitable crops
- Land requirement and location
- Infrastructure requirements
- Environmental considerations
- Land use and planning considerations

3 Reporting of study outcomes

We would intend to refine the structure and content of the draft report after discussions with the Steering Group as the study progresses. It is however, our practice to develop a ‘table of contents’ to use as a guide in preparing the study and to ensure that the Steering Group is clear of the direction we intend to take during the study. For this study, we propose the following draft study:

1. Executive Summary
 - For use as a stand alone document
2. Introduction
 - Background to study
 - Methodology used
 - Aims of study (scope of work)
3. Current horticulture in the Peel Region
 - Document current production and markets
4. Opportunities for horticulture

In addition to these documents we will use some general office disbursements for printing of reports and so on. The expected cost of these resources has been included in our fee.

5 Project reporting

It is our regular practice to provide informal weekly oral or emailed updates to our clients on the progress of the study. We will adopt this policy with the principal contact at the Peel Development Commission.

In addition, we note that the Peel Development Commission requires fortnightly meetings with the Steering Group to advise of:

- The actual progress to date compared against the project plan;
- Any issues that need to be resolved; and
- Any Steering Group resources that will be required between reporting periods.

We have budgeted for these meetings to be held in the Peel Region and for two consultants to attend so that one can present and the other can minute the proceedings. We expect that the meetings will be held as follows:

Meeting 1	Inception meeting
Meeting 2	Results of literature search and analysis and discussion with Steering Group of constraints and opportunities to horticulture development
Meeting 3	Discussion of suitable development options and options for clusters
Meeting 4	Presentation of Draft Report

6 ACIL Tasman

ACIL Tasman Pty Ltd was formed by the recent merger of Tasman Economics and ACIL Consulting and is now the largest specialist economics and policy consultancy in Australia¹. The amalgamation brought together two firms that have each built international reputations for quality research, policy advice and project implementation after more than two decades of involvement in economic policy development and reform. We have around 50 professional staff, with offices in Melbourne, Canberra, Brisbane, Perth, Sydney and Darwin.

Our extensive experience in applied economics, business strategy and public policy, and associated disciplines includes:

¹ The ACIL Tasman experience described in the following pages will in many cases have been undertaken by one of the founding entities of ACIL Tasman, which include ACIL Consulting, Tasman Economics, London Economics Australia and Tasman Asia Pacific.

- financial and statistical analysis, modelling and demographic/economic mapping;
- economic impact and market analysis;
- cost benefit and real options analysis, risk assessment and management;
- specialist input for mergers and acquisitions;
- institutional reform, corporatisation, privatisation and PPPs;
- social policy analysis;
- environment policy and management;
- trade practices, regulatory advice and access;
- international trade;
- taxation policy and impacts; and
- government relations.

ACIL Tasman has a reputation for providing credible analyses and innovative solutions for our clients. We have been particularly active in leading restructuring and reform processes and in performing business advisory roles. Our work spans Australia, New Zealand, Europe and most key countries in the Asia-Pacific region.

Our experience covers most sectors of the economy, including minerals and energy, agriculture, fisheries and forestry; health and social policy, transport, communications, water and other infrastructure, the environment, manufacturing and services, defence and international trade.

Further information is available from our web site located at <http://www.aciltasman.com.au>.

6.1 Relevant experience

ACIL Tasman and the consultants nominated for this project have experience in a number of areas relevant to this study including:

- Agribusiness experience including in the horticulture industry
- Economic impact
- Demand forecasting
- Liaison with government, industry and community stakeholders
- Cluster development analysis
- Project management

Relevant projects that ACIL Tasman has undertaken that include one or both of the consultants include the following. All projects have been undertaken in the past 18 months. Further examples can be provided on request.



- Advice to the National Aquaculture Council on issues associated with the establishment of a peak body for the Australian aquaculture industry. An operational framework for the peak body was developed including board structure, constitution, membership structure and objectives.
- Competitive neutrality review of the business activities of the WA Department of Fisheries to ensure they comply with State Government legislation.
- The feasibility of establishing a wine tourism centre in the Great Southern Region of WA for the Great Southern Development Commission. The study included industry consultation, centre design and concept, financial analysis and budget development.
- A strategic plan for the Gascoyne Water Co-operative. This study involved researching and workshopping likely market and industry development scenarios for irrigated horticulture from the Carnarvon area and developing a strategic plan that maximised the benefits from such development.
- The financial viability of the East Rockingham Wool precinct for the Department of Industry and Resources. Conduct a market review of the processed wool industry and examine the financial viability of the wool precinct given current and expected market demand. The information was designed to assist the Government in deciding whether financial assistance should be given to the precinct.
- Development of a series of Business Plans for the three schools that form the Faculty of Arts, Humanities and Social Sciences at the University of Western Australia.
- A post investment review of the Australian Resources Research Centre to examine whether the centre had met its original objectives set out under legislation. The study estimated the economic impact of the ARRC including the benefits associated with being located within the research and development cluster.
- The economic impact of the expansion of Technology Park to form Technology Precinct. The study used economic modelling to investigate the economic impact of the expansion but also considered the strategic impacts of co-locating similar industries to form a cluster with shared infrastructure.
- The economic impact of the Pinjarra alumina refinery expansion on the economies of Pinjarra, the Peel Region and Western Australia. Included an economic evaluation of the Peel to determine the likely impacts.
- Various reports for private companies on the economies of the Peel and South West.

6.2 Referees

The following referees will attest to the ability of both consultants and ACIL Tasman to complete projects in the required timeframe and to the specification of requirements. We have chosen referees from our work in the horticulture/viticulture industry and in examining the existence and impact of clusters.

Feasibility of a wine tourism centre in the Great Southern

Ms Jan Axe
Project Manager
Great Southern Development Commission
110 Serpentine Road
Albany WA 6330

08 9842 4888

jaxe@gcdc.wa.gov.au

Strategic plan for the Gascoyne Water Co-op (irrigated horticulture)

Mr Ed Garrett
General Manager
Gascoyne Water Co-operative Ltd
6 Robinson Street
Carnarvon WA 6701

08 9941 4488

gwc@gascoynewater.com.au

Post investment review of the ARRC; The economic impact of the proposed Technology Precinct Expansion; The economic impact of the proposed St Andrews Technology Park (all three investigated the existence and impact of research and development or technology clusters)

Mr Roy Chapman
Project Manager
Department of Industry and Resources
SGIO Atrium
St Georges Terrace
PERTH WA 6000

08 9327 5555

roy.chapman@doir.wa.gov.au

6.3 Personnel

The ACIL Tasman team for this project will be John Roberts as Project Manager, and Antonia Hodby as Senior Consultant. We will also call on research assistance for data gathering and literature searching.

Both John and Antonia have experience in the horticulture industries and in the Peel. Both have recently worked on several irrigated horticulture projects (including strategic planning) in the Gascoyne and on the Ord, and on social and economic impact studies in the Peel. They therefore hold a considerable amount of information regarding the economic framework of the Shire of Waroona and the Peel Region as well as on development options for irrigated horticulture. Both have also worked on several recent projects investigating research and development and technology clusters in the Perth area in terms of their economic and strategic value.

Biographies for each of the Consultants are listed below. More detailed resumes are located at the end of this document. Both consultants are available for the duration of this project.

6.3.1 John Roberts – Project Manager and Senior Consultant

John Roberts is a senior consultant, who joined ACIL Tasman from the Water Corporation in 2002. John has extensive experience in investment evaluation and business development. As a consultant economist with the Water Corporation, he managed the transfer of two irrigation schemes to grower-owned cooperatives and also the transfer of water and wastewater services at Kambalda from Western Mining to the Corporation.

John also advised the Water Corporation on the valuation of irrigation water in negotiations with Harvey Water for the transfer of water from the South West Irrigation Scheme to Perth.

In April 2003 John presented a paper to the Oz Water Conference entitled *Grower Takeover of Irrigation Schemes in Western Australia: The Quiet Revolution*. This paper described the irrigation reforms carried out in Western Australia.

John recently completed a paper for the Swan-Canning Catchment Drainage Forum on options for resourcing drainage management. This paper focused on market-based instruments for achieving drainage management.

From 1995 to 1998 he held senior management positions in the Water Corporation covering the areas of pricing and investment evaluation, institutional reform, commercial development and irrigation reform. In 1993

he acted as Executive Officer for the South West Irrigation Review Task Force and in 1995 he participated in the divestment of the South West Irrigation Scheme.

John's specific expertise in the water industry includes water industry reform, water pricing, infrastructure development, asset management and asset replacement, economic regulation, water allocation and transferable water entitlements.

John is presently a member of the State Government's Irrigation Review Steering Committee set up under the Government State Water Strategy.

John has extensive experience in policy development and economic analysis and strong skills in financial modelling, economic impact analysis and cost benefit analysis. He has a Master of Economics degree and bachelors degrees in economics and agriculture from The University of Western Australia (UWA), and is an Adjunct Lecturer in Economics at UWA.

6.3.2 Antonia Hodby – Senior Consultant

Antonia Hodby is a consultant in ACIL Tasman's Perth office. Since joining the company in 2001, she has undertaken projects in the grains, horticulture, wool processing, irrigation, dairy and wine industries. Antonia Hodby grew up in rural Western Australia and now farms on the family vineyard in Bindoon. She is an economist with a Masters degree from The University of Western Australia.

Antonia has completed several recent projects in the agribusiness sector including; developing a strategic plan for the Carnarvon Irrigation Co-operative, examining the microeconomic outlook for the Australian pig industry; the feasibility of establishing a wine centre in WA; and the viability of a wool processing precinct at Rockingham.

Antonia has a thorough knowledge of the Peel Region gained in a number of projects relating to the transport and minerals industry in and around the Region. These have included a social and economic impact study of a proposed power station at Collie, the economic evaluation of the Pinjarra Refinery Upgrade for Alcoa and an analysis of the freight tasks associated with the mineral sands industry for the Department for Planning and Infrastructure.

Together with John Roberts, Antonia has worked on a post investment review of the ARRC which investigated the creation of a minerals R&D cluster at Technology Park. She also examined the economic impact of the expansion of Technology Park and the creation of a technology cluster within the Precinct.

Before joining ACIL Tasman, Antonia worked in London in several consultancies including Food From Britain and before that as a project manager for the Centre for Agribusiness Marketing in WA providing strategic marketing advice to a range of agribusiness clients.

She is member of the Joint Trawl Management Advisory Committee for WA trawl fisheries

Antonia's skills lie in economic and social assessment, market analysis, research and consultation.

7 Price quotation

The fixed fee, including disbursements for undertaking this assignment will be \$20,210.00 excluding GST.

We acknowledge and agree to the payment schedule outlined in the Request for Quotation.

The following Table outlines the tasks required for the completion of this study along with the consultant who would undertake the work and the number of hours required to complete the task. The Table also lists the disbursements associated with this study and the hourly rates of each of the consultants. Any variations or additional work would be charged according to these hourly rates plus disbursements billed at cost.

Table 1 **Schedule of hours, rates and fees**

TEAM MEMBERS	John Roberts	Antonia Hodby	Research Assistant
TASK			
Potential for horticultural development			
Literature search & preliminary review			6
Literature analysis	8	8	
Identify constraints & opportunities f	8	6	
Suitable development options	12	2	
Waroona Cluster			
Literature review			4
Analysis of options	8	6	
Meetings	12	12	
Reports	10	8	
TOTAL HOURS	58	42	10
CONSULTANT FEE RATE	\$220	\$150	\$70
CONSULTANT FEE	\$12,760	\$6,300	\$700
Disbursements			
Printing	\$25.00		
Communications	\$25.00		
Secretarial input	\$50.00		
Travel	\$350.00		
total disbursements	\$450.00		
TOTAL FEE (fees + disbursements)	\$20,210.00		
GST	\$2,021.00		
LUMP SUM FEE INCL GST	\$22,231.00		

ACIL Tasman does not propose to use any sub contractors during the completion of this study.

A Résumés

Antonia Hodby BEc MEd

Antonia has been employed at ACIL Tasman since September 2001. During this time she has worked on a number of projects primarily in the agribusiness and minerals sectors. A selection of these projects is listed below. Further examples can be provided on request.

Agribusiness

- The impacts of a proposed merger between CBH & Grain Pool for the Kondinin Group.
- The economic value of the potato industry to the WA economy for Western Potatoes.
- Strategic greenhouse gas emission study for Wesfarmers.
- The feasibility of establishing a wine centre in the Great Southern for the GSDC.
- The viability of the East Rockingham Wool Precinct for Industry and Resources.
- A strategic plan for the Carnarvon Irrigation Co-operative.
- A competitive neutrality review of the business activities of the Fisheries Dept.
- Advice to the National Aquaculture Council on the establishment of a peak body.
- Assisting Peters and Brownes for their submission to the dairy sustainability inquiry.
- A review of the Australian grains industry since partial deregulation for the NCC.
- The impact of the drought on Australian farms for RIRDC.
- The impact of a levy on imported pig meat for Australian Pork Limited.

Economic, social and environmental studies

- The socio economic contribution of the WA cement and lime industry for DMPR.
- A regional minerals study for the East Kimberley – Tanami region.
- Social and economic impact study of the Gorgon development for Chevron-Texaco.

- Social and economic impact study of a coal-fired power station for Griffin Energy.
- An audit of infrastructure provided in the Pilbara for the Pilbara Regional Council.
- Economic impact study of the Pinjarra alumina refinery expansion for Alcoa.
- Detailed economic impact study of a coal-fired power station for Griffin Energy.
- The economic impact of the proposed Blacktip gas development in the NT.
- The economic impact of the proposed Trans Territory Pipeline in the NT.

Minerals

- A review of the royalty on ilmenite for the Department of Industry and Resources.
- A review of the freight tasks in the mineral sands and silica sands industry in Western Australia for the Department for Planning and Infrastructure.
- The East Kimberley – Tanami regional minerals study.
- The West Kimberley regional minerals and energy study.

Water

- The sustainability of palaeochannel water supplies in the Goldfields-Esperance Region of WA for the Department of Mineral and Petroleum Resources (DMPR).
- The true cost of delivering water from Perth to Kalgoorlie for the DMPR.
- The cost to mines in the Goldfields Region of using hypersaline water for the DMPR.
- A review of the draft water sharing plan legislation and their economic impact for the NSW Department of Land and Water Conservation.

Cluster analysis

- A post investment review of the ARRC.
- The economic and strategic impact of the proposed Technology Precinct.
- The economic impact of the proposed St Andrews Technology Precinct.

PREVIOUS EMPLOYMENT

- 1999 – 2001 - **Merchant International Group**, London – Project Manager for economic and political risk reviews of emerging markets.
- 1997 – 2001 - Freelance consulting in London.



ACIL Tasman

Economics Policy Strategy

The Development of Horticulture in the Peel Region

- 1994 – 1997 - **The Centre for Agribusiness Marketing** – Project Manager for agribusiness development projects for clients in Western Australia.
- 1993 – 1994 - **Telstra** – Account Manager for government clients.

John Roberts

Principal areas of experience and expertise

- Water industry reform policy, water pricing, and regulation.
- Institutional reform of irrigation schemes.
- Economic policy.
- Financial analysis, economic impact analysis and cost benefit analysis.
- Strategic and business planning and development.
- Commercialisation of research and technology, intellectual property and science and technology policy.
- Evaluation of research and development.

ACIL Tasman assignments

A study of the viability of the East Rockingham Wool Precinct for the Department of Industry and Resources.

A post-investment review of the Australian Resources Research Centre for the Department of Industry and Resources.

A competitive neutrality review of the Western Australian Department of Fisheries for the Department of Fisheries.

A feasibility study for the establishment of a wine centre in the Great Southern Region for the Great Southern Development Commission.

A strategic plan for the Gascoyne Water Cooperative.

A paper on economic instruments for achieving recycling of used tyres for the Waste Management Board.

A paper on the true value of the minerals and energy sector in WA for The Chamber of Minerals and Energy (co-author).

'Partners in Growth': A value proposition for Alcoa.

An economic and strategic assessment for Wesfarmers Premier Coal.

A paper on economic instruments for drainage management in the Swan-Canning Catchment for the Swan-Canning Catchment Drainage Management Forum.

A study of the economic impact of the proposed Technology Precinct at Bentley for the Department of Industry and Resources.

Other major assignments

- **Irrigation Reform** – provided consultancy services to the Water Corporation and acted as project manager for the divestment of the Ord and Carnarvon Irrigation Schemes. In 1993 served as Executive Officer for the South West Irrigation Review Task Force. In 1995 participated in the divestment of the South West Irrigation Scheme on behalf of the Water Corporation.
- **Normalisation of Kambalda** - provided consultancy services to the Water Corporation and acted as project manager for the transfer of water and wastewater services at Kambalda from WMC to the Water Corporation.
- **Water Trading** – provided advice to the Water Corporation on the valuation of irrigation water in negotiations with Harvey Water for the transfer of water from the South West Irrigation Scheme to Perth.
- **Commercialisation of Research and the Management of Intellectual Property** – key role in the development and implementation of The University of Western Australia’s (UWA) policy for industry linkages and commercialisation. Successfully obtained private sector investor support and funding for technology commercialisation. Advised UWA academics and researchers on intellectual property and commercialisation. Developed policy for intellectual property management and commercialisation for the Centre for Legumes in Mediterranean Agriculture at UWA. Prepared a business plan for the establishment of the Office of Industry and Innovation.
- **Commercial Development** – co-developed an international business strategy for the Water Corporation. Prepared bids for a number of projects with the World Bank, the Asian Development Bank and AusAid.
- **Investment Evaluation** – carried out financial evaluations of proposed capital works in the Water Corporation. Provided economic and financial advice on a range of water industry issues. Evaluated tenders as a member of the tender evaluation panels for the contracting out of the Water Authority’s operations and maintenance, electrical and mechanical maintenance and information support services.
- **Economic Impact Analysis** – carried out an input-output analysis of the contribution of the R&I Bank to the Western Australian economy. Participated in the analysis of major resource and industry projects in the Departments of Commerce and Trade and Resources Development.
- **Policy Development** – prepared policy papers on a range of resource and industry matters in the Departments of Commerce and Trade and Resources Development.

Previous appointments

January 2001 – September 2002

Consultant, Water Corporation

Full time role with responsibilities as below

March 2000 – December 2000

Consultant (Part-time), Water Corporation

Providing consultancy services to facilitate the divestment of the Ord and Carnarvon irrigation schemes. Reporting to the Group Director, Major Projects.

Responsibilities

- Provide advice on COAG water reforms and National competition policy
- Develop and negotiate business transfer, asset transfer and bulk water supply agreements
- Financial analysis and calculate the bulk water price

June 1999 – December 2000

Business Development Officer (Part-Time), Office of the Pro Vice-Chancellor (Research and Innovation), The University of Western Australia

Facilitating commercialisation of technologies arising from research at the University. Reporting to the Pro Vice-Chancellor (Research and Innovation)

Responsibilities

- Seek private sector investor support and funding for the commercialisation of technology
- Assist researchers in packaging technologies for commercialisation
- Advise researchers on intellectual property matters
- Develop and maintain links with potential investors and venture capitalists
- Member of the strategy panel that examined the University's industry linkages and commercialisation

December 1997 – December 1999

Business Manager, Centre for Legumes in Mediterranean Agriculture, The University of Western Australia

Managing business development and intellectual property. Reporting to the Director of the Centre.

Responsibilities

- Established a product development process for commercialising research products, such as new crop and pasture varieties
- Filed a patent application for a method for the amplification of microsatellites and their use as genetic markers
- Managed on-going applications for plant breeders' rights for new crop and pasture varieties
- Managed the evaluation of tenders for licences for the development, distribution and marketing of new CLIMA and Agriculture Western Australia crop and pasture varieties.
- Negotiated licence agreements with three seed companies for the development, distribution and marketing of two CLIMA lentil varieties (Cassab and Cumra).
- Negotiated a licence agreement with the International Centre for Agricultural Research in Dry Areas (ICARDA) for the use of CLIMA's gene transfer technology.
- Continued negotiations with multinational 'life science' companies for licences to use proprietary gene sequences in R & D and commercialisation.
- Prepared papers and submissions on intellectual property and plant breeding and the Plant Breeders Rights Act (1994).
- Developed and presented a workshop on intellectual property to CLIMA staff.
- Contributed to the development of a policy on end point royalties for Agriculture Western Australia.
- Manage CLIMA's intellectual property portfolio.
- Manage the collection of royalties and license fees (\$72,000 in 1998/99)
- Manage CLIMA's existing licence agreements
- Oversee CLIMA's financial and budgetary management
- Seek, analyse and advise on contract research and business opportunities

- Advise CLIMA Executive and Board on commercialisation and intellectual property matters.

April 1996 – December 1997

Manager Commercial Development, Water Corporation

Identifying, analysing and pursuing business opportunities, both interstate and overseas. Reporting to the General Manager, Commercial.

Responsibilities

- Developed an international business strategy for the corporation (with Roger Hussey)
- Visited water companies in the UK, Europe and South Africa (with Peter Moore, General Manager, Engineering and Contracts Division) regarding opportunities for strategic alliances and benchmarking
- Developed a marketing brochure for the corporation for use in the international water industry
- Prepared bids for projects with the World Bank and the Asian Development Bank
- Part of a small team that prepared for contracts to develop and manage water supplies in Thailand Jordan
- Contributed to the development of business processes on a business plan for the newly established Commercial Division
- Contributed to the preparation of the corporation statement of Corporate Intent and the Strategic Development Plan
- Managed the corporation's intellectual property portfolio
- Led a team managing and negotiating the divestment of the Ord Irrigation Scheme to the private sector
- Finalised negotiations and agreements for the divestment of the South West Irrigation Scheme to the private sector

February 1995 – April 1996

Manager Investment Evaluation, Water Authority of Western Australia

Responsibilities

- Carried out complex financial evaluations of major capital works using discounted cash flow and risk analysis techniques

- Provided economic and financial advice on a range of water industry issues
- Prepared an internal paper on the use of cost benefit analysis in project evaluation
- Evaluated tenders as a member of tender evaluation panels for the contracting out of the Authority's operations and maintenance, electrical and mechanical maintenance and information support services

October 1993 – January 1995

Manager Technology Park, Department of Commerce and Trade

Responsibilities

- Managed the day-to-day activities at the park
- Negotiated contracts in relation to tenancies at the park
- Prepared and monitored the budget for the park (\$2.4million)
- Marketed the park to local and overseas high technology companies and research organisations
- Advised on intellectual property issues
- Developed policy in relation to the park's development and, more broadly, science and technology

October 1988 – September 1993

Principal Policy Analyst Department of Commerce and Trade

Responsibilities

- Formulated policy and conducted research on a range of economic development issues
- Carried out financial/economic analyses of major resource and industrial projects
- Prepared submissions on a range of economic policy matters
- Liaised and consulted with senior managers from government and the private sector
- Represented the department on external committees, such as the Kwinana Industries Consultative Committee
- Acted at higher levels as and when required

- Carried out an economic analysis of the contribution of the R&I Bank to the Western Australian economy under the Public Service Commission's Management Development Programme

December 1985 – September 1988

Research Economist Agriculture Protection Board of Western Australia

Responsibilities

- Managed the Economics Research Unit
- Directed and carried out cost benefit analyses of major weed and vertebrate pest control programs
- Coordinated a study of farmer attitudes towards the APB
- Liaised with APB staff and other government agencies responsible for pest control in Western Australia
- Reported on the research program to the board of the APB

October 1976 – November 1985

Advisor Marketing and Economics, Department of Agriculture

Responsibilities

- Carried out economic analyses and formulated policy on a range of agriculture-related issues
- Prepared market outlook papers on agriculture commodities
- Contributed to the preparation of submissions to inquiries
- Assessed applications for rural adjustment
- Liaised with agriculture industry representatives on policy matters

September 1974 – September 1976

Agronomist, Western Australia Advisory Group Government of the Libyan Arab Republic

Responsibilities

- Designed and implemented an experimental program to support the broadacre cereal/legume farming program
- Contributed to negotiations with Western Australian companies for the supply of machinery, fencing and seed to the project

- Deputised for the project leader in the management of the project

January 1970 – August 1974

Advisor Soil Conservation, Department of Agriculture

Responsibilities

Supervised and implemented soil and water conservation programs in the Narrogin and Lake Grace

Other Positions Held at Present

A member of the Government's Irrigation Review Steering Committee

Adjunct Lecturer in Economics in the business School at The University of Western Australia

Academic Qualifications

1989 Master of Economics, The University of Western Australia

1981 Bachelor of Economics (Hons), The University of Western Australia

1970 Bachelor of Science (Agriculture), The University of Western Australia