Directory structure for CD-Rom

Notes:

- Files not provided in the printed version of the thesis appear in italics
- Directories appear in bold, shaded rows of the tables. Subdirectories are italicised. Documents within a directory or subdirectory are presented in the rows below that directory.
- Documents will be presented in pdf format unless otherwise stated.Acrobat reader will not be supplied.
- Some N-Vivo databases are presented. N-Vivo demonstration version will be supplied on the CD-Rom.
- There are several long lists of related documents within directories. These are attached to the end of this document, for ease of reading.

Appendices

Appendix 1: Categories and tools

Document name	File name
Appendix 1: Terms, concepts and tools	**A1 terms**
Thesis category map	Category map
N-Vivo viewer software	*N-vivo viewer*
Instructions for installing N-Vivo and using it to scrutinise the case studies	*N-Vivo instructions*

Appendix 2: Research

Document name	File name
Appendix 2: Research	**A2 research**
Antinomy quote table	*Antinomy quote table*
3.1 Government environmental finance data	*3.1 govt finance data*
Interviewee summary	*Interviewee summary*
Maps (all printed in text, rather than appendices)	***Maps***
Case study local governments	*Cases*
Intergovernmental typology	*Typology colour*
Local governments included in the Queensland environmental risk studies	*Risk study LGs*
Noosa Maps	***Noosa Maps***
a) Moreton Region, Australian Bureau of Statistics	*a – moreton region ABS*
b) Sunshine Coast Branch, Regional Development Organisation	*b – sunshine RDO*
c) North and wide Bay Burnett Team, South East Queensland Planning	*c – nth and wide bay team SEQ planning*
d) sunshine Coast district, Queensland Environmental Protection Agency	*d – sunshine district QEPA*
e) Wide Bay Burnett Region, Queensland Environmental Protection Agency	*e – wide bay burnett QEPA*
f) South East Queensland Branch, Local Government Managements Association	*f – SEQ branch LG mgers*
g) Sunshine Coast Chapter, Australian Institute of Environmental Health.	*g – sunshine AIEH*
h) Sunshine Coast District, Royal Australian Planning Institute	*h – sunshine coast RAPI*
i) South East Branch, Local Government Services, State Local Government Department	*i – SE branch LG services*
j) South East Queensland Regional Organisation of Councils	*j –SEQROC*
k) Northern District, South East Queensland Regional Organisation of Councils	*k – NORSROC*
l) South East District, Local Government Association of Queensland	*l – SE district LGAQ*
m) Urban Local Government Association of Queensland	*m – ULGAQ*
n) North East regional Aboriginal language group	*n – NE regional Aboriginal*

	language grp
o) South East Queensland bioregion	*o – bioregions*
p) North East Coast Drainage Division	*p – NE coast drainage division*
Various obscure newspaper articles quoted in thesis	***Newspaper articles***
Various	*Various descriptive names. Not listed here.*

Appendix 3: Environmental risk studies

Document name	**File name**
Appendix 3: Risk	**A3 Risk**
ANU 2002 Environmental Risk Study	*ANU Risk Study 2002 report*
ATEM/AAPPA Conference paper on CERAM	*ATEM/AAPPA conference paper*
Brisbane City Council Environmental Benchmarking Study Report	*BCC final report*
Queensland benchmarking study	
Queensland Statewide Benchmarking study into environmental and other outcomes from the implementation of the Queensland Environmental Protection Act	*Several documents:* *Qld benchmarking tech report.* *Acknowledgements.* *Executive summary* *Scientific report cover* *Scientific report*
Queensland benchmarking study data set	*Queens bench study data*
Queensland benchmarking study graphs	*Queens bench study graphs*
Outline of all of the variables, terms and codes used in the Queensland benchmarking study data set	*Variables and terms*
Calculation table for estimating cost and risk. Includes instructions for use.	Risk cost calculations.
Triangulation survey	*Triangulation survey*
Risk antinomy quote table	*Risk antinomy quotes 6.1*
LG responses to Integrated Environmental Management Systems licences	*LG responses IEMS quote tables*
Statistical graphs	
Various graphs including error bars. Scanned, with logical file names.	*Various. Not listed here.*
Risk study methods	**Risk study methods**
How the Queensland Benchmarking Study folder was set up.	*Folder setup*
Master document for recording operator responses to environmental protection initiatives during interviews.	*Response recording sheet.*
Master document for recording environmental risk findings during site inspections.	*Risk recording sheet*

Appendix 4: comparative case studies

Document name	**File name**

N-Vivo Project *(find this folder when following instructions for using N-Vivo in Appendix 1)*	*N-vivo project*
Analysis	
1 Initiatives, beliefs and commitments by flexibility	*1 Init belief commit by flex*
2 Initiatives, beliefs and commitments by core driver and constraint categories	*2 Init belief commit by D&C*
3 Practical resources by core driver and constraint categories	*3 Pract res D&C by expend*
4 Practical resources by key drivers and constraints	*4 Prac res by key D&C*
5 Institutions by core driver and constraint categories	*5 Instit by D&C*
6 Environmental focus areas by core driver and constraint categories	*6 Focus by D&C*
7 Rights and responsibilities by core driver and constraint categories	*7 Rights and resps by D&C*
8 Knowledge by attempt components	*8 Knowledge, attempts components*
Appendix 4: Case studies	***A4 Case studies***
Q1: LGs implementing the Queensland Environmental Protection Act	Q1 Qld EPA
Q2: Vegetation protection in Redland Shire	Q2 Redland
Q3: Brisbane – Leading by example with environmental protection	Q3 Brisbane
Q4: Protecting Noosa North shore from development	Q4 Noosa
Q5: Herberton Shire fulfilling the statutory responsibilities of Queensland's Environmental Protection Act 1994	Q5 Herberton EPA
Q6: Achieving regional cooperation in Far North Queensland, while supporting local autonomy	Q6 Herberton regional coop
Q7: Johnstone –developing the Johnstone Plan	Q7 Johnstone plan
Q8: Johnstone Shire fulfilling its Statutory Responsibilities under the Queensland Environmental Protection Act 1994	Q8 Johnstone EPA
Q9: Far North Queensland Regional Waste Strategy	Q9 FNQ Regional Waste
Q10: Cairns City Council Environmental Plan	Q10 Cairns
Q11: Douglas Shire, Development and Population Cap	Q11 Douglas
T1: Mirrar Say No	T1 Mirrar
T2: Litchfield balanced environmental planning	T2 Litchfield
T3: Improving the management of Mitchell Creek	T3 Mitchell Creek
T4: Planning Darwin	T4 Darwin
T5: Improving waterways management with the Rapid Creek Advisory Committee	T5 Rapid Creek
W1: Wanneroo – recycling strategy	W1 Wanneroo
W2: Stirling City waste minimisation	W2 Stirling
W3: Nedland City Council Tree Management Policy	W3 Nedland
W4: Greening Gosnells Advisory Committee	W4 Gosnells
W5: Ground-up environmental planning in SWWA	W5 SWWA

W6: Preserving ecological values in Busselton Shire	W6 Busselton
W7: Albany Coastal Strategy	W7 Albany
V1: Showcasing urban environmental management in Moreland City	V1 Moreland
V2: Port Phillip community housing project/depot redevelopment	V2 Port Phillip
V3: Waste Minimisation in Darebin City	V3 Darebin
V4: Introducing the 'Buy-Recycled' guide for Yarra City	V4 Yarra
V5: Bushland management in Mullum Mullum Creek, Manningham City	V5 Manningham Mullum
V6: Improving vegetation management on private land in Manningham City	V6 Manningham private
V7: Environmental Strategies for the City of Greater Dandenong	V7 Dandenong
V8: Regional environmental strategy for the Yarra Ranges	V8 Yarra ranges
N1: South Sydney City Gardens	N1 South Sydney
N2: Cultural greening at Kogarah City	N2 Kogarah
A1: Australian National University Environmental Management Planning	A1 ANU

Thesis Category Map

This document presents and defines the analytical categories that are developed, defined and used throughout the thesis. These terms are also defined in the main text, but are presented here as a whole set. The last column of each table indicates the chapter in which each term is defined.

Elements of the Antinomy	**Outside-In**	**Inside-Out**	**Chapter**
Perspectives	State government, federal government and other points of view based in spheres of understanding at broader than local scales.	Local government and mixed points of view based in spheres of understanding within local scales.	1. Introduction
Environmental initiatives	Attempts originating in state or federal government spheres and excluding local initiatives.	Attempts originating in local areas and those where the initiative came from local, together with broader spheres.	1. Introduction
Analysis	Research into local government delivery of state or federal government initiatives, where the analytical categories derive from those initiatives.	Research into local government delivery of initiatives that are important in the local area, where the analytical categories are defined in terms of the local issues.	1. Introduction

Categories	**Definition**	**Chapter**
Local Government	The sphere of government that is closest to the people and the environment.	1. Introduction
Governance	The manner, acts and processes of governing, including the government, private and community sectors (UNDP 1997)	1. Introduction
Components of theories	Analytical constructs that comprise the formal articulation of theories.	1. Introduction
Concepts	The labels placed on discrete happenings, events and other instances of phenomena (Strauss and Corbin 1990. p.61).	1. Introduction
Categories	Higher order classifications of concepts, discovered when the concepts are compared against one another, and appear to pertain to a similar phenomenon (Strauss and Corbin 1990. p.61).	1. Introduction
Environment	Comprehensive, dynamic and complex systems encompassing nearly everything, living and non-living. Ecological, social and economic aspects are explicitly recognised here.	1. Introduction
Environmental issue	An environmental problem associated with conflict between people (Conacher & Conacher. p.16).	1. Introduction
Environmental problem	A threat to environmental values with an adverse affect on people (Conacher & Conacher. p.15).	1. Introduction
Beneficial environmental outcomes	The practical, tangible effects of successful efforts to protect environmental values, in the context of current, often degrading environmental values. They do not necessarily imply a practical change to any situation. In this sense, the retention of an environmental value that has been under threat of degradation, is considered a beneficial environmental outcome.	1. Introduction
Environmental values	A quality of physical characteristic of the environment that is conducive to ecological health, or public amenity or safety (from QG 1994. S.9).	1. Introduction
Sustainable environmental	Environmental outcomes that will continue over time.	1. Introduction

outcome		
Perspectives	The point of view or conceptual framework of a person that provides their insight into local environmental issues.	2. Introduction to Australian LG.
Local government	Includes those people who have held formal roles in LG, and in no other sphere of government.	2. Introduction to Australian LG.
Mixed	People with experience working in LG associations, or have held formal LG roles and worked in at least one other sphere of government. Includes people who have worked in LG and regional, state or federal government.	2. Introduction to Australian LG.
State and federal government	People who have worked in state and/or federal governments, but not in local governments.	2. Introduction to Australian LG.
Other	People who have not worked in any form of government.	2. Introduction to Australian LG.
Antinomy forces	The source or target of a shift that stimulates or is caused by any part of an attempt by a LG to deliver an environmental outcome, expressed in terms of the local-state antinomy.	2. Introduction to Australian LG.
Inside	A force originating from or focused within the local area, including within the LG.	2. Introduction to Australian LG.
Outside	A force originating from or focused outside of the local area, excluding the LG's particular concerns.	2. Introduction to Australian LG.
Integrated	**A force that integrates efforts and initiatives within and outside the local government area, and that therefore seeks to provide a practical solution to the local-state antinomy.**	2. Introduction to Australian LG.
Roles	Formal positions held within a LG that influence available options for tackling environmental issues.	2. Introduction to Australian LG.
Elected	Local government officials that are elected to legislative roles.	2. Introduction to Australian LG.
Mayor	The most senior elected official (also known as President, Chief Minister).	2. Introduction to Australian LG.
Councillors	All elected local government officials other than the Mayor.	2. Introduction to Australian LG.
Council	The entire group of elected officials in a single local government. The legislative part of the local government.	2. Introduction to Australian LG.
Manager	A senior officer, working with executive powers, accountable for delegated responsibilities.	2. Introduction to Australian LG.
Chief Executive Officer	The most senior manager in any LG (also known as general manager and town clerk).	2. Introduction to Australian LG.
Other manager	Managers other than the Chief Executive Officer.	2. Introduction to Australian LG.
Officer	An official working with executive powers, accountable to a manager.	2. Introduction to Australian LG.
Environmental	An officer working in any area with direct environmental relevance (including environmental officers, environmental health officers, environmental planners and others).	2. Introduction to Australian LG.
Other	Any officer who is not involved in environmental work.	2. Introduction to Australian LG.
Impact type	The type of change that directly results from any part of an environmental initiative.	2. Introduction to Australian LG.
Administrative	An impact based in a document or financial transaction with no direct affect on any environmental values.	2. Introduction to Australian LG.
Substantive	A physical or practical impact that changes environmental values.	2. Introduction to Australian LG.
Relationships	A shift in the way that individuals, organisations or institutions	2. Introduction to

	perceive and treat one another.	Australian LG.
Knowledge	A shift in understanding about environmental issues or values.	2. Introduction to Australian LG.
Regional dissonance	The impact when regional boundaries have such variety and incongruence that they create barriers to effective, long-term regional partnerships.	2. Introduction to Australian LG.
Intergovernmental typology of local government	A simple classification of Australian LG based on LG identity and closeness to state government agencies.	2. Introduction to Australian LG.
Capital city	The built-up area in the city in which state and commonwealth parliaments are based. Includes the LGs governing the central business district and those surrounding areas that do not have their own discrete business centres.	2. Introduction to Australian LG.
Capital fringe	Includes LGs in areas surrounding capital cities and are usually areas with their own distinct business centres.	2. Introduction to Australian LG.
Other centre	Includes city and town LGs that are widely considered to be major centres for regions or districts. Several regional offices of state government departments are located in each other centre.	2. Introduction to Australian LG.
Indigenous	A LG with mostly indigenous councillors, servicing a predominantly indigenous community.	2. Introduction to Australian LG.
Other local government	Any LG that is not a capital city, capital fringe, other centre or indigenous LG.	2. Introduction to Australian LG.
Region	A group of LGs working together for a common purpose.	2. Introduction to Australian LG.
Local government features	Descriptors of LG features for which quantified data are readily available.	2. Introduction to Australian LG.
Population	The number of residents in a LG.	2. Introduction to Australian LG.
Populous	LGs with a greater-then-median resident population. Includes most of the *capital city*, *capital fringe* and *other centres*.	2. Introduction to Australian LG.
Sparse	LGs with a less-than-median resident population. Includes most of the *indigenous* and *other LGs*.	2. Introduction to Australian LG.
Area	The geographic land area covered by a LG.	2. Introduction to Australian LG.
Extensive	LGs with a greater-than-median geographic area. Includes most of the *other LGs* and some of the *other centres* and *capital fringe* LGs.	2. Introduction to Australian LG.
Compact	LGs with a less-then-median geographic area. Includes most of the *capital city* and *capital fringe LGs* and some of the *other centres*.	2. Introduction to Australian LG.
Expenditure	The total amount spent by a LG annually.	2. Introduction to Australian LG.
Rich	LGs with greater-than-median annual expenditure. Includes all of the *capital city LGs* and most of the *capital fringe LGs* and *other centres*.	2. Introduction to Australian LG.
Poor	LGs with less-than-median annual expenditure. Includes all of the *indigenous LGs* and most of the *other centres*.	2. Introduction to Australian LG.
LG environmental focus areas	Discrete areas of LG environmental work, based on the purpose of the activity.	3. Environmental local governance
Environmental planning	Any activity that establishes the future land-uses for an area. Includes strategic land-use planning, development control, development assessment, environmental impact assessment and infrastructure design.	3. Environmental local governance
Environmental management	Any activity contributing to the day-to-day use or maintenance of environmental values. Includes retaining and supporting	3. Environmental local governance

	biodiversity, building and operating basic infrastructure.	
Environmental protection	Any activity dealing with the unwanted by-products of environmental management activities. Includes all pollution prevention, waste management and recycling activities.	3. Environmental local governance
Environmental hazards	Iindustry practices that pose a risk of environmental harm	5. Benchmarking study methods
Environmental risk	The likelihood and consequences of environmental harm resulting from an activity.	5. Benchmarking study methods
Inherent environmental risk	The likelihood and consequences of environmental harm from an activity conducted considering only short to medium term production expediency	5. Benchmarking study methods
Residual environmental risk	The likelihood and consequences of environmental harm occurring, taking account of risk management measures.	5. Benchmarking study methods
Environmental risk area	The type of environmental values that are likely to be affected by a potentially polluting industry practice.	5. Benchmarking study methods
Surface water	Point source release of contaminants to surface waters	5. Benchmarking study methods
Groundwater	Release of contaminants to groundwater	5. Benchmarking study methods
Stormwater	Release of contaminated stormwater off site	5. Benchmarking study methods
Fugitive Air	Non-point source release of contaminants to the atmosphere (other than odour)	5. Benchmarking study methods
Point Source Air	Release of contaminants into the atmosphere via a chimney or other stack	5. Benchmarking study methods
Odour	Offensive smell migrating off site	5. Benchmarking study methods
Noise	Emission of noise	5. Benchmarking study methods
Site Contamination	Release of contaminants to land	5. Benchmarking study methods
Waste	Any gas, liquid, solid or energy (or a combination of wastes) that is surplus to, or unwanted from , any industrial, commercial, domestic or other activity, whether or not of value.	5. Benchmarking study methods

The following categories are all introduced in chapter 7.

Component	Definition
Context continuums	Schematic representations used to describe the contextual issues that influence attempts. Any specific attempt may occur at any one point on a context continuum, or across a range on the continuum.
Scale	The geographic extent of the attempt. Scales range from less than local, including small parts of a local government area, to international. *"what was the scale of the attempt? Was it just within this LG, or did it extend further than that?"*
Origins	Where the stimulus of the attempt is from. The range is the same as for *scale.* *"where did the idea for the attempt originate? Within this LG, or from outside?"*
Flexibility	How much choice the LG had in deciding how to progress with the attempt. The range is from none to full. *"what level of flexibility was there in this attempt? Could you decide how you went about it yourself, or were constrained in some way?"*
Attempts	Efforts that made to deliver an environmental outcome. LG attempts might be initiated and championed by an individuals within or outside the LG or by the LG as a whole.
Goals	The purpose of an attempt. The range of intended outcomes, established at the start of the attempt, or emerging as the attempt progressed. *"what were the goals that you aimed to achieve?"*
Processes	The important steps on the way to achieving outcomes. *"what were the important processes that you went through in achieving the goals?"*
Outcomes	The achievements resulting from the attempt. *"what were the outcomes from the attempt? What did you achieve?"*
Drivers	A force causing or assisting an attempt. "*What were the drivers, that helped you with the attempt?"*
Constraints	A confinement or restraint that hinders an attempt. *"What were the constraints that made it harder to achieve the attempt?"*

Environmental values, used in comparative case study graphs

Levels	Ecological	Economic	Social
High	**Pristine** Ecological systems are largely or entirely unchanged since European colonisation. Biodiversity and species richness are high, and ecosystems are intact and sustainable.	**Profitable** Economic systems are functioning well, and delivering strong and sustainable profits.	**Empowered** The community is ready and able to participate in decisions and actions that affect them. Community issues are addressed by decision makers, and the outcomes meet community needs.
Medium	**Recoverable** Ecological values have been altered from their original states. But ecological values such as good air and water quality, some native biodiversity and species richness still exist. Agricultural lands, rural residential areas and other semi-developed country is included.	**Cost-recovery** Economic systems are returning as much as they are costing. This is sufficient to continue running the existing economic systems, but provides no strong incentives for such action.	**Resilient** Community members are reasonably well informed about local policy decisions and issues that will affect them. However few have a real capacity to influence decisions, or ensure that government decisions address their needs.
Low	**Degraded** Ecological values are entirely altered from their original state. Few, if any native species are present, and the prospects of their return are slim. Industrial areas, waste sites, and inner-city areas are examples.	**Loss** The economic systems are costing more than they are earning. There is no benefit in continuing investment in these conditions.	**Disempowered** Community members know little of the policy decisions and actions taken by governments. They have no access to

Environmental strategists: people who see their roles with LGs as giving them opportunities to progress personal environmental goals

Core driver and constraint categories

Category	Definition
INITIATIVE/ BELIEF / COMMITMENT	**Voluntary contributions to attempts, beyond the legal or perceived obligations of the local government.**
LG commitment	The majority of elected Councillors support the attempt.
Personal belief	Individuals involved in the attempt have personal beliefs about it.
Strategic action	Action in the short term that aims to bring about change in the long term.
Public support	A dominant view in the general community supports the attempt.
Consultation	Program for LG and other agencies to learn from community responses to attempt.
Local features	Aspects of the local ecological economic or social environment stimulate the

	attempt.
PRACTICAL RESOURCES	**The tangible resources targeted towards attempts.**
Conceptual systems	Scientific or other recognised source of knowledge about the issue, together with a model or other means with which to translate that into action.
Ongoing finance	A reliable source of funds that will be available for the life of the attempt.
One-off payment	A single grant, or limited amount of money that will not extend for the life of the attempt.
Skilled people	Workers available with knowledge and skills necessary to undertake the attempt.
Physical systems	Adequate practical or physical infrastructure sufficient to support a successful attempt.
Time	Enough time to complete the attempt, without compromising other issues facing the authority.
RIGHTS/ RESPONSIBILITIES	**The obligations of local government to make attempts**
Legal obligation	A law requires that the attempt be made by the authority.
Statutory potential	A head of power enables the authority to make a law that would support the attempt.
Leadership	The authority is perceived as being best-placed to make an effective attempt, and therefore to have an ethical responsibility to undertake the attempt.
INSTITUTIONS	The agencies, groups and organisations actively involved in the attempt.
Community environment group	A group working to improve local ecological conditions.
SG	SG departments and officials with interests in the attempt.
Regional organisations	A group of LG working together as a formal regional organisation, on issues related to the attempt, whether or not other non-LG agencies are involved.
Issue-specific working group	An ongoing group involved in the attempt, and working together on it over time.
Media	Media coverage of the attempt and related issues.
LGAs and other LGs	The Local Government Association expressing an interest in the attempt, or other LGs being involved in the attempt, outside of formal regional arrangements.
FG	Any involvement by any federal government official.

Categories for the local-state antinomy

Category	Definition
Inside	A force originating, focused or impacting within the local area, including within the LG.
Outside	A force originating, focused or impacting within the local area, excluding the LG's particular concerns.
Integrated	A force that integrates efforts and initiatives within and outside the local government area, and that therefore provides a practical solution to the local-state antinomy.

Categories for actions involved in attempts

Category	Definition
Administrative	A goal, process, outcome, driver or constraint that does not directly change any ecological, social or economic values
Substantive	A goal, process, outcome, driver or constraint that directly changes ecological, social or economic values
Knowledge	A goal, process, outcome, driver or constraint that directly changes what is generally understood about the environmental values and impacts involved in the attempt.
Relationships	A goal, process, outcome, driver or constraint that directly changes relationships or partnerships between individuals or institutions involved in the attempt

Categories for summary environmental outcomes

Category	Definition
Beneficial environmental outcomes	No trade-offs occur. Ecological values are maintained at high levels, improve, or there is a slowing in the rate of degradation. Meanwhile, there are no long-term economic or social costs, or costs are restricted to a very small group, which is able to recover in the long term. Sustainable beneficial outcomes are assured in the foreseeable future.
Neutral environmental	Balanced trade-offs occur. Ecological values are maintained at high levels, improve, or there is

outcomes	a slowing in the rate of degradation. However there are moderate economic and/or social costs associated with these ecological outcomes that threaten the viability of the attempt in the long term. Beneficial outcomes are possible in the foreseeable future.
Detrimental environmental outcomes	Negative consequences occur. Ecological values continue to degrade or rates of degradation are only slightly improved. There are significant and widespread economic and social costs that severely threaten the long-term viability of any gains.

Categories identifying specific impacts of attempts

Category	Definition
Winner	An entity benefiting from an attempt.
Loser	An entity suffering from an attempt.
Key driver	A force that raises the slope of an ecological, economic or social graph (whether by reducing the rate of decline, flattening it out, retaining a flat trend despite a negative force or generating a positive slope)
Key constraint	A force that lowers the slope of an ecological, economic or social graph (whether by increasing the rate of decline, flattening out a rising line or generating a negative slope.

Categories for empowered and disempowered local governments (from chapter 8)

Categories	Definitions
Empowered LG	A LG with the capacity to initiate, and flexibility in determining processes in attempts to deliver beneficial environmental outcomes, considering both short and long-term implications.
Disempowered LG	A LG involved in attempts to deliver beneficial environmental outcomes, but that lack the capacity to initiate the attempts, or the flexibility to determine how they should proceed.

Appendix 4

Comparative case studies

Local Governments Implementing the Queensland *Environmental Protection Act 1994*

Case Study Q1. By Su Wild River.

The *Queensland Environmental Protection (EP) Act 1994* broke new ground for environmental legislation and partnerships between state and local governments (LGs). A 41% environmental risk reduction was recorded across Queensland over the first three years of operation of the EP Act. State and local government implementation was equally effective in delivering these environmental outcomes.

The EP Act commenced in March 1995, replacing several ineffective, outdated laws dealing with pollution control. The *Clean Air Act 1963* for example, had its first successful prosecution in 1995, after it had been replaced. A handful of prosecutions succeeded under the *Clean Water Act 1971*. But these involved very low maximum fines for a limited range of offences. These were also highly difficult to prove in a court of law. Clearly, Queensland's pollution management Acts neither discouraged, nor punished polluters enough to address the State's growing environmental protection problems.

The EP Act broke new ground in many ways. For instance, there was extensive public consultation leading up to the EP Act's commencement. This included mailouts of 10,000 kits containing Public Consultation Papers and 60 meetings in 32 locations across the State. The comments received during that consultation were also well reflected in the final Act.

For example, the draft legislation included provisions for what would finally be called 'Environmental Management Programs' to deal with non-complying operators. The programs provide a legally enforceable and transparent process for operators who are not meeting environmental requirements to move towards compliance. Targets and timeframes in the programs are proposed by the operators, but approved by administering authorities. Special provisions ensure that the programs do not open up a loophole for non-compliance to continue over time. This provision was supported by 413 of the 420 respondents to the public consultation for the draft EP Bill (Ricketts 1992, p. 38).

The EP Act was distinguished from its predecessor legislation in many other important ways. Environmental licensing under the Clean Air and Water Acts was limited to a couple of hundred premises with pipes, stacks or other point sources of pollution into the environment. The new EP Act required over 13,000 operations to obtain environmental authorities (licences or approvals). The EP Act also made it cost effective, and relatively easy to prosecute environmental offences. In its first three years, the EP Act was successful in prosecuting polluters in over 20 cases, with fines as high as $80,000 (Wild River et al 1998. P.59).

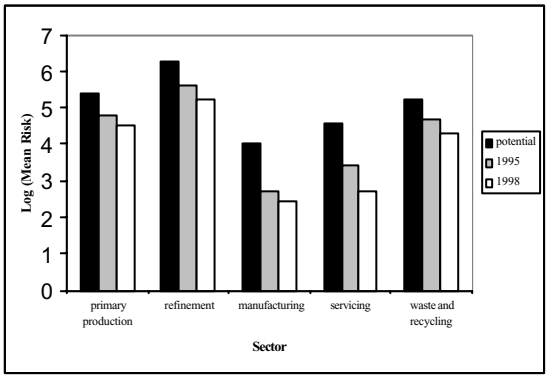
The EP Act and associated initiatives also established new partnerships between State and LG for environmental protection. The licensing and administration of over 10,000 activities was devolved to LG. The Department of Environment and Heritage (DEH) set up 'Devolution Working Groups' in each region. These were forums for training, information and support. They also supplied an avenue for feedback to the DEH on EP Act implementation issues, and encouraged consistent implementation strategies between administering authorities within regions. DEH provided a 5 volume Support Kit containing practical tools to support implementation to every administering authority. The state government also essentially paid LGs to start their licensing programs by paying them $500 for each licence issued, while they waived payment from the licence-holder. A system for incentive licensing, where 'best practice' operators pay lower fees than polluters was later brought in. However, despite these initiatives, inter-governmental problems remained. For instance government requested the ability to impose on-the-spot polluters, for simple standards for compliance from the state. But these statutory features were slow to commence, and this created major problems as local governments sought to fairly and consistency implement the new laws.

The environmental and other outcomes from the EP Act have been measured in two studies (Wild River 1997, Wild River 1998). These showed that the EP Act was successful in reducing environmental risk in licensed premises by an average of 41 per cent over the

first three years. The study showed that:

> Average risk reduction, and residual environmental risk varied between Queensland regions, for different licence types and for different activities. However environmental improvements were made by all licence types in most of the industry sectors studied, and in all regions of Queensland. (Wild River 1998. P. 2)

Figure 1: Environmental Risk Reduction by Sector.



Source: Statewide Benchmarking Study data. Wild River 1998.

Figure 1 shows environmental risk reductions by industry sector. The graphs show significant reductions in environmental risk between 1995 and 1998 for each sector. There is also great variation in the potential and actual environmental risk between the sectors. Note that most of the lower-risk operations in the manufacturing and servicing sectors are those majority of activities licensed by the LGs, with the state government licensing the high-risk activities such as refinement.

Licensee responses to environmental protection initiatives were also investigated in the Benchmarking Studies. The majority of operators considered that the EP Act was both important and effective in encouraging better environmental performance. But many problems were also reported. Licence and compliance costs were often considered high by many operators. 88% of large, integrated licence holders spent an average of $185,200 to comply with new environmental requirements (Wild River 1998, p. 2). Figure 2 shows a chemical manufacturing operation which has been built to meet the EP Act requirements. It is triple-bunded, and covered, and has a very low risk of causing environmental harm.

But in most cases, significant environmental improvements were made in cost-effective, simple ways. For instance many operators had not previously realised that two sets of drains leave their premises, that only the sewage is treated, and that stormwater drains take contaminants directly to waterways. Many were able to stop routine stormwater contamination by bunding and covering work and storage areas, and by redirecting waste streams to the sewage system. Altogether, only 39% of licence holders, in small manufacturing and service

industries had to pay to comply with the EP Act. The average cost of compliance was $3,400 for these industries. The result was a 45% environmental risk reduction (Wild River 1998, p. 2).

It is worth noting that there were no significant differences in the environmental outcomes achieved by highly and less committed administering authorities. This suggests that consistent factors such as the size of the fines, the publicity and inspectors contact with operators were crucial to the success of this legislation.

Figure 2: triple-bunded and covered chemical storage plant

References

Ricketts, M. 1992. *Environment Protection Legislation: A summary of public responses.* Brisbane: Department of Environment and Heritage.

Wild River, S. 1997. *Brisbane City Council Environmental Benchmarking Study.* Canberra: Centre for Resource and Environmental Studies, Australian National University.

Q1: Local Governments Implementing the Queensland Environmental Protection Act

Perspective: Mixed
Role: Officer
LG type: Region
Focus: Protection

Context Issues
This case study covers all of Queensland's 125 LGs, operating in different contexts. Hence the range of origins and scales.

Context continuums

Scale
<local **local** regional state national international

Flexibility of Process
Full mostly **equal** partial none

Origins of initiative
<local **local** regional state national international

Goals
- Fulfill statutory responsibilities under the EP Act,
- Achieve Ecologically Sustainable Development through pollution prevention,
- Support environmentally responsible operators and punish polluters,
- Monitor progress and report to those affected,
- National goals for consistency in environmental protection laws.

Drivers
- Integrated, comprehensive Act,
- EP Act a stimulus to improve environmental performance,
- Training programs to assist LGs to use and understand EP Act
- Devolution Working Groups for regional cooperation, consistency
- Environmental Protection Support Kit with updates,
- SG support for LG, through public meetings, workshops,
- Guidelines and standards for how to improve performance,
- Cleaner production and incentive licence systems reward good operators.

Processes
- Consultation for 5 years prior to Act implementation,
- Cooperation of LGAQ, industry peak bodies, marred by operator complaints about fees, compliance issues,
- Different degree of EP Act support between LGs, depending on level of involvement, and local responses,
- Policy clarification by QEPA, continual updating of legislation and policies,
- Inspections and licence conditions imposed at over 10,000 operations.

Constraints
- Problems with fees, partial solutions from IEMS and fee waivers,
- Compliance costs considered too high by many in LG, business etc,
- Difficulties determining compliance, due to flexibility in legislation,
- Business opposition eroded some LG support for legislation,
- Not all legislation in place – enforcement, incentives, definitions,
- Inconsistencies in legislation – potential polluters not all equally affected,
- Sensationalist, negative media reports,
- Perception of constant change in EP system.

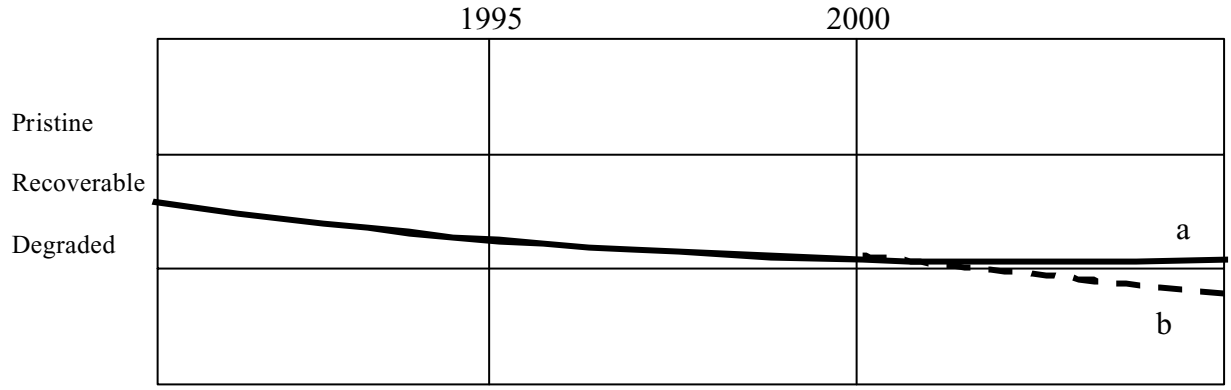
Outcomes
- 41% environmental risk reduction over first 3 years of implementation,
- Regional partnerships between SG and LG formed for environmental protection,
- Publicly available databases of potentially polluting activities held in all LGs and QEPA,
- Increased understanding of environmental problems and solutions across Queensland.

About the Models

The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the environmental, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

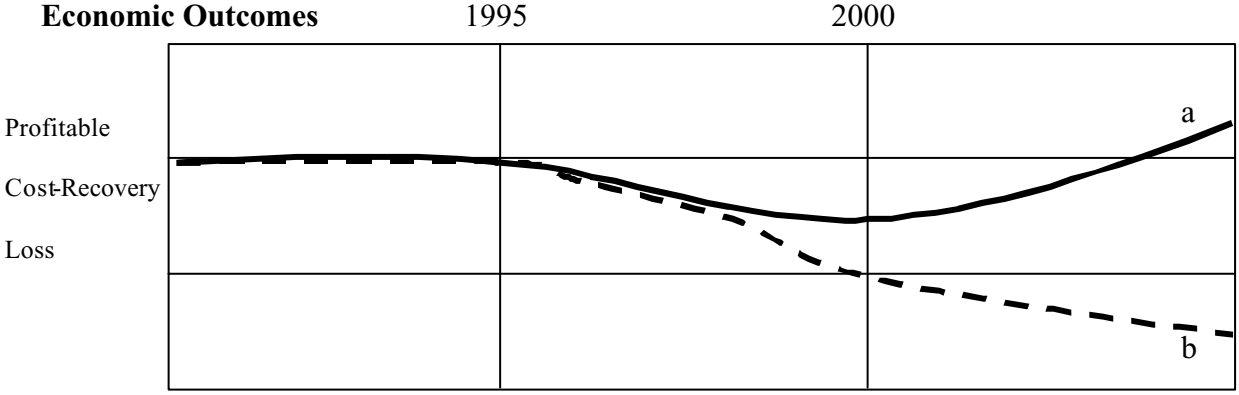
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



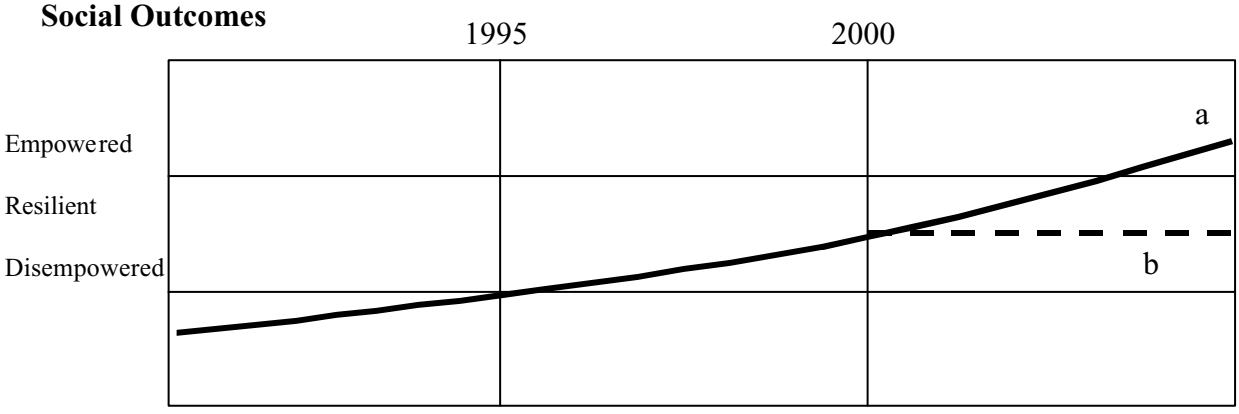
CERAM research showed a 41% environmental risk reduction in the first three years since 1995. This means a slowing of the rate of environmental degradation that is still occurring. Continued implementation, while addressing EP Act problems could halt environmental degradation, keeping environmental quality at current, largely recoverable conditions (a). Failure to address the problems, or limitations to the scope or implementation of the Act is likely to lead to further, potentially irreversible environmental degradation (b).

Economic Outcomes



Businesses with potential to pollute have their profits artificially high, since the real costs of pollution and resource use are not recognised in current economic systems. The implementation of the EP Act has been costly to many of those who invested to comply, since 1995, and has caused losses to many operations, especially those with non-complying competitors. Some have benefited from reduced use of materials, waste costs, or from marketing advantages through the incentive licence system (a). Continuing to implement the EP Act, while addressing inconsistencies and enforcement problems would help these responsible operators to recover costs and increase profits. Failure to address the problems would cause ongoing losses to responsible operators, due to the competitive advantage afforded to non-compliers in the absence of on-the-spot fines (b).

Social Outcomes



Prior to the EP Act, public information on environmental licences and conditions was unavailable, other than through expensive and time-consuming Freedom of Information channels. The EP Act requires administering authorities to keep public registers of licence information, establishes processes for public input to legislation and policy development, and legal mechanisms for the public to appeal decisions, giving great potential for empowered community involvement (a). However these opportunities have had limited use to date, and general community knowledge and empowerment through the use of the processes is probably still limited (b).

Vegetation Protection in Redland Shire

Case Study Q2. By Su Wild River, with Toni Bowler, (Councillor, Redland Shire). Further assistance also from Redland Shire Council environmental planning officer

Comparative Statistics for Redland Shire

Category	Measure	Comparison
Area (Sq/Km)	570	Bottom 29%
Population	108,000	Top 8%
Pop Sq/Km	189	Top 22%
Total Income ($)	31,376,000	Top 23%
Rate Content ($)	75,862,000	Top 2%
Expenditure ($)	149,456,000	Top 2%

Information Australia, 2000

Redland Shire is implementing a comprehensive vegetation protection local law. This is having beneficial impacts on local ecological, economic and social values.

Redland Shire Council lies between Brisbane and Moreton Bay, South of the Brisbane River in South East Queensland. North Stradbroke Island, and the Southern Moreton Bay Islands are also within the Shire boundaries. Redland has many significant environmental values. Moreton Bay is an important and sensitive seagrass area, that is home to dugong and other rare species and is included in the RAMSAR CAMBA/JAMBA register. Much of the mainland within Redland Shire is koala habitat, and home to many other marsupials, birds and other wildlife. Redland is also located on highly fertile soils, and has supported many successful small farms for over a century. Redland also continues to grow in popularity as a residential area. These changes threaten both the environmental and agricultural values of the Shire.

Many residents and Local Government offficials are very aware of the important environmental values in the local area. Redland has taken steps towards inititives to help protect local environmental significance of its local assets.

One of these initiatives was to develop a Local Law and Policy known as Local Law No.6 – Protection of Vegetation (or the Vegetation Protection Local Law – VPLL) for the protection of vegetation within the Shire. Importantly, Redland Shire has also managed to coordinate many of its strategic and operational policies and programs, so that they link together coherently. For instance, Redland Shire's strategic plan places all of its environmental initiatives in context with related issues (Redland Shire 1998a).

A critical issue for Redland's environmental initiatives, is that much of the intact vegetation in the Shire is privately owned. Redland Shire cannot afford to purchase all local land with significant environmental values, and this means that Council has had to find other ways to protect vegetation on private land. In 1990, Council passed a Tree Protection Bi-law for this purpose. Its effectiveness however, was limited in many ways. For instance, it applied only to a limited number of trees or areas and not all vegetation stratums, and was hard to enforce. Since 1998, the Bi-law has been replaced by the VPLL.

The VPLL has both broader scope and greater effectiveness than the previous bi-law. For instance, it specifies 19 criteria for identifying 'significant vegetation'. These cover cultural, ecological, aesthetic and pollution issues, and allow any vegetation type to be recognised as significant. Figure 1 shows a giant Moreton Bay Fig tree, protected area by the VPLL, along with its buffer. The VPLL also includes controls on removing or damaging significant vegetation. These vary depending on the designated land use, and the state of development on the vegetated land. For instance, property owners can remove vegetation that 10 metres around their house and 3 metres around an approved shed as of right.

Figure 1: Moreton Bay Fig and buffer protected in Redland Shire

However where significant vegetation is located on land intended for development, controls such as conditions of approval may require that

buildings and other structures are designed around the vegetation, ensuring its protection. In these cases, Environmental Planning Officers can inspect sites where development is planned, and identify vegetated areas on site that are significant worth protecting and depending on the zoning, a 'building envelope' can be designated. Clearing and building cannot be carried out outside the building envelope in areas with significant vegetation and therefore the vegetation is protected (Redland Shire 1998b, Sections 3, 5, 21, 26).

These sorts of controls in the VPLL are designed to be proactive, in that they can avoid vegetation damage, rather than just punishing it after it has occurred. The VPLL also carries fines of up to 850 penalty units for unlawful damage to protected vegetation (Section 26).

Redland's VPLL rests in part on several State Planning and related policies. In this sense, it is an example of good state/local partnerships for environmental outcomes. The *State Planning Policy for Conservation of koalas in the Koala Coast* (Department of Environment 1997), and related *Planning Guidelines* (Queensland Government 1997) were particularly useful in helping to design a strong VPLL. The former document shows that Redland Shire consists almost entirely of koala conservation areas, other major habitats and balance areas. The policy requires that these koala habitats be protected wherever practical, and also that local government planning schemes be consistent with the State Planning Policy. The consistency of these requirements with Redland's own policies for protecting local vegetation meant that both the two initiatives reinforced one another (see Queensland Government 1997).

The VPLL can also be coupled with other environmental planning measures such as the Strategic and Development Control Plans, to provide additional controls. For instance, some Redland households now face restrictions on the number and type of domestic animals they are able to keep. The new housing development of Ridgewood Downs is a good example of the VPLL in action. Building envelopes apply throughout the entire development, and roads and building locations have been designed to protect trees. No cats are allowed, and only one dog is allowed per house. Figure 2 shows the development, with trees remaining in the middle of the road, and all around the newly-built houses.

Figure 2: Ridgewood Downs

The VPLL has received significant local support, but there has also been some criticism. Some local residents and media reports have focused on perceived restrictions to landowners rights on their properties. Time will tell whether the overall public benefits from this initiative continue to outweigh such private costs.

References

Department of Environment. 1997. *Planning Guidelines: Conservation of Koalas in the Koala Coast.* Brisbane. Queensland Government.

Information Australia. 2000. *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne.

Quensland Government. 1997. *State Planning Policy 1/97.* Conservation of koalas in the Koala Coast. Brisbane: Queensland Government.

Redland Shire Council. 1998a. *Redland Shire Strategic Plan*. Cleveland: Redland Shire Council.

Redland Shire Council. 1998b. *Redland Shire Council Local Law Number 6: Protection of Vegetation.* Cleveland: Redland Shire Council.

V2: Vegetation Protection in Redland Shire

Perspective: LG
Role: Officer/Councillor
LG type: Capital fringe (rich, compact populous)
Focus: Management

Context Issues
-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Protect all significant vegetation in Redland Shire, on both private and public land,
- Extend controls in the Tree Protection Bi-Law so that it covers more than just trees,
- Increase the amount of private land covered by vegetation protection laws,
- Tighten up fines for non-compliance with vegetation protection requirements.

Drivers
- Strategic Plan that identifies Green Space,
- Envt inventory which categorises priority vegetation to protect,
- Opportunity to place controls on land with rezoning applications,
- Opportunity to place controls on developments with building envelopes,
- VPLL allowing anyone to suggest areas for protection,
- Local community members wrote in identifying areas,
- State Planning Policy for koalas allowed large area of Shire declared as protected vegetation,
- Local media pro-envt, and report tree removal.

Processes
- Vegetation Protection Local Law in place for over 2 years,
- Anything with development potential is covered, which reduces pre-emptive clearing by potential developers,
- VPLL includes broad definitions of significant vegetation,
- Community consultation done by consultant,

Constraints
- Some of the zonings (eg Residential A) make it hard to protect vegetation,
- Even in large protected areas, some rezonoing etc still enables development with vegetation clearing,
- Some landowners unhappy with VPLL,
- Some Councillors unhappy with VPLL controls,
- Media sometimes misrepresents issues,
- Developers always apply for more than they need in terms of vegetation clearing,
- The VPLL creates a big compliance issue, More officers are needed to implement it

Outcomes
- Increase in protected areas within the Shire,
- Developments no longer indiscriminately clear land, or undertake pre-emptive clearing,
- Greater awareness among the community in general, and the development community about the value of vegetation.

About the Models

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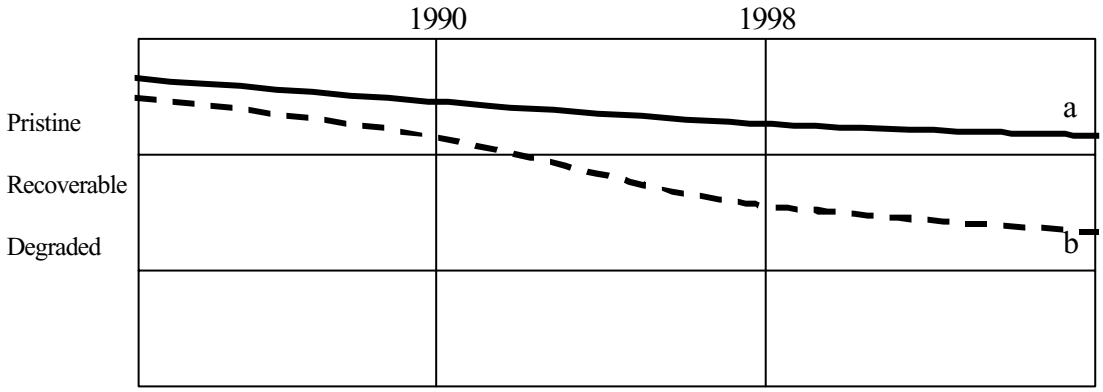
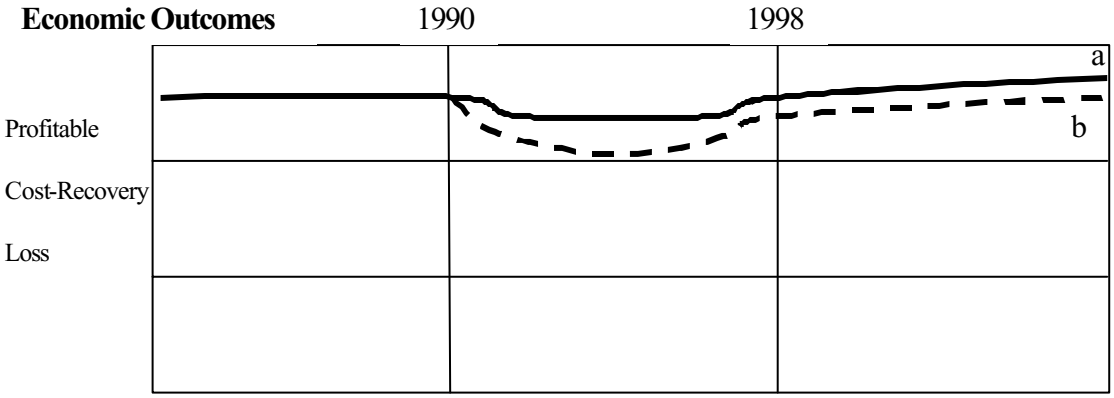
Ecological Outcomes



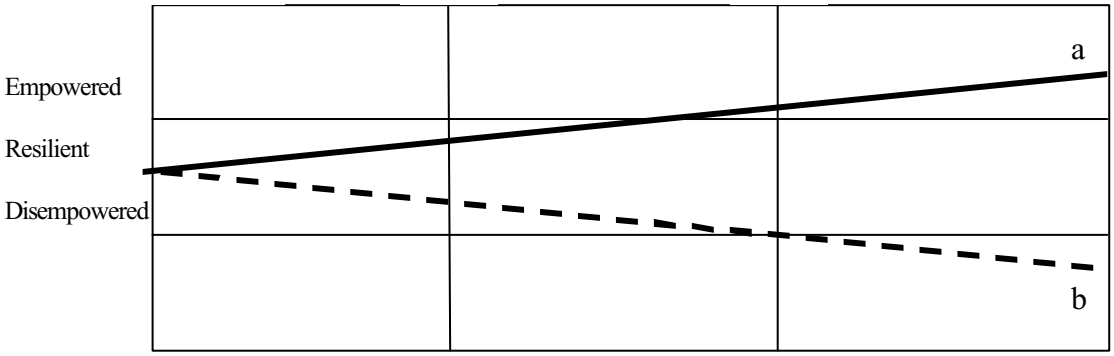
Both of the lines on the graph show trends for intact vegetation on privately-owned land. The top line (a) shows the trend for land with unrealised development potential prior to the 1990 Tree Protection Bi-Law. The controls in the Bi-Law, and subsequent VPLL have been highly successful in reducing the rate and extent of degradation on that land. The lower line (b) shows the trend for privately-owned land that had already been developed prior to 1990. There are much fewer controls on that land, and vegetation clearing has been more pronounced.

Economic Outcomes



The line on this graph shows amounts and changes to the value of land with development potential in Redland Shire. The top line (a) shows the changes to land values for private owners. These dipped slightly as a knee-jerk reaction to the perceived development constraints imposed by the Tree Protection Bi-Law. More recently, land prices in Redland have increased, probably partly as a result of public recognition of the dollar value of vegetation retained in the landscape. The dip in land values was more severe for developers (b). This was because of development constraints such as restrictions on proposed buildings. For instance the number of blocks allowed on some subdivisions was reduced, because of building envelopes. However economic values have increased again, since individual blocks are selling for higher prices because of the perceived benefits of the protected vegetation.

Social Outcomes



Vegetation protection initiatives have increased community empowerment by raising the awareness of environmental values within the landscape of Redland Shire. There has been a resulting increase in people's desire to live in the Shire, and their enjoyment of both public open space, and vegetation values in visible private spaces (a). However, some local residents have felt disempowered by the changes, believing that their rights have been constrained (b).

Brisbane City Council – leading by example with environmental protection

Case Study Q3. By Su Wild River, with Ian Christesen and Mark Ricketts (Pollution Prevention Health and Safety. Brisbane City Council) .

Brisbane City Summary Statistics

Category	Measure	Comparison
Area (Sq/Km)	1220	Top
Pop Sq/Km	673	Top 14%
Total Income ($)	1,009,238,000	Top
Rate Content ($)	597,424,000	Top
Expenditure ($)	1,156,954,000	Top

Information Australia, 2000.

Brisbane City Council (BCC) governs Queensland's whole capital city. It is by far the largest Local Government (LG) in Australia, in terms of both budget and population. Brisbane's location, budget and corporate culture make it a politically powerful institution. BCC has been a key stakeholder in the development and implementation of the *Environmental Protection Act 1994* (EP Act). This makes sense, since BCC administers over 2,800 environmental licenses, which is over 20% of the total.

Brisbane City Council was heavily involved in the consultation leading up to the commencement of the EP Act. It had actively lobbied the Department of Environment and Heritage (DEH) for more environmental protection powers to tackle local pollution incidents. It had stressed that environmental protection initiatives must be self-funding, insisting on reasonable licence fees from businesses. It successfully negotiated many key issues of this nature with DEH before and after the EP Act commenced.

The EP Act was frustratingly slow to be commenced. And even when it finally started in March 1995, it still lacked many of the key elements needed to make the new environmental protection system work. The regulation specifying licensed activities was only 'Interim', and was amended 4 times in the first year. The EP Act itself was amended twice. Categories of licensed activities were added and removed during the changes, and powers of administering authorities also shifted. The Environmental Protection Policies that were to provide the detail about compliance were gradually completed over the following years. The first, addressing water issues, commenced in 1996, with air and noise policies commencing in 1997 and waste in 2000. The nuisance regulation, providing workable statutory tools for issuing on-the-spot fines for small offences was delayed until 1999 (Queensland Government 1995-1999).

Administering authorities that had been involved long-term in EP Act preparations had expected it to start up at least a year before it did. And because BCC had so many environmental authorities to issue, it had hired staff to implement the Act months before they could start inspecting premises or issuing licences. Instead, the new 'pollution prevention unit' staff spent the time getting their own administrative and policy systems in order.

The Pollution Prevention Unit formed consultative committees with local leaders from each industry sector. They used these to develop licence conditions, training programs for inspectors, and other policies, and later to monitor the effectiveness of implementation. Through this process, they developed *Operator Environmental Guidelines* for each environmentally relevant activity, outlining pollution prevention strategies and requirements. They also developed simple, industry-specific 'tick and flick' licence application forms.

BCC's initiatives were keenly sought by other LGs throughout Queensland. DEH responded to this by providing BCC's entire license administration system as an off-the-shelf model to all other LGs in Queensland. One outcome from this process was that many of BCCs policies were adopted statewide, making it a policy leader in many practical ways.

In 1997, BCC hired a consultant to evaluate the environmental and other impacts of the EP Act in Brisbane City. The consultant developed a simple, quick, environmental risk assessment methodology, allowing comparisons across industry sectors for this task. The method also allowed analysis of changes to environmental risk pollution potential since the EP Act commenced.

Findings from the study showed that significant environmental risk reductions were achieved in each of the 7 industry sectors that were assessed. The environmental risk reductions had been consistent across the City within

industries, but there were differences between them. Spray painters and panel beaters had made the biggest risk reductions. Many had installed spray booths and wash-down stations to avoid air and water pollution. 27% of spray painters had invested an average of $27,000 to comply with the new requirements (Wild River 1997, p.27).

But in most cases, significant environmental improvements were made in cost-effective, simple ways. For instance many operators had not previously realised that two sets of drains leave their premises, that only the sewage is treated, and that stormwater drains take contaminants directly to waterways. Many were able to stop routine stormwater contamination by bunding and covering work and storage areas, and by redirecting waste streams to the sewage system. Figure 1 shows a typical waste chemical storage area before the EP Act, where contaminants can easily enter the stormwater system. Figure 2 shows best practice storage of similar waste products, where full bunding, separation and covering is provided.

BCC has now adopted the risk assessment methodology that was developed in the study, for its own corporate environmental risk management. It has since used it to assess many of its own potentially polluting activities, and to prioritise environmental improvements.

The study also investigated operator responses to pollution prevention initiatives. There were many positive responses to the EP Act. Operators generally supported the Act, and BCCs approach to implementing it. Many complained however that it was being poorly enforced, and unequally applied to potentially polluting operations.

Some of these issues were beyond BCCs control, since they relied on statutory tools that had not yet been commenced, or regulations they could not alter. However BCC could have applied additional resources to industry regulation, and particularly to ensuring equal enforcement of all potential polluters. This would have reduced the market failure that provided financial advantages to businesses that did not comply early on.

Wherever possible, BCC would develop its own systems in the absence of state legislation, when local operators demanded such action. For instance, it brought in its own incentive licence system prior to the commencement of a similar one by DEH.

Figure 1: unbunded liquid waste storage area

Figure 2: bunded liquid waste storage with full waste separation for recycling.

References

Information Australia. 2000. *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne.

Queensland Government. 1995-1999. *Environmental Protection Legislation*. Various Acts, Regulations and Policies. Brisbane: Queensland Government.

Wild River, S. 1997. *Brisbane City Council Environmental Benchmarking Study.* Canberra: Centre for Resource and Environmental Studies, Australian National University.

Q3: Brisbane City Council leading by example with environmental protection

Perspective: Mixed
Role: Manager
LG type: Capital (rich, compact populous)
Focus: Protection

Context Issues

Brisbane City Council is Australia's largest Local Government. It is a policy leader within south-east Queensland, and the state as a whole.

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals

- Fulfill statutory responsibilities under the EP Act
- Achieve Ecologically Sustainable Development through pollution prevention,
- Support environmentally responsible operators and punish polluters,
- Monitor progress and report to those affected

Drivers

- Integrated, comprehensive Act,
- BCC policies pushed the formation of the EP Act, regulations and policies,
- Training programs to assist inspectors to use and understand EP Act
- Devolution Working Groups for regional cooperation, consistency
- Operator's environmental guidelines and industry consultative groups for direction,
- Support from environmentally responsible operators,
- Cleaner production and incentive licence systems reward,
- Fee waiver for first 15 months,
- Risk assessment method.

Processes

- Consultation for 5 years prior to Act implementation,
- Preparation for EP Act commencement, through training courses, 'tick and flick' licences etc.
- Other LGs in the region also supportive of the EP Act,
- Gradual policy clarification by QEPA, continual updating of legislation and policies,
- Inspections and licence conditions imposed at over 2,800operations

Constraints

- Problems with fees, partial solutions from incentive licence system
- Compliance costs considered too high by many in LG, business,
- Difficulties determining compliance, due to flexibility in legislation,
- Business opposition due to poor media coverage,
- Not all legislation in place – enforcement, incentives, definitions,
- Inconsistencies in legislation – potential polluters not all equally affected,

Outcomes

- significant environmental risk reduction over first 2 years of implementation,
- practical support and compliance by key industry groups and businesses,
- databases of potentially polluting activities, publicly available,
- increased understanding of environmental problems and solutions across Brisbane.

About the Models

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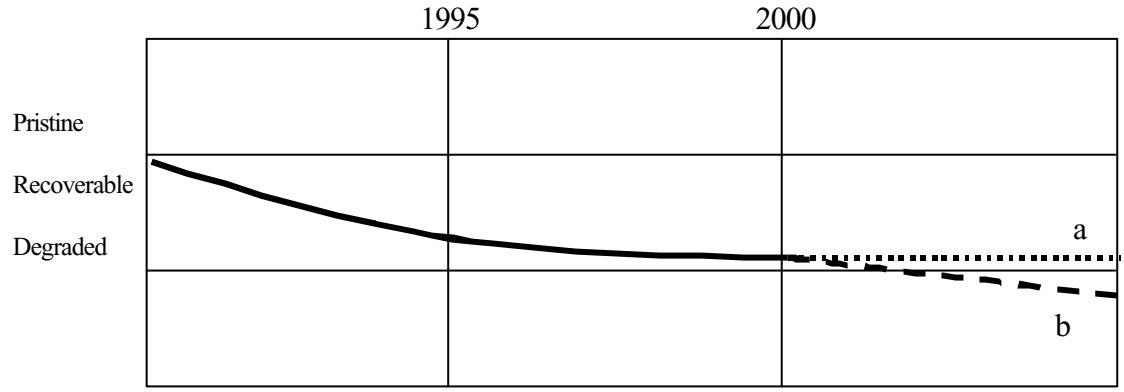
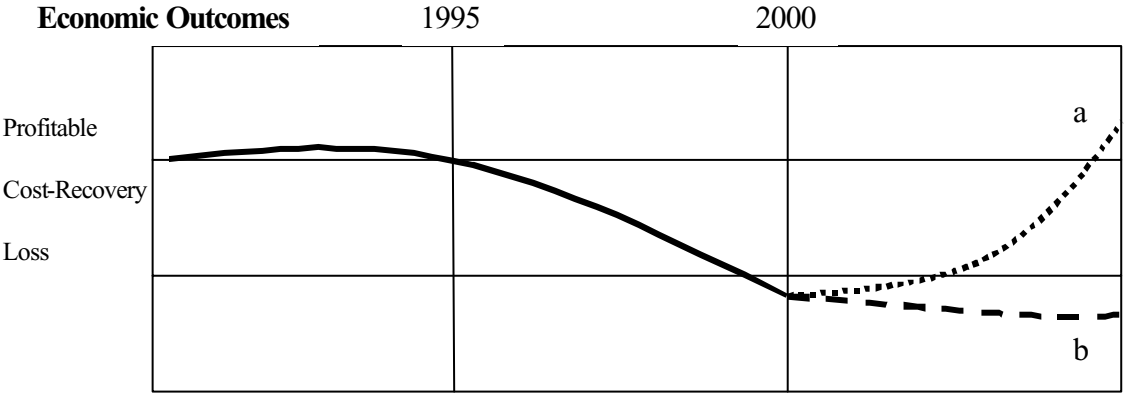
Ecological Outcomes



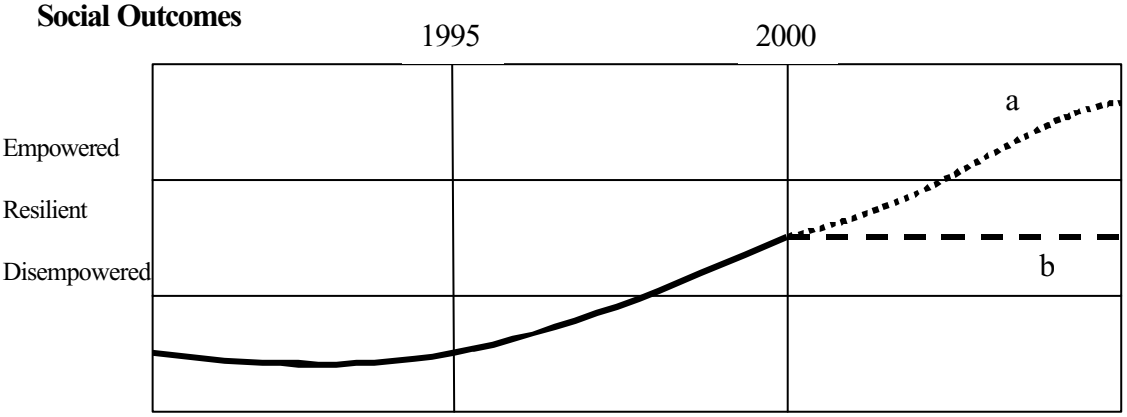
Significant environmental risk reduction in at least 7 industries between 1995 and 1997. 1995. This means a slowing of the rate of environmental degradation that is still occurring. Continued implementation, while addressing EP Act problems could halt environmental degradation, keeping environmental quality at current, largely recoverable conditions (a). Failure to address the problems, or limitations to the scope or implementation of the Act is likely to lead to further, potentially irreversible environmental degradation (b).

Economic Outcomes



Businesses with potential to pollute have their profits artificially high, since the real costs of pollution and resource use are not recognised in current economic systems. The implementation of the EP Act has been costly to those who invested to comply, since 1995, and has caused losses to many operations, especially those with non-complying competitors. Continuing to implement the EP Act, while addressing inconsistencies and enforcement problems would help these responsible operators to recover costs and increase profits. Failure to address the problems would cause ongoing losses to responsible operators (b).

Social Outcomes



Prior to the EP Act, public information on environmental licences and conditions was unavailable, other than through expensive and time-consuming Freedom of Information channels. The EP Act requires administering authorities to keep public registers of licence information, establishes processes for public input to legislation and policy development, and legal mechanisms for the public to appeal decisions, giving great potential for empowered community involvement (a). However these opportunities have had limited use to date, and general community knowledge and empowerment through the use of the processes is probably still limited (b).

Protecting Noosa North Shore from development

Case Study Q4. By Su Wild River.

Comparative Statistics for Noosa Shire

Category	Measure	Comparison
Area (Sq/Km)	869	Bottom33%
Population	45,000	Top 19%
Pop Sq/Km	52	Top 30%
Total Income ($)	57,043,000	Top 12%
Rate Content ($)	32,137,000	Top 11%
Expenditure ($)	41,723,000	Top 18%

Information Australia, 2000.

The Noosa River marks the northern boundary of development on Queensland's busy Sunshine Coast. The likely development on and beyond Noosa North Shore was averted after decades of strategic lobbying from the Noosa Parks Association and finally by decisive action of Noosa Shire Council.

Noosa Shire, at the northern tip of Queensland's Sunshine Coast, is one of Australia's premier tourist destinations. Visitors make much of its unique environmental values, including its beautiful beaches, highly accessible National Parks, and clean river. The Noosa River provides a natural southern boundary to the Great Sandy Region.

From 1968 to 1988, the Bjelke-Petersen era of Queensland politics was marked by strong pro-development policies. Government processes were also notoriously corrupt, and 'due process' in land use planning decisions was one example (see Dickie 1988). Despite the fact that Councils in Queensland were responsible for land use planning and development approvals (subject to ultimate power of the State), the State Government during this period was not averse to approving its own rezoning of land to accommodate large developments. Opposition from local communities was frequently brushed aside "in the interests of the State".

The Queensland Government also includes some unusual, pro-development provisions in its Planning Act. The "injurious affection' provision, for instance, provides for compensation to be paid by Councils for diminishing the development rights of a particular property by changes to a Planning Scheme e.g. rezoning from high density to low density or future urban to open space. The theoretical developed land value is thus built in to the raw land value, and has frequently stopped Governments from reclaiming land for ecological or social reasons.

Other provisions that can constrain the environmental impacts of developments however, provide some balance to injurious affection. Development Control Plans (DCPs) for instance, focus on a particular area and issues, and can restrict the type and scale of development to mitigate adverse impacts. However these controls are only available when the Local Government anticipates problems, and prepares its DCP well in advance of planning decisions. (Similar provisions are contained in both the superceded Planning and Environment Act and the Integrated Planning Act).

This was the background against which, in the 1970s, several groups and individuals within and beyond Noosa started lobbying to avoid development north of the river. The Noosa Parks Association was one such group, and individual members like Dr Arthur Harrold put huge efforts into their lobbying for Noosa conservation over several decades (see Bonyhady 1993 for details of this and related actions).

Most of the North Shore freehold land was held in single ownership, and Dr Harrold lobbied unsuccessfully for the land to be purchased by Government for National Park (it is now almost surrounded by the Cooloola Section of the Great Sandy National Park).

In 1982, a group of candidates including Noel Playford were elected to Noosa Shire Council after a balanced election campaign with a distinctly environmental focus. Over the next three years, that Council prepared and passed the North Shore Policy Plan, with provisions to restrict development north of the river. However, their efforts were cut short by the 1985 election of a pro-development Council that shared few of their beliefs about the necessity to protect Noosa's environmental values. Most of the environmentally conscious Councillors, including Noel Playford, were defeated.

It was during the term of this Council that Leisuremark Australia acquired its interest in the large vacant land holdings on Noosa's North Shore, and applied for rezoning for a huge resort (approx 10,000 person capacity) complete with jet airport. Despite the Council's pro-development philosophy and under great

local pressure, it first asked the State Government to decide the application to avoid having to make a decision. When the State refused, the Council refused the application on a 7-6 vote just before the 1988 Council elections.

In a dramatic turnaround, the 1988 election returned Noel Playford as Mayor, as well as several other pro-environment councillors. Injurous affection provisions and a lack of funds meant that buying back the land was impossible. Instead, they moved quickly to bring in a DCP to control development on the North Shore, which was approved by a newly elected State Labor Government. The DCP limited future development to a scale far below that previously applied for, and also exploited several gaps in the previous arrangements. For instance, the DCP required that any sewage from any approved development be transported south of the river for treatment, at the (great) expense of the developers. It also put paid to the possibility of a bridge over the river, severely restricting the anticipated access to the resorts. These restrictions stalled developers for many years.

Approval was finally obtained by the developer for a modest proposal which was not financially feasible. This was the result of the planning changes introduced through the DCP which meant that the large development costs could not be met by limited development. The approval finally lapsed, but the land would always remain a potential problem while it remained in private hands.

Meanwhile, other environmental issues were being resolved in the region. A large public dispute erupted over logging and sand mining on Fraser Island. This was eventually resolved in favour of environmental values, and Fraser Island was granted World Heritage status. Disappointingly, the case for including all of the Great Sandy Region, including Noosa North Shore, and all of Cooloola National Park in the World Heritage listing failed, in part because of the freehold land that might still be developed on Noosa North Shore.

Noosa Shire Council under Noel Playford's leadership had been working to increase the extent of National Park within its boundaries, and to build up its image as an eco-tourist holiday destination. These initiatives paid off well for Noosa. The Shire entered an era of unprecedented and continuing growth in profits from the tourist and other service industries. Property values rose and Noosa became a great example of the potential for ecological, economic and social values to work together within a local area. Radical policies, like a population cap, seem only to have further established Noosa's credentials as a leading holiday destination, home and farming community. Playford and various others who believed in balanced development were returned to the Council in 4 successive elections, up until the present time.

Another successful council initiative was the commencement of a 'conservation levy', which is levied on all properties. In 1998, this finally ended the fight for protecting the North Shore by providing enough money for Council to buy the land. The price was lower than it might otherwise have been, and the land available, because of the significant restrictions that Council had put in place. Some in the development industry, including most of the mortgagees who had provided money or services in return for an interest in the land (and in the end received nothing), would not have been happy with the outcome. But it is clear that Noosa as a whole has been a winner, and will continue to benefit from its wild northern boundary.

Noosa council now has control and management of the land to the north of the river. It is now able to use this asset in bargaining with the other spheres of government, to ensure sound management into the future, or to attract other environmental benefits to the local area.

Latest developments in the ongoing saga (2001) are seeing serious moves to resubmit the Cooloola Section of the Great Sandy Region for World Heritage listing. Both the Fraser Island World Heritage Area Scientific Advisory Committee and the Queensland Labor Government are committed to the outcome.

References

Bonyhady, T. 1993. *Places worth keeping: Conservationists, Politics and the law.* ST. Leonards: Allen and Unwin.

Dickie, P. 1988. *The road to Fitzgerald* Brisbane: University of Queensland Press.

Information Australia (2000). *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne: Information Australia.

Playford, Noel, 1999. *Interview with Su Wild River.* Unpublished.

Q4: Protecting Noosa North Shore from Development

Perspective: Mixed
Role: Councillor
LG type: Other LG (rich, compact, populous)
Focus: Planning

Context Issues
An initiative of some Council members only. Discontinuous scale since the area has greatest significance as *part* of the Shire, a key element of the Great Sandy R*egion*, and potential *world* heritage area. Initiative origins reflect this.

Context continuums

Scale
<local | local | regional | state | national | international

Flexibility of Process
Full | mostly | equal | partial | none

Origins of initiative
<local | local | regional | state | national | international

Goals
- To protect a local area of enormous environmental significance,
- Through that, to maintain the environmental integrity of the Great Sandy Region,
- To make Noosa North Shore a National Park,
- To retain the possibility that the Cooloola National Park may become a World Heritage Area,
- To retain the green vista on the North Shore of the Noosa River.

Drivers
- Strong community support for environmental values, (eg. long-term, rural residents with their 'playground' threatened),
- Environment Group support (eg. Noosa Parks),
- Long term strategic vision of LG and community reps to maintain environmental values,
- Dedicated individuals working for decades from different angles (eg Arthur Harold),
- 'Conservation levy' as a source of funds,
- Community and cultural attitude shift,
- Maintenance of strategic vision for years,
- Electoral support for environmental issues,
- Aspects of the planning legislation (Development Control Plans (DCPs).

Processes
- New Councillors elected in 1982 with vision for Noosa North Shore,
- North Shore Policy Plan developed by 1985,
- Development-oriented Council elected 1985, negotiated for huge developments,
- Greener Council elected in 1988, fought developments and won some environmental concessions (eg some small developments approved, but bridge refused and expensive restrictions put in place),
- DCP brought in so that no more lenient approvals could be made, and that large developments could not be approved in the future.

Constraints
- Some planning decisions reliant on Minister for Planning approval (eg success relied on Minister *not* rezoning some land),
- Other features of Planning Act (eg injurious affection)
- The need for Council to buy the land in order to protect it,
- Developer ownership of freehold land on Noosa North Shore,
- High value and cost of land to buy,
- Shifting, and not always 'green' Councils.

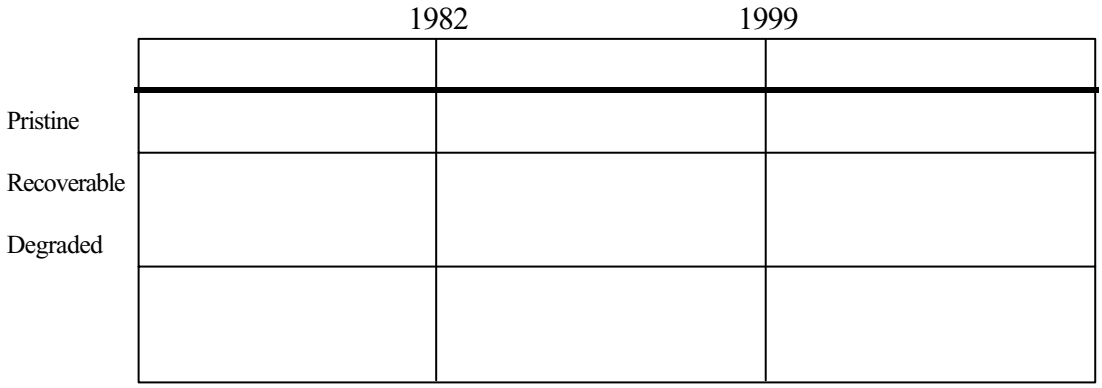
Outcomes
- Vacant land on Noosa North Shore now owned by Council, bought through conservation levy,
- Potential for land to become National Park, or World Heritage area. But currently, potential to use land as a lever to encourage State or Federal Government to ensure protection and management of environmental values on the North Shore and beyond,
- Maintenance of the green vista North of Noosa River

About the Models

The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the environmental, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

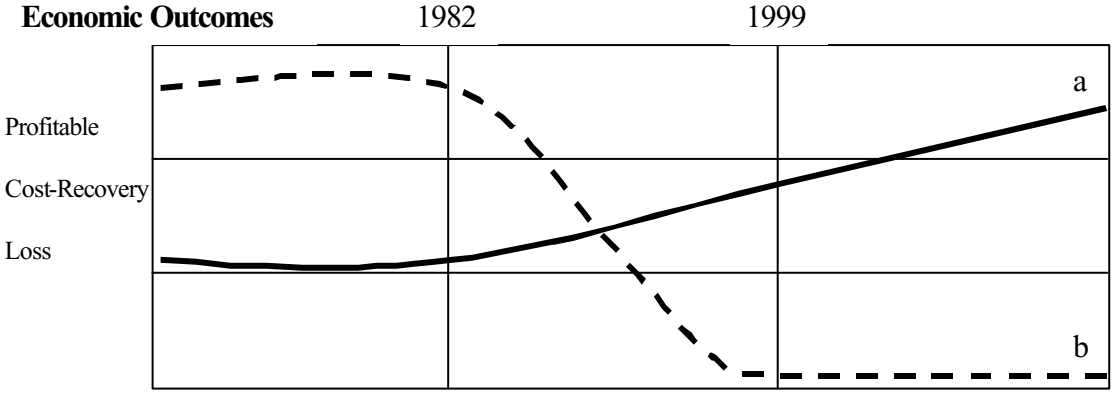
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



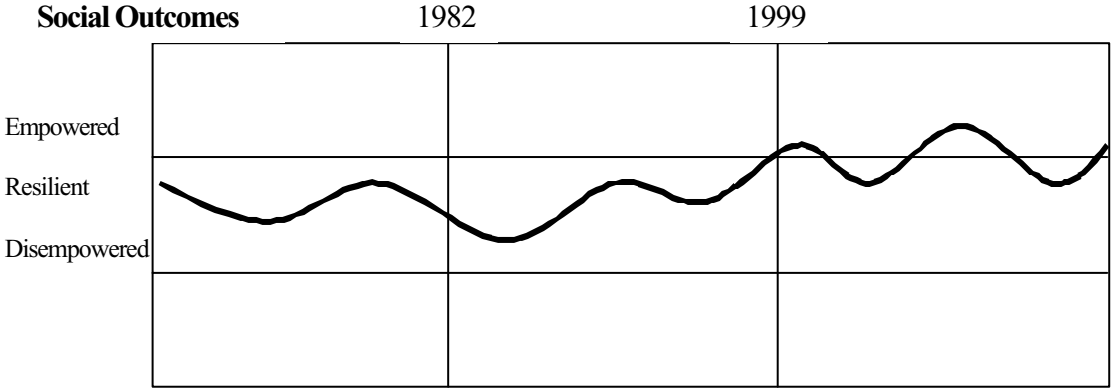
Throughout this intense 20 year bureaucratic and institutional battle, the environmental values on Noosa North Shore have remained relatively unchanged. A few small blocks, several kilometres up the river, have residential homes on them. But other than that, the several hundred hectares between the township of Noosa, and the Fraser Island World Heritage area remain pristine. Access to the area is by a vehicle ferry, and there will be no bridge, and no further large scale private infrastructure on the North Shore.

Economic Outcomes



Economic outcomes for Noosa as a whole have been inversely related to those of the would-be developers of Noosa North Shore. The retention of significant environmental values within Noosa Shire has increased property values, profits from tourism, and general business activity over the past couple of decades (a). These initiatives have given Noosa a distinctive advantage over neighboring Shires, in attracting and retaining profitable ventures. The particular developers who bought land on Noosa North Shore, assuming that a bridge would be built over the river, and that large, resort-style complexes could be supported. In the absence of other viable options, land was eventually sold back to Noosa Shire at a loss (although still for significant sums).

Social Outcomes



It is difficult to track the community impact of these changes over time. Community members with strong environmental beliefs believe that Noosa Council could have done more to protect important local natural values. Those who simply wanted their 'holiday playground' on Noosa North Shore, and other green spaces retained for public use would be empowered by these outcomes. Empowerment is limited by some resentment costs such as the Conservation Levy. Those within the Shire who support intense development also have objections. Community opinion on such matters shifts over time, but the initiatives have favoured of the majority in the Noosa community.

Herberton Shire Fulfilling the Statutory Responsibilities of Queensland's *Environmental Protection Act 1994*

Case Study Q5: By Su Wild River. With assistance from Luke Taylor (Environmental Health Officer, Herberton Shire).

Herberton Shire Summary Statistics

Category	Measure	Comparison
Area (Sq/Km)	9,575	Top 15%
Population	5,181	Bottom 42%
Pop Sq/Km 1		Bottom 32%
Total Income ($)	9,317,944	Bottom 48%
Rate Content ($)	1,886,139	Bottom 32%
Expenditure ($)	8,572,963	Bottom 34%

Information Australia, 2000

Herberton Shire has worked to implement the Queensland Environmental Protection Act, along with all other Queensland local governments. However there are many old mine sites and other historic pollution sources throughout the shire. This combined with a very low number of local activities requiring environmental licences, each of which also has a low volume of work, give the Act a low level of local relevance.

Herberton Shire lies on the Atherton Tablelands, South West of Cairns City in Far North Queensland. It is a relatively poor and stable Shire in a relatively wealthy and fast-growing region of Queensland. In 1996, Agriculture accounted for 49% of local businesses. Retail and construction were the two next most dominant industries, accounting for 8 and 7% respectively (ABS 1997).

There are highly diverse environmental values within Herberton Shire. For instance, much of the area close to the main town of Herberton was intensively mined in the early 1900s, for tin and other metals. This land is heavily degraded, and is still a source of leachate pollution into the local river system. In contrast, other areas of the Shire include large tracts of near-pristine wilderness areas, such as parts of the Herbert and Tully River systems.

Herberton Shire, along with all other Queensland Local Governments (LGs) was required to implement the *Queensland Environmental Protection Act* (EP Act) from March 1995. This meant both that Herberton Shire had to licence devolved Environmentally Relevant Activities (ERAs) in the local area, and also to ensure that Council-operated ERAs were licensed by the Queensland Environmental Protection Agency.

Herberton issued 19 environmental authorities to local businesses over the first two years of their implementation program. For these efforts, it received A total of $9,500 in fee relief payments from the State Government (QDEH 1995, 96).

Herberton Shire is committed to effectively implementing the EP Act, and meeting all of its statutory commitments under that legislation. However the small number of local devolved ERAs, and presence in the shire of other potential polluters meant that the Act missed the mark in Herberton. For instance, the leachate from the disused and non-licensed mine sites is far more apparent and locally-significant than that caused by the devolved ERAs. This meant that the Act did not clearly tackle important local environmental problems, and this further eroded potential local enthusiasm for the Act.

Despite this, environmental outcomes were achieved by Herberton Shire. The Far Northern Region of Queensland brought about an overall environmental risk reduction of 15% in the first three years of EP Act implementation. This was a significant risk reduction, despite being the lowest reduction by any Queensland region. The inherent risk of activities in the Far North was lower than for most other regions, and medium level overall. The residual risk in the Far Northern region was calculated at 49% of total risk, making it the region with the highest residual risk in 1998. (Wild River 1998, pp. 44-46)

Herberton Shire has also been actively involved in strategic work to improve environmental management practices for its own operations. The Shire works with other Local Governments in Queensland's Far Northern Region to investigate, and find solutions to regional waste management problems. In 1996, a report by Woodward-Clyde listed a Herberton landfill as being the only environmentally acceptable landfill among 29 surveyed in the region ("Shire leads landfill survey").

Information Australia. 2000. *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne: Information Australia.

QDEH (Queensland Department of Environment and Heritage). 1995-96. *Annual Reports for 1994-95 and 1995-96 Administration of the Environmental Protection Act 1994*, Brisbane: Queensland Government.

"Shire leads landfill survey". 1996. *Cairns Post*, 1996 (exact page and date unknown).

Wild River, S. 1998, *Statewide Benchmarking Study*. Canberra: Australian National University.

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Q5: Herberton Shire fulfilling statutory requirements under Queensland's *Environmental Act 1994* (QEPA)

Perspective: LG
Role: Manager
LG type: Other LG (poor, extensive, sparse)
Focus: Protection

Context Issues

The EP Act contains provision for high flexibility. However Herberton had other pressing priorities, and implemented QEPA just as recommended in support materials, rather than taking up the flexible options.

Context continuums

Scale

<local **local** regional state national international

Flexibility of Process

Full mostly equal **partial** none

Origins of initiative

<local local regional state **national** international

Goals

- Fulfil statutory responsibilities under QEPA
- Develop and implement Integrated Environmental Management System,
- Licence local Environmentally Relevant Activities.

Drivers

- Local support for environmental improvements,
- Queensland Environmental Protection Agency support for LGs, through Devolution Working Groups, EP Support Kit,
- Grants and rebates that have covered part of the administrative and other costs of the EP Act,
- EP Act requires LG to issue environmental authorities for devolved activities.

Processes

- Council arranged $40,000 contract with a consultant to develop Integrated Environmental Management System,
- Still unclear on how well the Integrated Environmental Management System will be implemented. It could be easier in a small LG like Herberton to make the necessary organisational and administrative arrangements, without these formal procedures,
- Writing processes down on paper, rather than just doing them. Not sure whether that helps with environmental management
- Issuing environmental authorities for devolved activities

Constraints

- Costs to comply with new requirements are not fully known,
- Confusing information from QEPA, on specific requirements for the Integrated Environmental Management System licence, so an environmental consultant was hired,
- Local opposition to environmental licensing and the licence fee.

Outcomes

- Knowledge of pollution potential for local small businesses,
- Some learning through development of Integrated Environmental Management System (although less since being prepared by a consultant),
- Compliance with EP Act achieved,

About the Models

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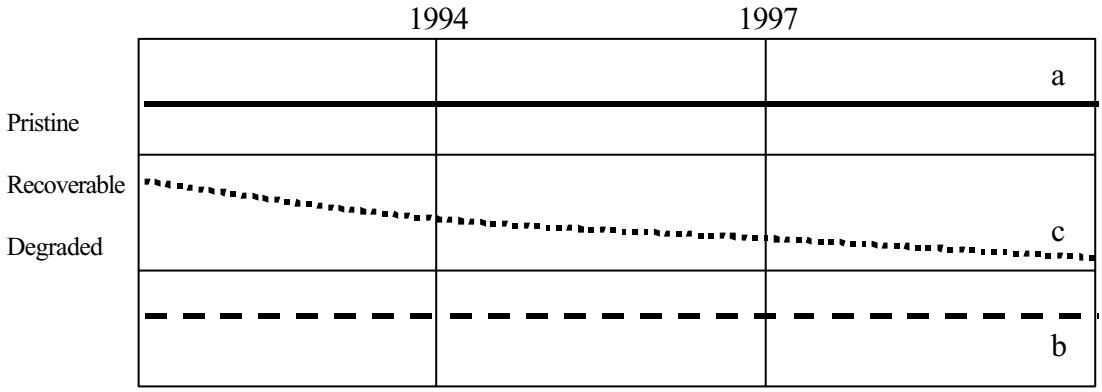
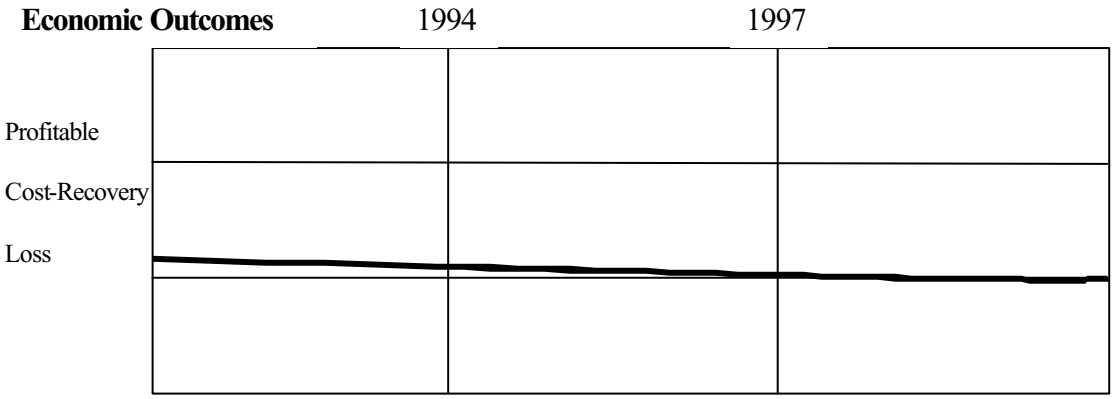
Environmental Outcomes



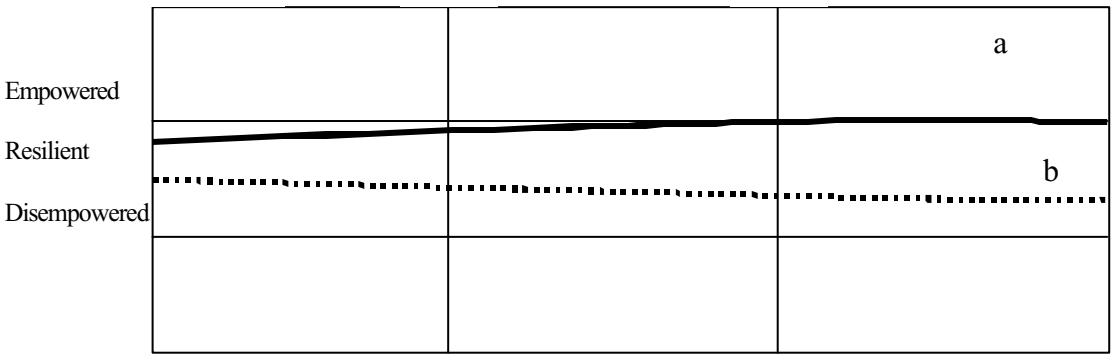
Herberton has highly varied local environmental values, which to date have been little affected by the EP Act. Some extensive parts of the Shire are pristine wilderness areas (a). At the other extreme are old, disused mines, in highly polluted and degraded areas (b). The EP Act has not, and is unlikely to stimulate any changes to environmental values or management at these areas. The landfill, sewage treatment and water treatment plants, and local service industries are small, and a relatively minor source of pollution compared with leachate from disused mines. But small environmental improvements, with a slowing of pollution, may result from EP Act and

Economic Outcomes



Herberton boasts a few small towns in remote locations, most of which are suffering from poor economic conditions. The EP Act has some negative environmental implications for either local businesses, the LG or both. Local businesses and Herberton Shire Council will face net costs which they will not be able to recoup, if compliance requires additional pollution prevention capital of management costs. If licence fees are charged, this will again be a net cost to businesses, that they will not be able to recover. If fees are not charged, then the administrative and inspection costs of the EP Act will be a net cost that the LG will have to cover through rates and other Council funds. The development and implementation of the Integrated Environmental Management System are likely to register as net costs to Council, and the magnitude of the costs is not yet known.

Social Outcomes



The process of developing the Integrated Environmental Management System licence, and of issuing licences to local operators was slightly empowering for Council. Empowerment was limited because of the use of the consultant, rather than the emergence of a sense that Council could develop its own system (a). Local business people were fairly opposed to the EP Act, considering themselves to be causing little pollution. The implementation process was slightly disempowering for them, since it went on regardless (b).

Achieving regional cooperation in far north Queensland, while supporting local autonomy.

Case Study Q6: By Su Wild River, with Ann Portess and Ivan Seerston (Mayor and Deputy Mayor, Herberton Shire).

Regional cooperation between (LGs) is often the most efficient option for service delivery. Existing arrangements for regional cooperation however, fall short of satisfying the needs of many LGs. Herberton Shire's involvement with the Far North Queensland Waste Management Strategy is a prime example.

Far north Queensland is a distinctive and identifiable Australian region. It is the north eastern tip of Australia, roughly the triangle, from the bottom of the Gulf of Carpentaria, across to the Pacific Ocean. Cairns City is the regional centre. Douglas Shire, the Atherton Tablelands, the Daintree-Wet Tropics World Heritage area, six major Aboriginal communities and all of the Torres Straight Islands are also within the region. To the north, east and west, the regional boundaries are clear, since they are defined by sea. However its southern boundary is fairly arbitrary, and the line is drawn differently for different purposes.

It is worth considering some of the issues facing smaller local governments, and those on the fringes of the region. Herberton provides an example and some insights. Herberton Shire is located up on the tableland, in between Cairns and Townsville. Some regional groupings of local governments in the north of Queensland label Herberton as being in the north, while others consider it to be in the far northern region.

Councillors at Herberton realise that their shire would benefit from greater regional cooperation. For instance, new State Government waste legislation requires that regulated wastes be disposed in appropriately licensed landfills. None exist in Herberton, nor in any other LG in the surrounding regions. The cost of establishing a regulated waste facility is beyond any individual council in the region, and none have sufficient demand for such a facility to make it cost effective to run on their own. However together, councils in the far northern region could justify such a facility.

Acknowledging this, most of the local governments in the far north region have been involved since the mid-1990s, in forums aiming to improve waste management for the region. Herberton has helped to develop the concepts for regional waste management. Herberton had always planned to be involved in the regional initiative, rather than trying to build its own new waste facility to comply with current waste management laws.

The resulting initiative is reported in Case Study Q9, on the Far North Queensland Regional Waste Strategy. This will be a state-of-the-art waste facility, taking sewage and solid waste, and transferring at least 70% of that waste to beneficial uses. It is a $200 million, 20 year project, and is the largest contract ever awarded in north Queensland.

Ironically having spent years working towards the regional waste facility, Herberton now finds itself unable to finally use it. The facility will run on a cost-recovery basis, and it has proven too costly for Herberton to transport its wastes to the facility for processing. Instead, Herberton will redirect its efforts to upgrading its own facilities. This option is still costly, and will be less environmentally beneficial, but will be affordable for the small and cash-strapped local government.

Challenges like this, facing small, isolated local governments must be see in the context of the opportunities for regional cooperation with local autonomy. Many key agencies support regional initiatives. Several federal programs have worked to establish and support regional organisations of councils for such cooperative ventures. The LG Association of Queensland supports regional ventures in various practical ways, and through lobbying with the state government. The Australian LG Association does the same at the federal level. Most state government departments have officials located across regional Queensland, dealing with regional issues. However this sometimes fails to build either regional identity or cooperation, since these departments define regions differently.

However despite these many policies that support regional initiatives, there are also significant barriers to their achievement. One problem is that LGs are seeking to achieve

regional cooperation while retaining local autonomy. This apparent contradiction is conceptually difficult for many stakeholders. Another problem is that legal mechanisms to support regional cooperation can be hard to work with. The Queensland Local Government Act for instance provides a mechanism for LGs to form 'joint boards' for certain purposes. The process of establishing a joint board is time consuming, complex, and also requires state government approval. The functions of the boards are also limited to those that are specified during their creation, and it is difficult to accurately anticipate all issues. A benefit is that some funding is made available to the joint boards.

Q6: Achieving Regional Cooperation in Far North Queensland, while Supporting Local Autonomy

Perspective: LG
Role: Councillor
LG type: Other LG
Focus: Management

Context Issues
Proactive parts of the initiatives are fully flexible, but much is constrained by the Local Government Act.

Context continuums

Scale
<local **local** regional **state** national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local **local** regional state national international

Goals
- Find the best ways to gather and use available funds, so that local needs can be met, and efficiencies achieved on a regional scale,
- Be consistent with SG and CG goals, without compromising local autonomy,
- Extend the limited application of existing statutory opportunities for formal regional initiatives.

Drivers
- LGA of Queensland with State-level LG support (more needed),
- LGA Queensland Lawyer for legal advice, (but may need SG legal advice too),
- SG Department of LG and Planning with its willingness to be flexible,
- Funding, through the joint board structure, available for regional activities. Especially with the realisation that there was no need to exclude other initiatives,
- Outside initiatives that make it more poignant to do something regionally (eg new standards for waste management).

Processes
- Councillor-driven research into appropriate structures for better regional cooperation,
- Attempts to articulate the concept so that it was clear, accurate, but not intimidating to stakeholders,
- Recognition that a big shift needs to occur in the ways of thinking about the problem.
- Learning about aspects of this concept. It needs to involve development of a statutory basis for regional cooperation that is more flexible and fluid than is possible under the existing LG Act. It also needs to accommodate fluid boundaries for LG involvement, and activities that start, proceed and stop, without losing the regional structures.

Constraints
- Practical constraints to participating in regional inititives,
- Negative ideas about what can't be done,
- Outsiders missing the point of attempting to achieve both cooperation and autonomy,
- Lack of appropriate legislation, and the need for the SG to support this locally/regionally-driven approach,
- If these initiatives are successful, the biggest ongoing challenge will be to keep all of the LGs informed of shifts in the regional structures and their functions.

Outcomes
- Some conceptual outcomes have been achieved, including regional understanding of the opportunities and limitations in the current LG Act,
- Outcomes that are sought are practical solutions to the problems, especially the development and implementation of new statutory mechanisms for regional cooperation with local autonomy

About the Models

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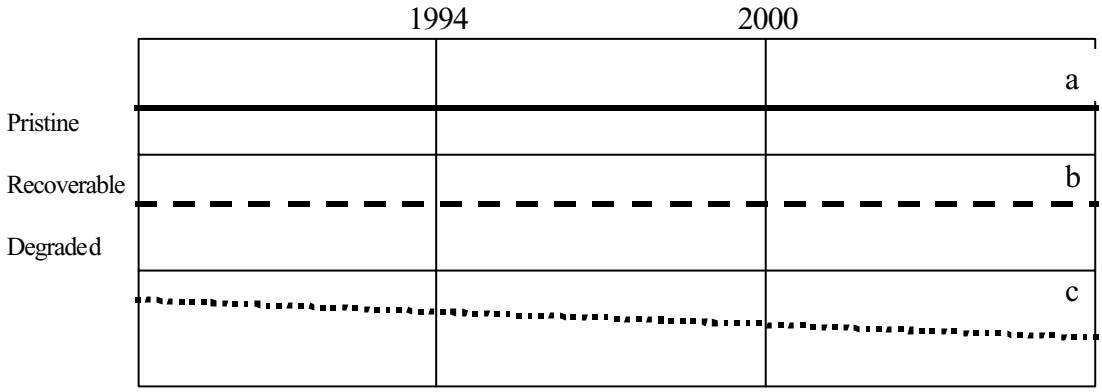
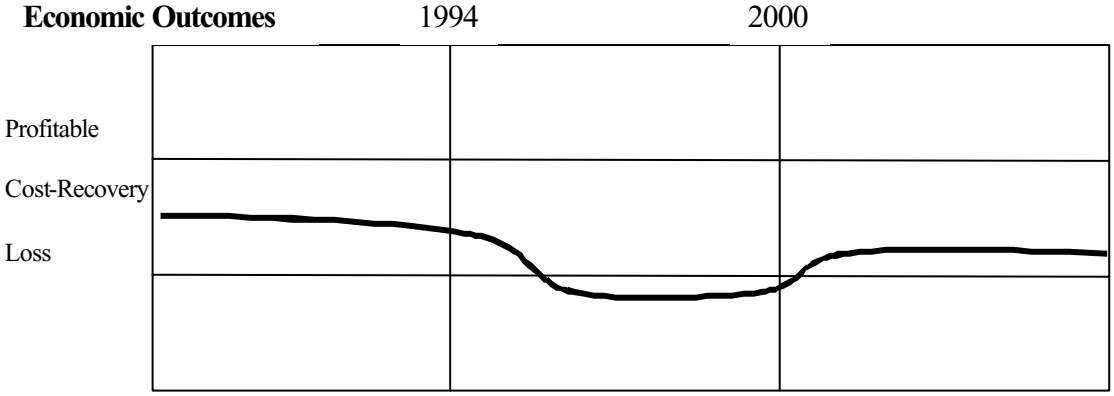
Ecological Outcomes



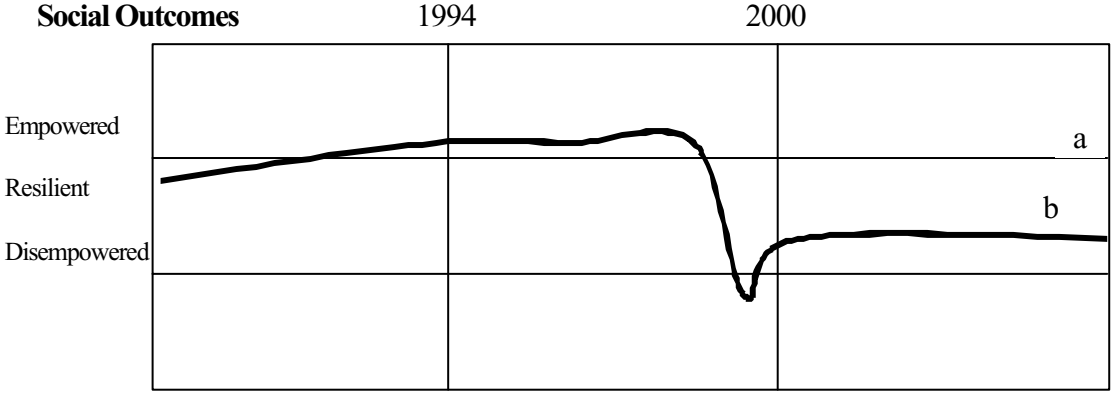
Herberton has highly varied environmental values in different parts of the shire. Despite the efforts of Herberton Shire officials to strategically address environmental issues on a regional scale, the qualities and trends of these environmental values remain unchanged. Some areas remain in their pristine, wilderness condition (a). In other areas, such as the towns and farmlands, the environments are not pristine, but they safely support human and some native animal and plant communities (b). In the degraded areas such as the old mine sites, and landfill, environmental values either remain low, or are continuing to gradually degrade (c).

Economic Outcomes



Herberton's efforts to collaborate strategically with regional neighbours has been a net cost to the Shire. The efforts made by Herberton to develop regional waste management solutions benefited those LGs in the region that will be able to participate in the proposed new system. But Herberton cannot afford the transport and disposal costs associated with the proposed system and has opted to reduce its costs by not participating further. Waste management in the shire still faces an uncertain future, but the new environmental requirements probably mean increased ongoing costs for this service.

Social Outcomes



Overall, this attempt at finding regional solutions while supporting local autonomy has been disempowering for Herberton Shire. Empowerment was increased during some of the negotiations, when it seemed that there was a chance to sort out some locally-relevant issues through collaboration and cooperation with neighbours. However the costs of ongoing participation, and the complexity of the administrative arrangements have proven too great. As a result, Herberton now simply has a greater awareness of the disadvantage facing it, due to its relative isolation and poverty.

Developing the Johnstone Plan

Case Study Q7: by Su Wild River. With assistance from Eddie McEchan (Chief Executive Officer, Johnstone Shire) and Bob Devine (Manager Environmental Services, Johnstone Shire Council).

Comparative Statistics for Johnstone Shire

Category	Measure	Comparison
Area (Sq/Km)	1,633	Bottom 44%
Population	20,000	Top 32%
Pop Sq/Km	12	Top 39%
Rate Content ($)	13,500,000	Top 25%
Expenditure ($)	20,000,000	Top 35%

Information Australia, 2000.

Since 1991, Johnstone Shire has been working on a holistic and strategic approach to managing its local area. *The Johnstone Plan* has been Australia's international showcase of Local Agenda 21 initiatives, and has also helped Johnstone to fulfil its new statutory planning responsibilities.

Johnstone is a coastal shire just south of Cairns City in Far North Queensland. It is a largely agricultural shire, which also benefits from the regional tourist industry. Johnstone's special environmental values include the great barrier reef just off-shore, tropical rainforests within the shire and region, and species, such as the endangered Cassowary within the Shire.

Like all other Local Governments (LGs) in Queensland, Johnstone Shire has been bound by the *Planning and Environment Act 1990*, to develop a statutory Town Planning Scheme, with the object of guiding future development. The Act had limited requirements either for public consultation, or the strategic integration of social, economic and ecological issues into planning decisions. This situation has changed now, with Queensland's *Integrated Planning Act 1997* now requiring all LGs to undertake comprehensive planning for sustainability.

Johnstone Shire however, was years ahead of its time. The newly elected Council of 1991 decided to prepare a new revised town plan. It adopted a set of objectives stating a desire for a participatory approach to planning and servicing the community. In partnership with key stakeholders, Council undertook a series of background studies, focusing on the Community Profile, Environmental values, Cassowary Habitats and Management, Catchment Management and Economic Development (Low Choy 1996).

Council also embarked on a community consultation process involving town meetings, press releases, press conferences, newspaper articles, newsletters, letter-drops and radio interviews. The initial 21 town meetings produced a list of 1,585 issues for the LG to address either directly or indirectly. This process led to the development of a community Vision for the Shire (see below), and a series of Partnership Building initiatives. The latter included 4 Community Consultative Committees, in the areas of;

- Economic planning,
- Environmental planning,
- Social planning, and
- Mission Beach and Environs Joint Planning (Low Choy 1996).

Johnstone Shire Community Vision

> The Shire will be a place which abounds with enduring natural beauty and resources, productive activity and a strong community sprit.
>
> It will primarily be a rural Shire, with successful and diverse agricultural production, supported by a broader industry base, including manufacturing, education, research and tourism.
>
> Sufficient opportunity will be available for people to be able to pursue employment, education and leisure, locally, to be well housed and to enjoy a relaxed and friendly lifestyle.
>
> Its natural resources, including soil, water, fauna, flora, minerals and air will be valued by the whole community and will be responsibly managed for the benefit of this and future generations.
>
> The Shire will be an inspiration to others for its initiatives in sound environmental planning, especially for ensuring the survival of a viable population of the endangered species the Cassowary, in its natural habitat.
>
> Council will be responsible and progressive in its management of the Shire.

Source: Shire of Johnstone, 1997a.

Decision making processes and strategic responses are outlined in the following table.

From Vision to Action, The Johnstone Plan

	Strategic Response		
	ENVIRONMENT	**SOCIAL**	**ECONOMIC**
Decision Making	Water Soil vegetation	Human Housing leisure	Agricultural Land bank tourism
Operational Plan	Water usage Waste water Construction practice	Integrated services Bikeways	Area promotion Concessions
Land Use Plan	Develop guidelines Environmental impact	Planned development, Developers' contributions	Attract industry, Protect industry Reduce land use conflict
Community Action Plan	Catchment management Tree planting Land care	Voluntary services	Area promotion Identify Opportunity

Source: Shire of Johnstone, 1997b.

Johnstone Shire made a great effort to make the Johnstone Plan into a central, and strategic element of Council's work. For instance, it established a direct connection between the Johnstone Plan and the Shire's Corporate Plan, and its physical Land Use Plan. Despite the implicit logic of this approach, such integration of different policies and plans is unusual. One implication of this 'radical' step was the challenge of finding appropriate people to drive the process. Johnstone Shire Council and management sought and hired a planner from interstate for the task. In doing so they hoped to avoid the appointment of an individual with assumptions about the potential for integrated and strategic planning for sustainability.

The expression of environmental values in the Land Use Plan has already delivered sustainability outcomes for Johnstone Shire. For instance, a recent development proposal aimed to locate small residential blocks on a rainforest escarpment visible from the main street of Innisfail. The development could not be stopped, because of the timing of the initial land zoning decades earlier. But the LG was able to negotiate with the developer to include conservation zones in the area, which are protecting both wildlife habitats and the visual amenity of the town. The blocks have also been arranged with sensitivity to natural features, and with much of the native vegetation left in place on the blocks (see photographs).

Figure 1: Rainforest escarpment where small residential blocks would have been placed. Now a conservation zone.

The Johnstone Plan has received worldwide recognition as a Local Agenda 21 (LA21). LA21 is an international program recognising that LGs are critical to the achievement of ecological sustainability. The Johnstone Plan is one of 14 case study examples of the Model Communities Program which developed and tested planning approaches to integrate principles of sustainability into local decision making processes. These have been used by the International Council for Local Environmental Initiatives, to help develop models to assist other LGs to develop their own LA21s. It was the only Australian LG to be selected as such a case study.

Figure 2: native vegetation retained on the development site.

Figure 3: mangroves at sunset near the mouth of the Johnstone River.

References

Information Australia. 2000. *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne: Information Australia

Environments: Myths, Models and Milestones, Conference Papers, Sydney, November 28-29, 1996:65-69.

Shire of Johnstone 1997a, *The Johnstone Shire Planning Scheme.* Innisfail: Shire of Johnstone.

Shire of Johnstone. 1997b. "The Johnstone Plan: A Partnership for Sustainable Development". Brochure, Innisfail: Shire of Johnstone.

Q7: Developing the Johnstone Plan

Perspective: LG
Role: Manager
LG type: Other LG (rich, compact, populous)
Focus: Planning

Context Issues
The discontinuity in 'origins' is because the Johnstone Plan originated from local issues, and the international framework for LA21 was seen to provide a good model for achieving these.

Context continuums

Scale
<local **local** **regional** state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local **local** regional state national **international**

Goals
- Develop a Local Agenda 21 for the local area.
- Improve planning processes so that they address environmental, social and economic issues.
- Attract skilled, innovative, visionary local planner to the position.

Drivers
- International Local Agenda 21 program - helped with marketing and keeping commitment through perceived legitimacy of efforts,
- Grants from outside - only taken if they fitted what Johnstone Shire Council was already doing,
- Funding provided by council over 5 years,
- Getting the right planner - someone who was really excited by the job.
- Enthusiasm and vision within Council and senior LG managers, especially Mayor, CEO.

Processes
- Council's initial decision to allocate $70,000 in 1991 corporate plan, for the planner. A further funding commitment to complete the process made the total cost about $700,000 over 5 years,
- Develop the Johnstone Plan - a community plan that is bigger than a simple town plan. Incorporates the town plan, corporate plan, and various strategies covering economic, social, environment and development issues. Johnstone Plan provides the coherence and overall vision for components,
- Council had strong ideas about what was wanted - especially a non-Queensland social and town planner, who would be able to think beyond standard limitations.

Constraints
- Onerous process of doing a new town plan, due to SG administrative frameworks,
- Getting people who knew what they were talking about,
- Outside people were offering off-the-shelf models, but Johnstone wanted their own, unique vision for their own unique area.

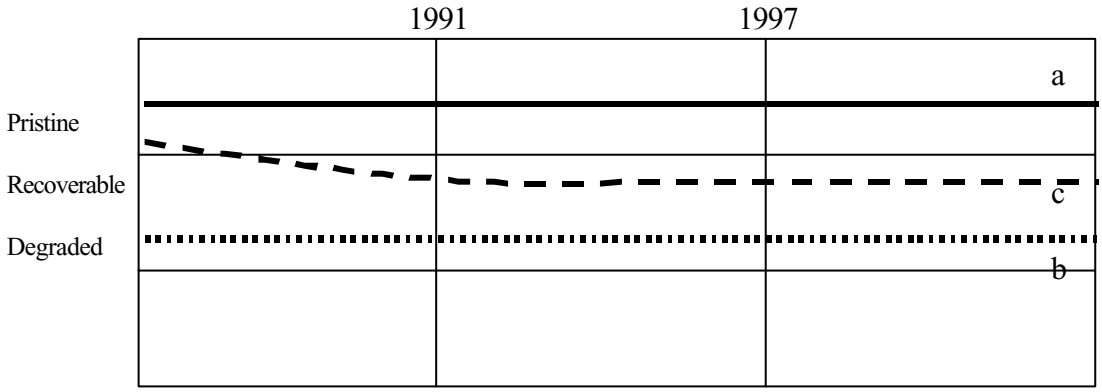
Outcomes
- New planning provisions, including 'conservation zones' to deal with remnant vegetation.,
- Formal integration of environmental, social and economic needs,
- New plan reflecting aspirations of the community

About the Models

The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the ecological, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

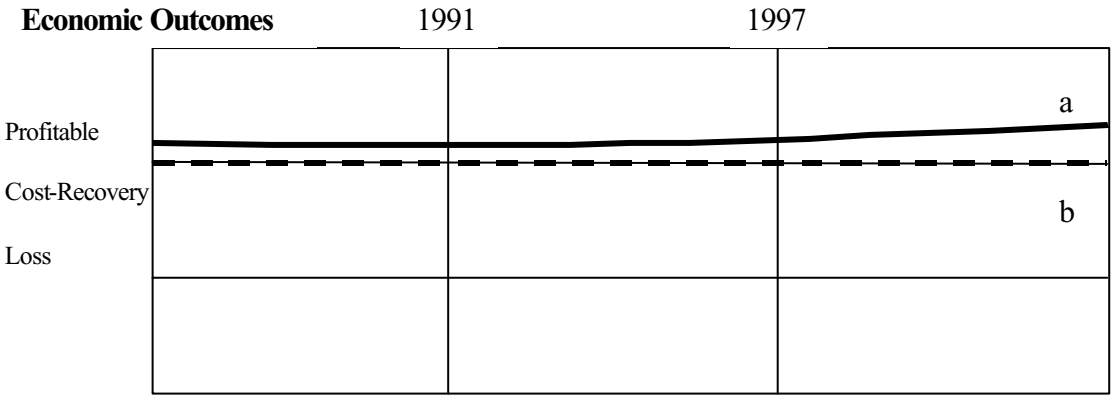
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



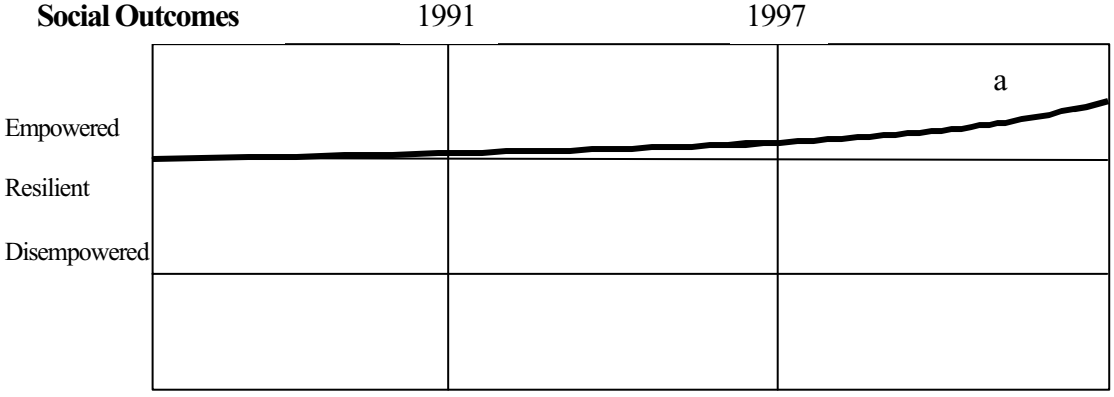
Environmental values in Johnstone Shire include some pristine areas, some agriculture (predominantly sugar cane), and some areas subject to development pressure. The Johnstone Plan protects the pristine areas (a), and the capacity for continued agriculture in the Shire (b), and is reducing the environmental impacts of those developments that are still going ahead, while also limiting the possibility of further developments in some areas with high conservation values (c).

Economic Outcomes



The Johnstone Plan has a high emphasis on retaining and enhancing the sustainable profitability of local economic activities such as agriculture and existing small tourism ventures, as well as the developments that are occurring. It does not encourage much tourism, major new developments or many other new ventures (a). It limits the maximum levels of profitability of proposed developments with prior approvals, by imposing conditions on them to promote sustainability. However these restrictions are unlikely to result in losses to the developers, since the environmentally friendly products and results can return higher prices per unit, because of their environmental values, and sound profits are still very feasible (b).

Social Outcomes



Social needs for the local population are accommodated well in the Johnstone plan, both through the consultative processes that led to it, and in the outcomes expressed in the Plan. Interestingly, the Shire has clearly articulated its desire not to become a major tourist centre, but instead aims to meet the needs of the permanent population over the long term.

Johnstone Shire Fulfilling its Statutory Responsibilities under the *Queensland Environmental Protection Act 1994*

Case Study Q8: By Su Wild River. With assistance from Bob Devine, Manager Environmental Services, Johnstone Shire Council.

Comparative Statistics for Johnstone Shire

Category	Measure	Comparison
Area (Sq/Km)	1,633	Bottom 44%
Population	20,000	Top 32%
Pop Sq/Km	12	Top 39%
Rate Content ($)	13,500,000	Top 25%
Expenditure ($)	20,000,000	Top 35%

Information Australia, 2000.

Johnstone Shire has worked to implement the Queensland *Environmental Protection (EP) Act 1994,* along with all other Queensland local governments. However there are many activities which have environmental impacts in Johnstone Shire and it was initially difficult for Council to accept and then to convince the affected business community of the need for action to be taken as required by the Queensland EP Authority. Significant costs had to be carried by the business community and local government was made to look like the 'bad guy' in the picture as a result of devolved responsibility from the State Government. Six years later the business community has generally accepted the relevance of the EP Act and now questions when agricultural activities will have legislation to require compliance with the same Act.

Johnstone is a coastal shire just south of Cairns City in Far North Queensland. It is a largely agricultural shire, which also benefits from the regional tourist industry. Johnstone's special environmental values include the great barrier reef is just off-shore, the Daintree Wet Tropics just to the north, and species, such as the endangered Cassowary within the Shire.

Johnstone Shire, along with all other Queensland local governments (LGs) was required to implement the *Queensland Environmental Protection Act* (EP Act) from March 1995. This meant both that Johnstone Shire had to licence devolved Environmentally Relevant Activities (ERAs) in the local area, and also to ensure that Council-operated ERAs were licensed by the Queensland Environmental Protection Agency.

Johnstone issued 130 environmental authorities to local businesses during the first year of their implementation program, and a further 43 the following year. The licences required that businesses avoid water, air and noise pollution. Requirements like redirecting liquid wastes away from stormwater systems, covering and bunding waste storage, and encouraging recycling were among the common licence conditions. For it AP Act implementation efforts, Johnstone Shire received A total of $59,000 in fee relief payments from the State Government (QDEH 1995, 96).

Because it sought to be a responsible local government, Johnstone Shire was committed to effectively implementing the EP Act, and meeting all of its statutory commitments under that legislation. Council employed an additional person to implement its responsibilities under the Act and resolved not to recover the costs of implementation from the business community via annual fees, but to finance the work via general revenue. Council also commissioned consultants to prepare an Integrated Environmental Management System (IEMS) to assist staff to manage all of Council's environmentally relevant activities. The IEMS was adopted by Council in January 2000.

The Far Northern Region of Queensland brought about an overall environmental risk reduction of 15% in the first three years of EP Act implementation. This was a significant risk reduction, despite being the lowest reduction by any Queensland region. The inherent risk of activities in the Far North was lower than for most other regions, and medium level overall. The residual risk in the Far Northern region was calculated at 49% of total risk, making it the region with the highest residual risk in 1998 (Wild River 1998, pp. 44-46).

References

Information Australia. 2000. *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne: Information Australia.

Shire of Johnstone. (undated). *The Johnstone Plan: A Partnership for: Sustainable DevelDevelopment.* Brochure, Innisfail: Shire of Johnstone.

QDEH (Queensland Department of Environment and Heritage). 1994-1996. *Annual Reports for 1994-95 and 1995-96 Administration of the Environmental Protection Act 1994*. Brisbane: Queensland Government.

Wild River, S. 1998. *Statewide Benchmarking Study.* Canberra: Australian National University.

Q8: Johnstone Shire Fulfilling its Statutory Responsibilities under Queensland's *Environmental Protection Act 1994* (QEPA)

Perspective:	LG
Role:	Manager
LG type:	Other LG (rich, compact, populous)
Focus:	Protection

Context Issues.
-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Fulfill statutory responsibilities under QEPA,
- Meet business needs for information and support,
- Achieve pollution prevention outcomes in Johnstone Shire,
- Ensure consistent implementation with other LGs in region.

Drivers
- QEPA
- Good support from Environmental Protection Authority, Regional and Central Offices, through training and information kits,
- New staff member hired - full time for one and a half years, then part time on EP Act work.

Processes
- Additional staff required and hired,
- QEPA not welcomed, especially by current Council, but finally accepted,
- Culture in Council gradually shifting towards acceptance of QEPA and its requirements.

Constraints
- Poor 'selling' of QEPA. Seen by local businesses as another unnecessary and useless imposition by government,
- Timing of training was too late,
- Training was time consuming,
- QEPA not all in place, and unlikely to be for years. On the spot fines and other enforcement components not in place, at the time of proclamation,
- No solutions about how to solve problems in own licences. No facility in North Queensland for regulated waste, therefore hard to meet licence conditions,
- Financial cost of own licence fees and effort to develop integrated licence,
- Financial cost of licence fees to local businesses. Council decided not to charge full fees for cost-recovery, but to cover costs from general revenue.

Outcomes
- Cultural shift in Council towards environmental protection issues,
- Obtain own licence and fulfil all feasible licence requirements,
- Community more convinced of environmental stewardship roles and benefits of compliance,
- Reduction in the risk of environmental harm in the local area.

About the Models

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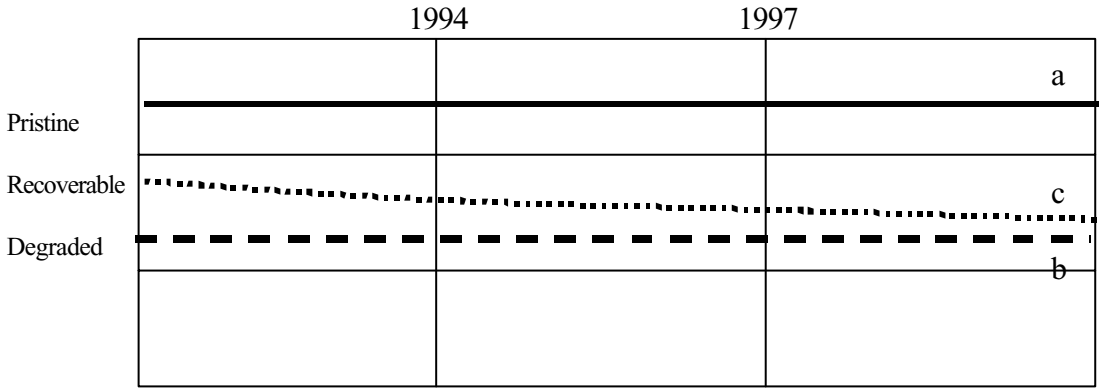
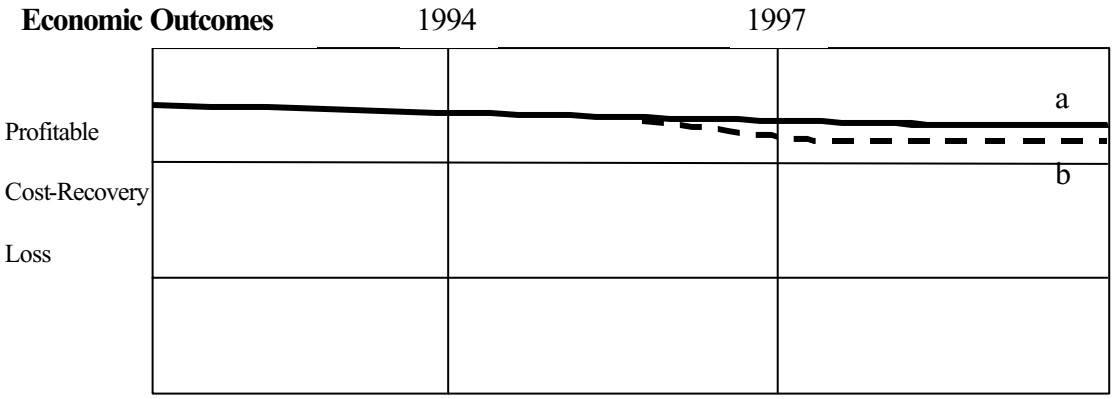
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



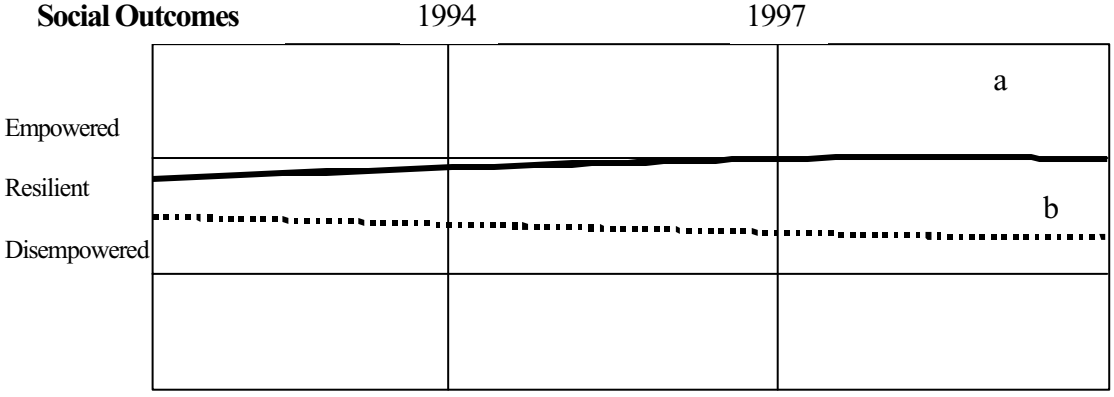
Johnstone has highly varied local environmental values, which to date have been little affected by the EP Act. Some extensive parts of the Shire are pristine wilderness areas (a). Some are agricultural lands, which are largely unaffected by QEPA (b). The EP Act has not, and is unlikely to stimulate any changes to environmental values or management at these areas. Despite a fairly minimalist approach to QEPA implementation by Council, small environmental improvements, with a slowing of pollution, appear to be resulting from EP Act and association legislation (c). These efforts would be enhanced by real solutions to problems such as hazardous waste disposal.

Economic Outcomes



Johnstone Shire boasts a sound local economy, with most businesses making a reasonable profit. Environmental improvements to comply with the EP Act often have a small immediate cost, which is rarely recoverable. Johnstone has hired an officer to take charge of QEPA implementation, and is unlikely to recoup the costs of this, or the development of its Integrated Environmental Management System through licence fees. Licence fees are also a source of costs to local businesses. Line (a) is the cost curve for Johnstone Shire if it charges businesses the fill fees, with line (b) then being the line for businesses who pay the fees. If Council decides not to charge full fees, then the lines are reversed.

Social Outcomes



The learning within Council about environmental management issues, and acceptance of the importance of these was slightly empowering for Johnstone Shire (a). Local business people did not believe that QEPA was necessary. The implementation process was slightly disempowering for them, since it went on regardless (b).

Far North Queensland Regional Waste Strategy

Case Study Q9: by Su Wild River, with Terry Davidson (Manager Environmental Assessment, Cairns City), Mike Berwick (Mayor, Douglas Shire).

The Far North Queensland Regional Waste Management Project is breaking new ground in both regional cooperation and beneficial reuse of waste. The Project addresses federal and state policy directives to reduce the quantity of waste to landfill across Australia. The project also draws on strategic planning initiatives from across Queensland's Far Northern region. Cairns, Douglas and Mareeba councils will all use the new waste facilities. These councils currently produce 85% of the region's waste, and the new facility will provide beneficial re-use of 70% of that waste.

Queensland's far north region is a remote, tropical area in Australia's second-largest state. It has rich, deep soils, high summer rainfall, and an abundance of unique environmental values. These include the Wet Tropics World Heritage area that takes up much of the region, and the Great Barrier Reef offshore.

Geological features place many important constraints on development in far north Queensland. The Great Dividing Range that stretches down most of eastern Australia is very close to the coast in the far north region. Around Cairns for instance, only a few kilometres separate the ocean from the range. This restricts the size of the City, and its ability to provide essential services such as water supply and waste management. Much of the coastline has acid-sulfate soils, restricting construction activities. These features leave few sites for waste facilities, and other public infrastructure. Significant regional development in the area has placed further pressure on scarce land resources, while also increasing the demand for services.

Meanwhile, there have been significant shifts in local, national and international thinking about waste management. In 1992, the Australia and New Zealand Environment Conservation Council set a target of 50% reduction of waste to landfill by the year 2000. This target has been adopted as a goal by many Australian local governments, including those in Far North Queensland.

Waste management has been a big technical and political problem in the region for decades. There is currently no licensed facility available to take many of the regulated wastes produced in the region. Yet the *Queensland Environmental Protection Act 1994* and *Environmental Protection (Interim Waste) Regulation 1996* require that these wastes only go to a regulated waste facility. This creates clear legal and practical problems for the region. Recycling options and markets for recycled goods are also limited.

Waste management is also a long-term political and practical problem in the major centres. For instance, in 1988, Cairns City Council came under fire from the local community and media over its release of thousands of litres of contaminated stormwater and leachate into the ocean, at a Trinity Inlet. The contaminated waste originated from the Portsmith Dump, operated by Cairns City Council (see Schofield, G. 1988. p.1). Only 10 days later the local government election removed 5 of the incumbant council, including the Mayor and Deputy Mayor, in favour of the 'Alliance' party, which promised to stop refuse dumping on tidal wetlands. In particular, it promised to solve themost persistent problems of the dump, particularly the leaking of leachate into Trinity Inlet (Shears, G. 1988. p.1).

In 1996 and 1997, the Far North Queensland Regional Organisation of Councils (FNQROC) developed a strategy for regional waste management. However, of the nine local governments within FNQROC, only Cairns, Douglas and Mareeba elected to proceed with the project. Others were unable to continue due to financial constraints. Together, these three represented 85% of the available solid waste within the region.

In addition to their regional focus, several features of the far north Queensland approach are particularly noteworthy. For instance, the project was for a build-own-operate system. This means that the successful contractor would take on all three of those roles, while the local governments involved will not control the contractor or the project. This has balance sheet advantages, that were carefully weighed against the risks entailed by the loss of control. The local governments' statutory and inherent responsibility to ensure environmental best practice in the operation of the plant is instead accounted for under the Expressions of Interest and Tender Documents. These did not proscribe any particular technologies, but instead invited

the waste management industry to supply the solutions that would best cater for the waste management needs of the region. Specifications were included for the outcomes, including high levels of waste being directed to beneficial re-uses. Another key, novel element of this system was that it was to deal with the entire waste stream, including sewage and landfill waste (Davidson, 2001).

At the time of writing, the contract has been signed by all three of the local governments involved, with only one councillor dissenting from this approach amongst all of the councils. The total cost of the project is estimated at $35 million, and just under $700,000 has been spent developing the documentation. This cost is well within relevant industry standards for developing such documentation, and represents a judicious and economic use of resources (Davidson, 2001). The local governments involved consider that many of the lessons learned during the development of the project documents have value beyond this region. There is a chance that these might be made available to others.

References

Davidson, T. 2001. "Regional Waste Management Project Contract No. 1396. Cairns City Council. Unpublished.

Information Australia (2000). *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne.

Shears, J. 1988. 81 to Alliance. *The Cairns Post.* Cairns. p.1

Schofield, G. 1988. Release of dump waste 'accidental'. *The Cairns Post.* Cairns. p.1

Q9: Far North Queensland Regional Waste Strategy

Perspective: LG
Role: Manager/ Councillor
LG type: Region
Focus: Protection

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals

- Ensure long-term disposal and recycling options for local and regional wastes,
- Meet statutory requirements for regulated waste disposal,
- Achieve regional cooperation, for optimal outcomes from efforts,
- Cooperate and coordinate with SG regional offices.

Drivers

- Support from specific groups within the community, (waste transporters, some industry, others with interest in waste management), partly from historical problems with existing landfill site and management,
- Support from other LGs in the region,
- QEPA staff - time, effort, expertise, information,
- SG funding (about a quarter of the total funding needs)
- 5 year term for current council, due to amalgamation between Cairns and Mulgrave, assists long-term, strategic initiatives.

Processes

- Realisation that within the Cairns City boundary, there would not be sufficient landfill sites to accommodate City's waste in the medium term,
- Realisation amongst councillors that this poses a significant problem for Cairns City,
- EP Act, Waste Environmental Protection Policy and other SG statutory requirements to improve waste management,
- Regional waste management group, with long-term membership, goals, and SG and LG regional partnerships. No dialogue with CG.

Constraints

- Uncertainty about whether the market will supply a provider for the required waste services, at an affordable price,
- Uncertainty about CG position. In relation to many issues.

Outcomes

- Maximisation of recycling opportunities (given the remote location of the region),
- Moving towards ecologically sustainable development, through the recycling initiatives,
- Improving compliance with the EP Act,
- Achieving lowest feasible cost for waste management in the long term.

About the Models

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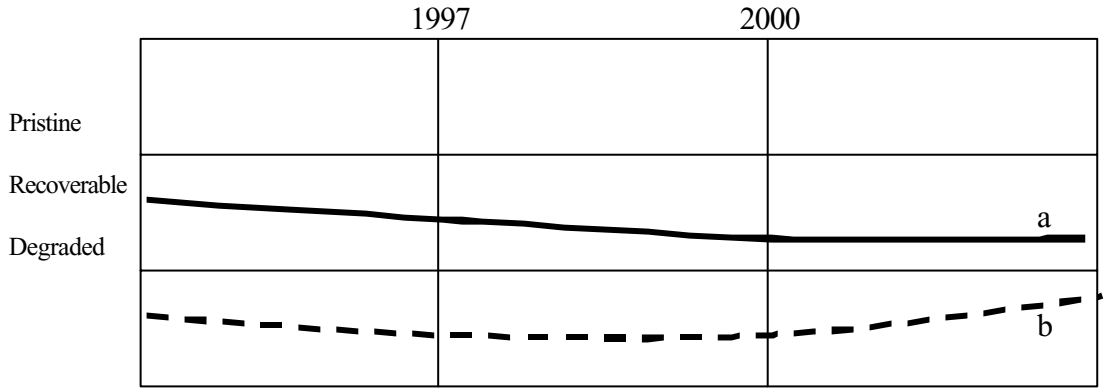
Other Notes

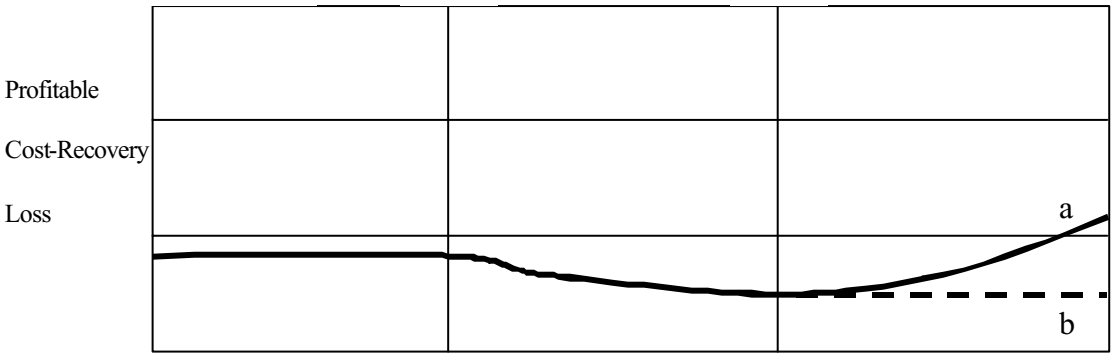
Many Local Governments, and the State Government have worked together to develop and implement the Strategy.

Ecological Outcomes



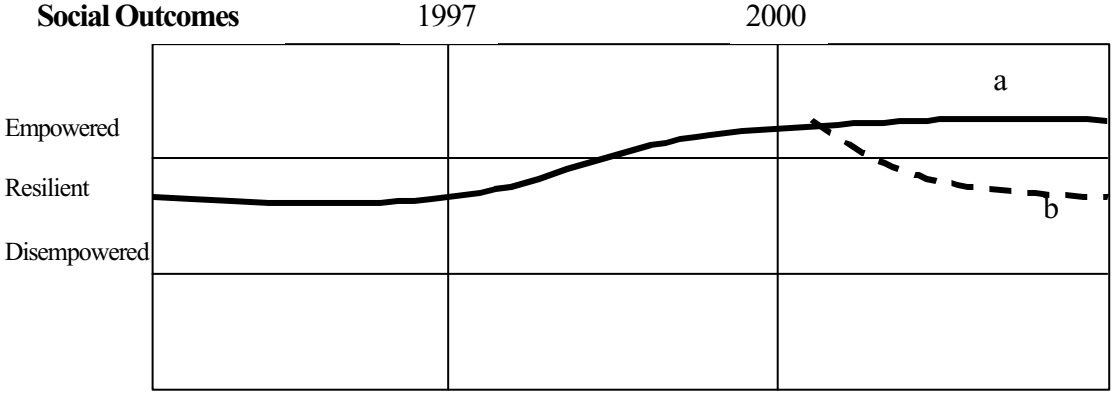
The context for waste management is of gradual degradation in environmental values, through resource loss and local pollution of landfill sites. These also have the potential to pollute groundwater and degrade other environmental values. The regional waste strategy has the potential to reduce this degradation, and possibly even halt it, through recycling and sound landfill management in optimal locations (a). In addition, the provision of better alternative landfill sites could enable some recovery of existing sites (b).

Economic Outcomes



Waste management has historically been a costly exercise, since landfill operation has typically make a loss. New EP Act requirements add to these costs, as does the effort of establishing the regional waste strategy. If efforts to establish recycling processes are successful, and regional cooperation provides a more efficient and effective system, then the net costs might shift to a cost-recovery system (a). If not, then ongoing costs are likely (b).

Social Outcomes



The process of developing and starting to implement the Regional Waste Strategy has been empowering for LGs, the SG, the local and regional waste management industry, and concerned community members (a). The future selection of sites for regional waste facilities may disempower communities in surrounding areas, but with careful management, the populations could be resilient to the changes, and may even benefit in some ways.

Cairns City Council Environment Plan

Case Study Q10: By Su Wild River. With assistance from Linda Kirtchener (Project Officer, Strategic Planning, Cairns City Council).

Comparative Statistics for Cairns City Council

Category	Measure	Comparison
Area (Sq/Km)	1,681	Bottom 44%
Population	130,000	Top 6%
Pop Sq/Km	77	Top 27%
Total Income ($)	113,957,207	Top 3%
Rate Content ($)	75,099,127	Top 2%
Expenditure ($)	85,221,675	Top 6%

Information Australia, 2000

The Cairns City Council Environment Plan has been developed in the wake of the amalgamation of Cairns with the former Mulgrave Shire Council. It aims to integrate approaches to environmental issues across all of the new Cairns City.

Cairns City Council is the regional centre of far north Queensland. It is "a long, narrow coastal strip edged between the Coral Sea and part of the Great Dividing Range" (Cairns City Council. 1998. p.3). It includes several major national parks, the state's highest mountain peak, and is the gateway to the Great Barrier Reef and Daintree Rainforest World Heritage areas. The Cairns region The area's population growth is more than 3.5 per cent, which is twice the State and national average (Ciarns City Council, 1998).

The current city of Cairns was formed in 1995 through the amalgamation of the urban Cairns City, with the surrounding, largely rural Mulgrave Shire. The amalgamation was one of just three that occurred in Queensland at the same time. Each involved a geographically small city centre, and larger surrounding Shire. The amalgamations were decided through agreement between state and local governments. They aimed to increase the capacity of the new local governments to undertake effective, long term strategic planning and management of infrastructure and local services.

Councillors were elected to the new Cairns City Council on very long, 5 year terms. This was to off-set the disruption caused by the amalgamation, at least at the political level, allowing the new, larger local government to stabilise. The merging of two very different local government structures and cultures required strategic thinking and action, as well as cooperation between individuals in different parts of the council. This provided stimulus and resources for broad, integrating initiatives. Many councillors and managers considered that environmental management was an area demanding input from many parts of the new local government. This would allow the coordination of local ecological, economic and social issues together. The proposal to develop an environment plan for the new council quickly received high level support from councillors and managers.

Cairns City officials worked to include all relevant sections within the local government in developing the environmental plan. The executive management team, including the chief executive officer (CEO) became involved, to coordinate efforts across the local government. The infrastructure and strategic planning group took on the role of project management, with the goal of achieving ownership by all operational departments. Planning, environmental health, engineering, waste management and other relevant departments took part. A budget of $30,000 was provided in 1997, with other money to be provided in subsequent years.

Although the amalgamation had provided a stimulus for this coordination, it created some barriers to it too. Operational parts of Cairns City that dealt with environment, social and economic issues were segmented after the amalgamation. Within each section of the new council, there were major, urgent challenges bringing together the systems and policies from the previous two local governments. It was often difficult for council staff to prioritise relevant sections of the environment plan while dealing with their own internal coordination.

The Cairns City Environmental Plan also drew on some initiatives at broader scales. Local Agenda 21 models were used to help articulate sustainability goals. The Far North Queensland 2010 strategy was also useful. Cairns and Mulgrave had both previously worked towards the strategy with other local governments in the region, and this broader perspective included a pre-existing set of environmental goals that had been agreed by both Cairns and Mulgrave councils.

The local community also became involved in developing the plan. Council established an

environmental reference group from the Cairns community to help set the policy direction of the new plan. The reference group included agencies such as the Cairns and Far North Environment Council and other conservation groups, the Aboriginal and Torres Straight Islander Commission, some tourist operators, members of the development industry, and representatives of relevant state government departments.

The consultative approach to developing the plan enabled a broad consensus to be gained about community goals for the local environment. For instance, the development and tourism sectors were highly involved in developing the plan. They participated in workshops, and made many written submissions. These were wary of an over-emphasis on purely ecological issues, and stressed that a balanced approach was needed. This would consider the communities' social and economic needs as well as the need to protect and enhance the natural environment.

The final plan consists of an Environmental goal for regional resource management. That is:

> "to promote and advance the principles of ecologically sustainable development within the greater Cairns region in a way that maintains the unique natural attributes of the area, and provides protection for its diverse ecology" (Cairns City Council 1998. p.5).

This goal is to be achieved though six objectives which relate to the region's key environmental values. These are:

- "Preservation and enhancement of catchment values through sustainable land management practices,
- Minimisation of downstream impacts on marine ecosystems,
- Identification and protection of significant fauna and flora habitats,
- Development and adoption of Environmental Management Plans for areas of significant ecological and/or aesthetic value,
- To foster the development of co-operative relationships, through intersectoral collboration, advocacy and consultation, that work to establish environments that promote community health and wellbeing, and
- To support the celebration of our diverse multi-cultural community and recognition of significant cultural places within the built and natural environments": (Cairns City Council. 1998. p.6).

These objectives are to be implemented through Council's 12 existing program strategies. Specific 'intents', 'targets', and 'actions' have been established by the Environmental Plan, and embedded into those existing programs. They are also all represented in the Council's Operational Plan.

For example, the first objective (preserving catchment values) will be achieved with the aid of several targets within the 'Water Supply', 'Sewage', Public Health and Safety', and Stormwater' programs. Specific targets include incorporating environmental flow requirements into current and future water infrastructure planning (Cairns City Council. 1998. P.14).

The section responsible for implementing each of the targets is also identified in the Environmental Strategy. Goals for the timing of initiatives are also listed. This level of detail should help to ensure transparency and accountability in delivering the environmental outcomes under the Plan.

References

Cairns City Council. 1998. *Environment Management Plan.* Cairns: Cairns City Council.

Information Australia. 2000. *Australian Local Government Guide, 28th Edition. July 2000-November 2000.* Melbourne: Information Australia.

Q10: Cairns City Council Environment Plan

Perspective: LG
Role: Manager
LG type: Other centre (rich, compact, populous)
Focus: Planning

Context issues

-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals

- Move towards ecologically sustainable development in the local area
- Integrate environmental, social and economic goals across council,
- Meet SG requirements related to environmental values
- Put international models for Local Agenda 21 to use in Cairns,
- Compile State of Environment Reports as required.,
- Implement regional strategy - Far North Queensland 2010

Drivers

- Tourist industry, when it promotes ecotourism,
- Cairns and Far North Environment Council and other conservation groups getting involved.
- Aboriginal and Torres Straight Islander Commission involved through specific contacts,
- SG Department that was previously known as 'Family Services' enthusiastic about the sociological component
- Budget of $30,000 in 1997, and other money in subsequent years.,
- Amalgamation provided some stimulus and resources to coordinate ecological, economic and social local issues.

Processes

- Assist the resolution of different perceptions of ecologically sustainable development in Council,
- Community environmental reference group involved in setting policy directions,
- Executive Management Team, including the CEO involved to coordinate efforts across LG,
- Environmental Reference Group with mentoring and referral agency role,
- Infrastructure and Strategic Planning group involved in project management, with the goal of achieving ownership by all operational departments

Constraints

- Competing pressures
- National Development Industry Association constantly trying to limit any proposed constraints to development, such as vegetation controls,
- Parts of the community opposed the plan, due to perception that environment and development don't mix,
- Challenge of prioritising limited funds to environment plan, within overall work requirements of council,
- Operational parts of LG dealing with environment, social and economic issues, segmented after the recent amalgamation. Hard to coordinate.

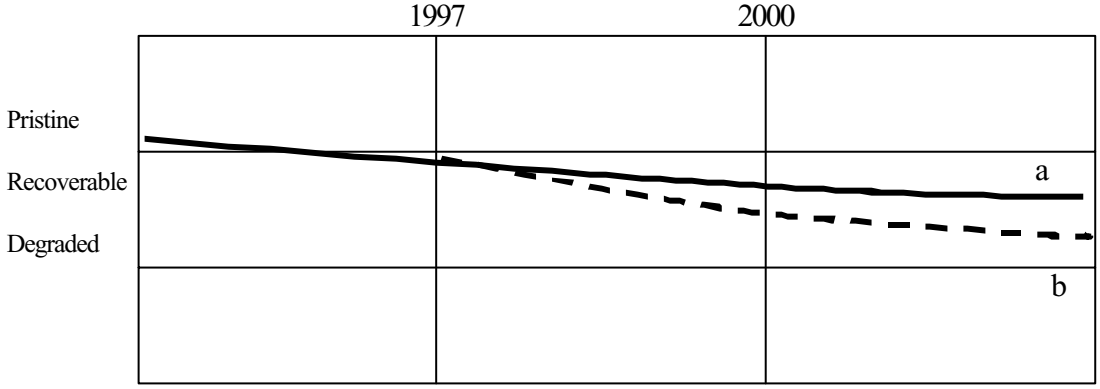
Outcomes

- Meeting SG general environmental requirements,
- New LG structure and culture more open to ecologically sustainable development objectives,
- LG in good position to implement its parts of FNQ2010 strategy,
- LG able toulfil some components of Local Agenda 21, with inherent sustainability outcomes,
- Community more trusting of LG initiatives, due to local environmental reference group.

About the Models

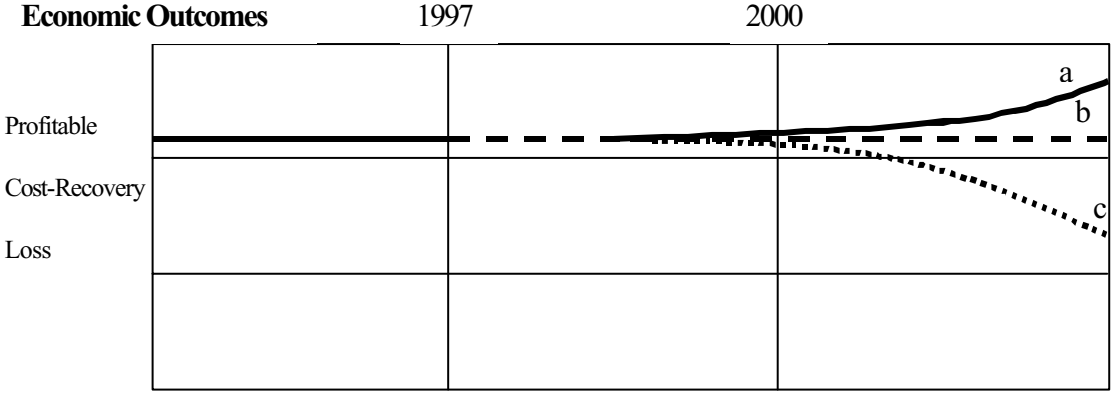
The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the ecological, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

Ecological Outcomes



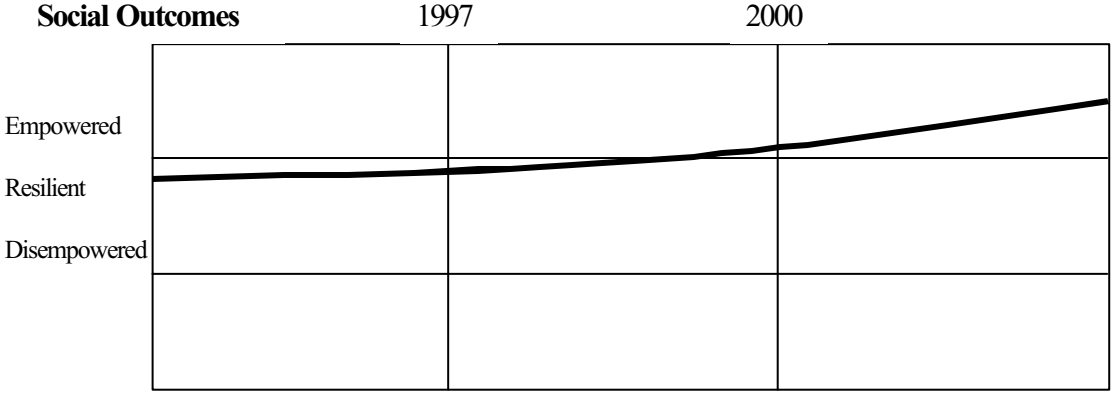
The context for the environmental plan is of gradually (and sometimes quickly) degrading environmental values, in a region with high environmental values. The environment plan has a strong potential to reduce the rate of degradation of environmental values. Because many potential developments have existing approvals, the reduced degradation will be slow to eventuate in some areas (a). However, in the absence of the plan, local environmental degradation would have proceeded at pre-plan rates (b).

Economic Outcomes



Sound, integrated environmental, social and economic planning has at least the capacity to retain profitability of businesses that operate consistently with the plan (b). Some businesses, such as those involved in ecotourism have already recognised that increased profitability could result from the environmental plan over the long term (a). Others, such as those which inherently compromise the environment, may face losses, and have therefore been opposed to the plan (c).

Social Outcomes



Sections of the community that have been involved in the community groups working towards the plan have found this an empowering experience. The direct link to Council decision making processes, provided by the Councillor members of the groups support and enhance this LG responsiveness to community issues.

Douglas Shire Development and Population Cap

Case Study Q11. By Su Wild River, with Mike Berwick (Mayor Douglas Shire Council)

Comparative Statistics for Douglas Shire

Category	Measure	Comparison
Area (Sq/Km)	2,386	Top 47%
Population	9,700	Top 46%
Pop Sq/Km	4	Top 49%

Information Australia, 2000

Douglas is a coastal Shire in Queensland's Far Northern Region. From 1990 to 1995 it had an average annual population growth rate of 2.9%, making it one of the fastest-growing local areas, in a fast-growing region and state. It has a strong local economy based largely on agriculture and tourism. In 1995 agriculture made up 24% while retail trade 17%, and tourist accommodation, cafes and restaurants made up 12% of local business (ABS 1997).

The development pressures facing Douglas are particularly challenging, because of the very high ecological values throughout the Shire. Most of the Shire is designated either World Heritage Area, or Area of High Biological and/ or Scenic Value. In addition to the Wet Tropics World Heritage Area within and around Douglas, the Shire also borders the Great Barrier Reef, and is a popular entry point to both areas (DSC undated p. 1.3).

Douglas' current strategic plan emphasises a need to balance different environmental, economic and social values throughout the Shire. Implicit in this plan is a move towards a population cap for Douglas Shire. The Plan also includes various practical strategies for keeping development within sustainable bounds.

The Plan starts by stating the central aim of the Planning Scheme, which is to:

> "provide for development which is consistent with the protection of the Shire's natural environment, the preservation or in some cases improvement of the character and quality of landscape experience, the maintenance of the sugar industry, the development of a sustainable tourism industry based on the Shire's special characteristics, and the development of pleasant and functional residential settlements" (Douglas Shire p. 1.2).

The aim is intended to be achieved by specifying the fine balance between development and conservation, that allows the shires attractions to be enjoyed, but acknowledges the following principles:

> (a) "the Shire's environmental qualities are valuable and vulnerable to change;
>
> (b) the Shire's infrastructural resources are relatively scarce;
>
> (c) some forms of development are not appropriate and therefore undesirable in the Shire; and
>
> (d) there may be a need to limit the extent of development to maintain the Shire's intrinsic desirable attributes." (DSC undated, p.1.2).

Some of the strategies for achieving the aim include the concentration of developments within the Shire's two urban centres of Port Douglas and Mossman. Development Control Plans now require compact development within those towns. The Plan also states

> "Among other things, the Strategic Plan and the Development Control Plans prescribe a maximum level for urban growth and development of tourist and other facilities, which is not be be exceeded in the life of this Plan; the option to limit growth permanently to this level is to be preserved for the duration of this Plan" (Douglas Shire 1.3)

It is surprisingly radical for a Local Government to intentionally place a cap on development in this way. Douglas Shire puts great emphasis on defending its decision to do so within its Plan. Its arguments rely largely on the practical integration of economic, ecological and social issues, as shown in the following quote.

> "The Planning Scheme provides for growth only up to a defined threshold, as beyond that level, the demand to upgrade to four lanes, the Captain Cook Highway between Simpson Point and Port Douglas, will become more difficult to resist; in addition, the need for other significant infrastructure commitments will increase, there will be further losses of sugar cane land, and there may be deterioration of ecological landscape, recreational, tourism and lifestyle values. Any decision to allow development beyond that level will be deferred until the end of the life of this Plan, in part to provide the opportunity to make a better informed decision in the future, and in the light of prevailing circumstances at that time" (DSC undated, p. 1.4).

This justification of the development and population caps was necessary for several reasons. First, the Council needed to obtain local community support for the restrictions, which might have restricted business opportunities for some locals. Second, although Douglas Shire developed its own strategic plan, and lives with its consequences, the plan itself was subject to approval by the State Government. Such approval was resisted, because of the State's perception that there might be negative consequences for development throughout the region. The shire was successful in negotiating the plan through both hurdles. The restrictions however, are only assured for the life of this Strategic Plan.

At the time of completing this case study, Douglas Shire was developing its new Planning Scheme, as required by the *Queensland Integrated Planning Act 1997*. The development and population cap issues have been discussed as part of this process. Recommendations have been tabled both to reduce the controls, and to further enhance this process seems likely to result in the continuation of the restrictions within the current boundaries.

Figures 1 and 2 below show some of the local environmental issues and the values that are being protected through development restrictions. Figure 3 shows a sign posted at a site where the Daintree Rescue Program is helping to improve and protect wildlife as part of a regional effort.

Figure 1: Town water pipe beside the road, in rainforest at Mossman Gorge.

Figure 3: Daintree Rescue Program sign shows an area where Local and State Governments cooperate for environmental outcomes.

Figure 2: Beachfront mangroves at Cape Tribulation

References.

ABS (Australian Bureau of Statistics). 1997. *1996 Regional Statistics: Queensland. ABS Catalogue 1314.3*. Canberra: ABS.

Information Australia. 2000. *Australian Local Government Guide, 28th Edition, July 2000-November 2000,* Melbourne: Information Australia.

DSC (Douglas Shire Council). Undated. *Planning Scheme,* Mossman: Douglas Shire Council.

Q11: Douglas Shire Development Population Cap

Perspective:	LG
Role:	Councillor (Mayor)
LG type:	Other LG (rich, extensive, populous)
Focus:	Planning

Context continuums

Scale

<local local regional state national international

Flexibility of Process

Full mostly equal partial none

Origins of initiative

<local local regional state national international

Goals

- Retain or achieve capacity of local environment to support a sustainable population,
- Retain and enhance local tourist industry, based on environmental values,
- Retain and enhance local agricultural industry.

Drivers

- Supportive population, environmental mandate through election campaign,
- Mayor's position, (car secretary, phone, office)
- Personal resources of Mayor (time),
- Land use planning laws with wide provisions,
- Agricultural base of economy, and local desire to preserve,
- Tourists and other visitors enjoy, want to preserve clean, green, beautiful environment,
- Economic imperative to sustain tourist industry,
- Global perspective - good to retain rare pristine areas,
- Many people with same goals, working together,
- National Competition Policy reforms assisting transparency.

Processes

- Very slow process of reform, due partly to development focus of much of council,
- Amendment of Local planning provisions to embed principles of sustainability in planning schemes,
- Gradual shift from dealing with planning and development issues as one-off problems, to applying established principles,
- Increased transparency of costs of development, transport, and cross-subsidisation of public good issues, through National Competition Policy reforms.

Constraints

- Community ignorance of environmental, sustainability issues and priorities
- Ethos of supporting agricultural land but unwillingness to take hard steps (tendencey to respond to issues 'special cases', rather than apply consistent principles),
- Uncertainty about whether local sustainability is possible,
- Reticence of SG/CG to consider growth capacity of local areas,
- Both last LGs mainly development-oriented,
- Inertia of LG generally - objective of raising rates the main focus,
- Vested interests of land holders wanting to develop and subdivide,
- Lack of information on natural resource capacities (eg how much water is needed for sustainability),
- Limited local knowledge of cumulative, off-site impacts of development.

Outcomes

- Improvement to certain local values, including lifestyles, jobs, government.
- Environmental, economic and social issues working together, rather than in conflict,
- Approaching environmental sustainability within local boundaries,
- Within region, Douglas has the strongest economy, strongest growth, strongest environment, and best chance of protecting lifestyles,
- Increased profitability of tourist industry, based on environmental values,
- Commonwealth empowerment to hold LG responsible to the vision it has promoted.

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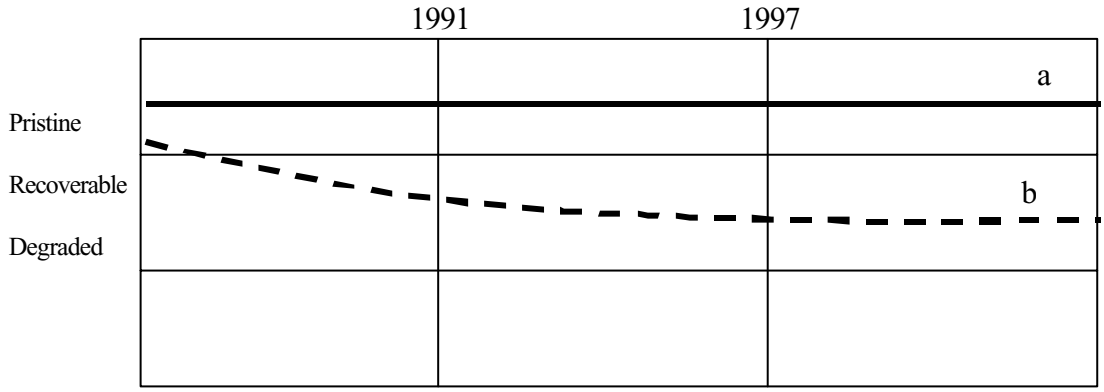
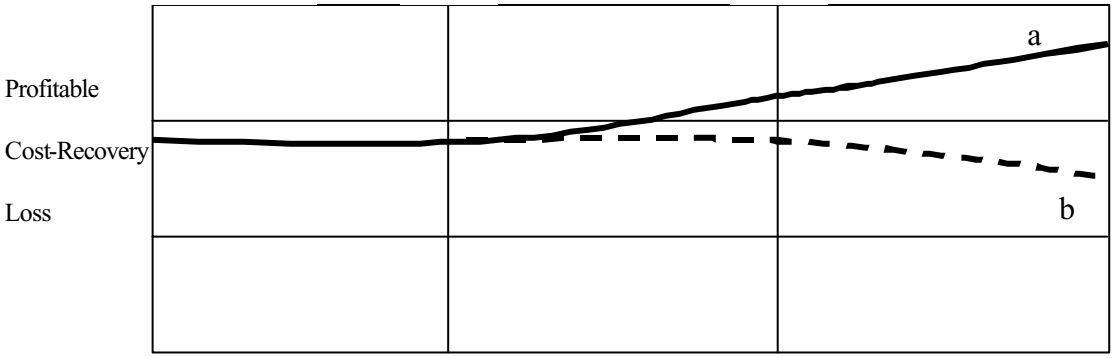
Ecological Outcomes



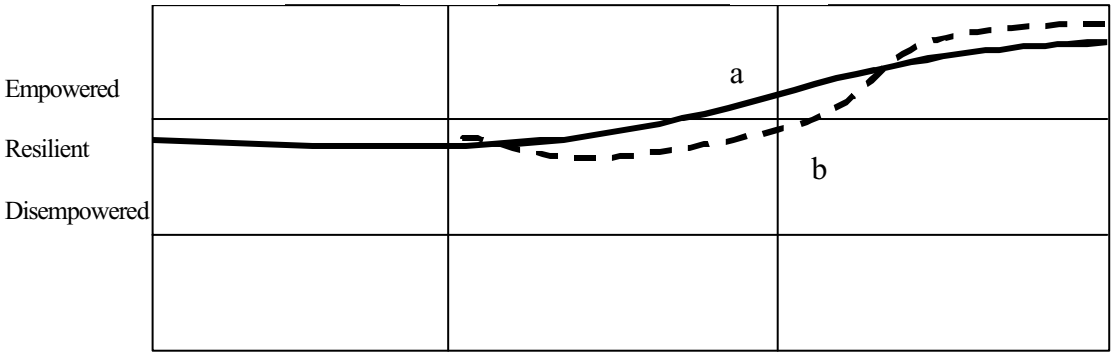
The graph separates the pristine environments (a) within Douglas Shire from the agricultural and developed ones (b). Line (a) shows those environments within World Heritage, and other protected areas, which continue in pristine condition. The population cap, and other environmental controls have preserved more environmental values in this pristine state, avoiding a reduction in this line. Line (b) shows the gradual reduction in environmental values that has been occurring through development, population growth, and possibly unsustainable tourist and other developments. The rate of degradation has been reduced due to planning amendments, and could even out, at a sustainable level.

Economic Outcomes



Douglas' economic position was strong even prior to the planning changes, since it had a strong agricultural and tourist industry. Profits (for business, the housing market and other economic ventures) have increased as a result of the guaranteed retention of local environmental values, and this trend looks set to continue (a). Without environmental controls, some of the sources of wealth (for example in the eco-tourist industries) might have reduced (b)

Social Outcomes



The process of instigating environmental controls has been empowering for most of the population, since it has combined education about environmental issues, with public input into decision making (a). Locals have a high awareness of environmental restrictions and the benefits of these. Developers within the Shire initially felt disempowered by the proposed restrictions, but this trend has reversed for developers who are able to learn, accept and benefit from the changes (b). For these developers, the changes have brought new opportunities.

Mirrar Say No

Case Study T1: by Su Wild River. With assistance from the Gundjehmi Corporation..

The Mirrar Aboriginal nation has been resisting uranium mining on their land since before their traditional rights were recognised in 1977. Their protests against a new mine proposal at Jabiluka have received strong support from a range of individuals and community groups across Australia and the world. The arrangements between the Mirrar and protestors are inspiring examples of respectful and powerful cross-cultural partnerships.

The Mirrar are the traditional Aboriginal owners of the Ranger and Jabiluka uranium mine areas in the World Heritage Area listed Kakadu National Park. Their traditional ownership was first recognised by European law in 1977, with the second report of the Ranger Uranium Environmental Inquiry (Fox Report), which also recommended Ranger proceed and that Aboriginal opposition "not be allowed to prevail".. Under the Aboriginal Land Rights (Northern Territory) Act 1976 traditional owners can withhold consent to the granting of a mining interest on Aboriginal land. The Mirrar's right of veto over Ranger, however, was specifically exempted from this veto. Mining was, therefore, inevitable. After a series of negotiations that were later the subject of legal action against the Commonwealth by the Northern Land Council (NLC) (which claimed the agreement was signed as a result of duress, undue influence and unconscionable conduct) the Ranger project proceeded.The Ranger mine led to the establishment of a second local authority in Mirrar territory. Jabiru township is a 'Special Purpose town', and operates similarly to a Northern Territory Municipal Government, except that many of the facilities are privately owned by the mining company. Jabiru provides services and dwellings to some Mirrar, as well as the miners and their families.

In 1971, the PanContinental mining company discovered uranium at Jabiluka 22km north of Ranger and made an application to mine. PanCon submitted an EIS for development of the mine in 1979. Discussions between the company, the NLC and traditional owners commenced from the late seventies. The Mirrar have shown that undue influence and misleading conduct during negotiations secured the Jabiluka mining agreement in 1982(see "We are not talking about mining – The history of duress and the Jabiluka Project," Gundjehmi Aboriginal Corporation).

In evidence to the 1999 Australian Senate inquiry into Jabiluka the current Mirrar senior traditional owner, Yvonne Margarula, described the pressures of the Jabiluka negotiations: - "In the beginning, around that time, there were lots and lots of meetings, and people would come and collect my father to take him to the meetings. He was the main focus of a lot of this pressure, so there were people coming to pick him up constantly. They gave him a lot of money. He had new cars whenever he wanted it. He was given a lot of good things. He found the pressure overwhelming. He started drinking a lot. He became an alcoholic. They just kept it stopped."

Between 1982 and 1995, the Jabiluka mine was placed on hold because of the Labor government's policy to limit the expansion of Australia's uranium mining industry. In 1991, the mine was sold by PanContinental to Energy Resources of Australia (ERA). The deed of transfer for the mine required that ERA obtain permission of the Mirrar to mill uranium ore at Ranger. The Mirrar have vowed never to agree to the milling at Ranger, providing another impediment to the mining. When the Howard Liberal government was elected in 1996, it fast tracked approvals for the Jabiluka mine, bringing on a new era of protests (see http://www.mirrar.net/indexer.htm for more information).

The Mirrar have quickly gained wide public support for their opposition to the mine. However the Mirrar always retained the leadership over the protests, in a unique example of Australian cross-cultural cooperation. The arrangements between the Mirrar and protestors covered where people stayed and travelled on the land, their personal habits while at Kakadu and Jabiru, the detail of the protests they took part in, and the way these were recorded.

The Mirrar arranged a large area to serve as a protest camp. The selected site had been a cattle station prior to the Mirrar land claim. Because of this, it is partly cleared of trees, is in a degraded, but fairly robust state, and has a bore and large storage tank for water. It is also positioned away from Jabiru, allowing privacy to the protestors, and close to Jabiluka mine, for easy access during protests.

The Mirrar did not stay at the protest camp, but visited it for briefings about conduct and protests. This made the camp itself a unique local community, whose facilities were governed by the Mirrar, but managed by the protestors themselves. The tropical conditions made life difficult at the camp, and the population fluctuated from a handful of people, to over 500. But food preparation, composting, toileting were all arranged for minimal long-term impact. For instance, special care was taken to ensure that seeds of food plants were not scattered throughout the bush, but were composted in a single area, to avoid the spread of weeds. Figures 1 shows the environmental management practice at the protest camp for composting. Solid and liquid food wastes were carefully buried in designated, well managed sites with signposts giving clear instructions.

Before being allowed to either stay at the protest camp, or participate in any actions, protestors were also required to go through an induction process. During this, they were told of conditions for their conduct, which respect the long-term needs of the Mirrar, and help achieve a cohesive and effective protest. For instance, drinking and other drug-taking was not allowed either at the protest camp, or anywhere else in Kakadu national park, for the duration of a protestor's stay. This was to avoid people losing control in difficult situations, or causing trouble in any public place. Protestors also agree to wear decent clothes, which covered as far as their shoulders and knees. These conditions were called for since without such conduct the media, and local residents have easy targets to use in discrediting both the Mirrar and the whole protest. Protestors were usually enthusiastic and respectful about following these codes of conduct.

As well as their general conduct, agreements were made for conduct in protests. Each protest was carefully planned, and approved by the Gundjehmi Corporation - an Aboriginal organisation formed by the Mirrar. Briefing sessions were held before the protest so that participants knew how to behave. Information on arrest procedures and what to expect in gaol were also provided.

Figure 2: Nuclear-Powered Howard protest

As a result of this cross-cultural partnership, the protests against the mine were colourful, powerful and peaceful. Most of the protests were held at the gate to the mine, and are set up before dawn so that mine workers could not get in to work for the day. In one protest, around 50 people claiming to be John Howard were arrested for protesting against the mine. In another, 10 people locked themselves into a car made up in the shape of a frill-neck lizard. This type of symbolic action is generally supported by Gundjehmi, and Jabiluka Action Groups throughout Australia also seek approval for similarly colourful protests in other places (see Figure 2)

The Gundjehmi Corporation also claims the rights to use any photographs or other images that are gathered from the protests at Jabiluka. This empowers them to provide images and other information to the media, or other parties.

A very small minority of Jabiluka protestors resented the protest management by the Mirrar. The vast majority, however, found the partnership with traditional owners to be a welcome and unique opportunity, and an essential part of the experience. This enthusiasm was warmly expressed during the 'cultural walks' that were often led by the Mirrar after successful protests. During these, protestors were taken through traditional Mirrar land, shown rock art images, meeting places and told of other elements of traditional Mirrar culture.

Figure 3: Cultural Walk

Jabiluka mine continues to be built, despite the protests and the respectful partnership between the Mirrar and others opposed to its operation. Its development has been slow, and remains uncertain. Economic factors, such as a current low world price for uranium have had impacts. So have legal details like the failure of the original agreement to provide for a mill at Jabiluka. The mine is not expected to produce uranium for several years yet. Participants in this struggle remain optimistic about Jabiluka, and the Mirrar have extended an invitation to protestors to return with their shovels and help fill in the hole, when the mine is finally stopped.

References

http://www.mirrar.net – the Mirrar/Gundjehmi website.

http://www.aph.gov.au/senate/committee/erca_ctte/jabiluka/index.htm

Many thanks to the Gundjehmi Corporation for assistance with this case study.

T1: Mirrar say no

Perspective: Other
Role: -
LG type: Other LG (poor, sparse)
Focus: Planning

Context Issues

Context continuums are split because the Mirrar have few direct controls over mine issues, but have freedom and flexibility over the rest of their land.

Context continuums

Scale

<local **local** regional state **national** international

Flexibility of Process

Full mostly equal **partial** none

Origins of initiative

<local **local** regional state national international

Goals

- Avoid uranium mining at Jabiluka,
- Reinstate Mirrar land rights at the Jabiluka mine site,
- Form respectful, effective partnerships between Mirrar and other protestors, based on Aboriginal protocol,
- Maintain access to services at Jabiluka,

Drivers

- Widespread public opposition to uranium mining,
- Low world price for uranium,
- Large pool of potential protestors, willing to travel to Jabiluka, and work respectfully with Mirrar code of conduct,
- Availability of land and water for campsite,
- Long-term protestors able to manage the camp and run induction sessions for new arrivals,
- Some resources pooled for protest, including vehicles, media equipment, etc.
- Good relationships maintained between local community, police, and protestors.

Processes

- 1982 Jabiluka mining agreement signed under extreme duress,
- Mining at Ranger established, operational,
- Reliance of mining community, Mirrar and protestors on Jabiru as a service centre,
- Gunjehmi established to represent Mirrar interests,
- Protests initiated by Mirrar and others, but approved by Gundjehmi,
- Photographs and other records of protests remain the property of Gundjehmi,

Constraints

- Lack of legal rights for Mirrar to stop uranium mining at Jabiluka,
- Government support for uranium mining at Jabiluka,
- Physical challenges of the environment for protestors (remoteness, heat, humidity),
- Difficult to keep equipment running in tough conditions (vehicles etc),
- Some protestors resistant to Mirrar code of conduct and management of the protest.

Outcomes

- Development of Jabiluka stalled in September 1999, no work since,
- Jabiluka an unpopular asset with business and broader community,
- Increased domestic and international coverage of Jabiluka issue,
- Optimism among Mirrar and protestors that uranium mining can still be avoided,
- Respectful partnerships established between Mirrar, Gundjehmi and protestors,
- Increased understanding of indigenous issues by protestors at Jabiluka.

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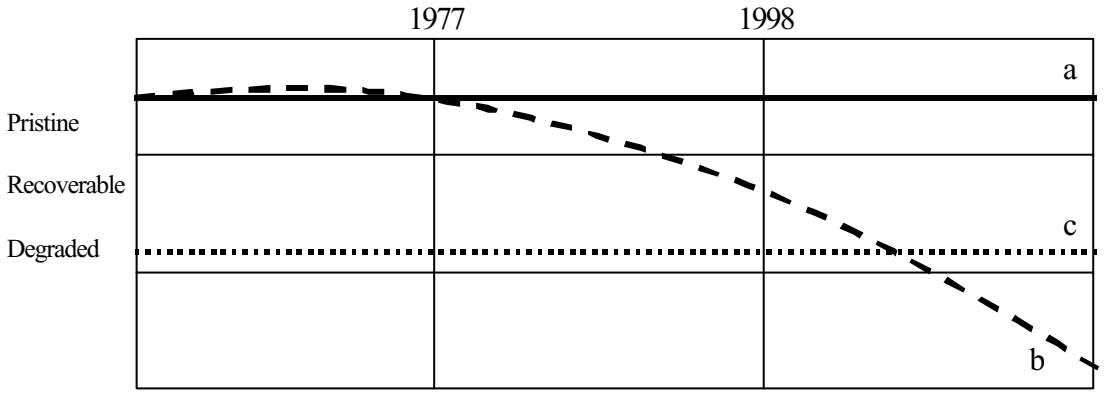
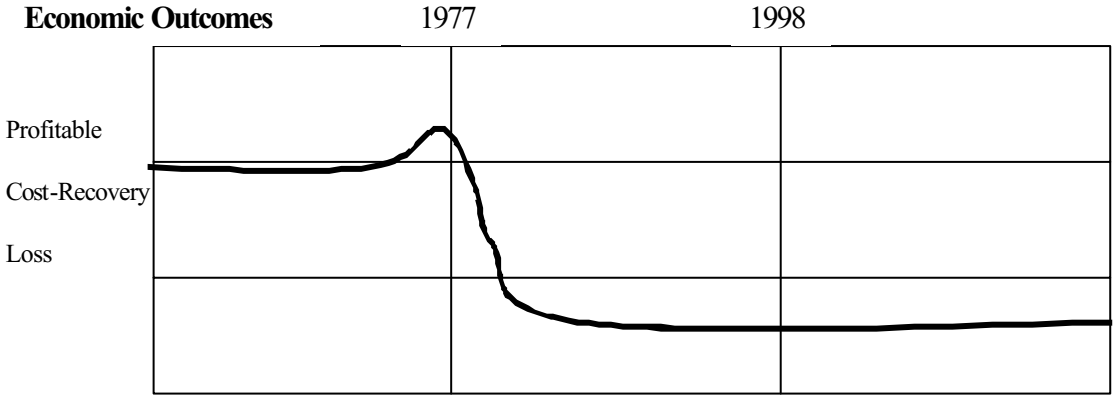
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



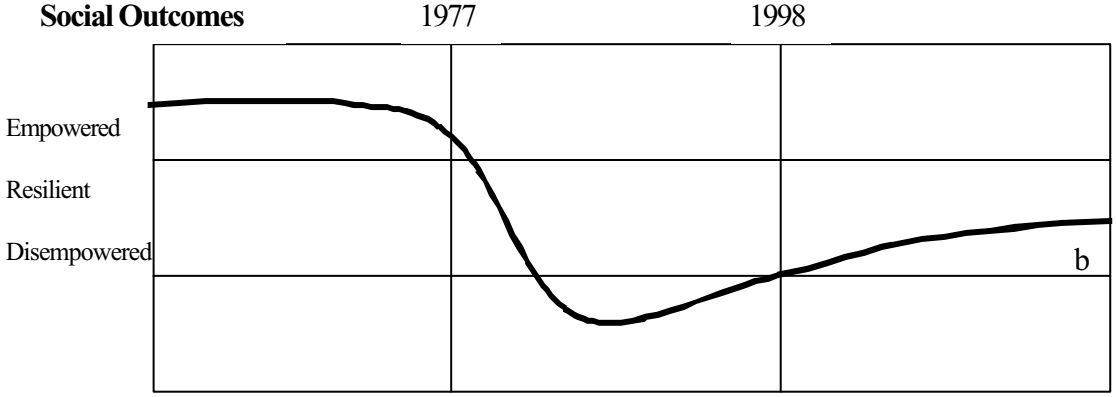
Several different environmental values are found at Kakadu, on Mirrar land. Much of the country is almost pristine, although some feral animals are present, and have changed some ecosystem function. This includes significant wetlands just a kilometre from the Jabiluka mine site (a). The land at the Jabiluka mine site has been developed since June 1998, and most of the original ecological values are now absent. The degradation will continue if the mine goes ahead (b). The protest campsite had been a cattle holding yard for many years, and was degraded before the protest as a result. Careful site management by the protestors has kept the environment there

Economic Outcomes



The Mirrar people enjoyed brief economic benefits from uranium mining activities in the seventies, when the mining companies approached them to negotiate mining rights. But the terms of the agreement negotiated by the NLC on behalf of the Mirrar are completely deficient from a cultural, environmental and monetary perspective, Because of this, the benefits have not benefited the Mirrar people, who have also invested highly in been lobbying consistently to stop the mining.

Social Outcomes



The long history of duress suffered by the Mirrar people has been fundamentally disempowering. This was especially the case just after the mining agreement was signed, when the implications of the agreement first became clear to the Mirrar. Other Australians who oppose uranium mining have also been disempowered by the struggle in Jabiluka. However the determination of the Mirrar to win their land back from the uranium miners, and the ongoing support from many thousands of protestors has been empowering to some extent. This empowerment will certainly grow much more if the protests are successful.

Striving for balanced environmental planning in Litchfield Shire

Case Study T2: by Su Wild River. With assistance from Gerry Wood (President Litchfield Shire)

Comparative Statistics for Litchfield Shire

Category	Measure	Comparison
Area (Sq/Km)	3,100	Top 40%
Population	16,000	Top 36%
Pop Sq/Km	5	Top 47%
Total Income ($)	4,000,000	Bottom 20%
Rate Content ($)	2,000,000	Bottom 33%
Expenditure ($)	4,000,000	Bottom 17%

Information Australia, 2000

The locations and boundaries of new rural subdivisions throughout Litchfield Shire, and a proposed industrial estate highlight the need for long-term infrastructure management to be considered in planning decisions. However planning is undertaken by the Northern Territory (NT) Government while local governments (LGs) are responsible for ongoing management. A shift to sustainability would probably require an effective system for coordinating between the two functions.

Litchfield Shire is situated at the gateway to Kakadu National Park in the Northern Territory (NT). It has a rapidly growing population, with rural residential subdivisions predominating, although horticultural development is expanding rapidly also.

Litchfield Shire is subject to tropical weather conditions, including flooding summer rains, and dry winters. The landscape in Litchfield Shire is fairly flat, with a confusing and variable array of drainage patterns for surface water in the wet season. Detailed geological surveys have not been undertaken in most of Litchfield Shire, so little is understood about the local hydrological conditions. Creeks without any water in the dry season become raging torrents in the wet. Figure 1 shows a typical local creek in the dry season.

Intensive settlement of Litchfield Shire is fairly recent, compared to many parts of Australia. The exact flooding potential of separate blocks of land was not always taken into account in many subdivisions approved in years gone by, but now maps showing waterlogging and flooding have been produced by government and these maps are now widely referred too in planning applications. Other ecological information, such as the range, abundance and vulnerability of indigenous flora and fauna species, is now slowly being gathered. For example, a vegetation map has been developed for the Litchfield Shire, and will also help in the better planning of the region into the future.

Environmental planning processes in the NT differ greatly from those in Australian states. Planning responsibilities lie with the NT Government, but ongoing infrastructure maintenance and land management in the cities and towns is the responsibility of local government. Many resulting planning decisions appear to ignore fundamental constraints to long-term management. This raises questions of whether the NT's division of planning and infrastructure responsibilities might reduce sustainability.

Figure 1: Creek during the dry season in Litchfield Shire

Aspects of old subdivision designs, approved by the NT government, draw repeated criticism from Litchfield Shire. A key issue is the width of road easements. Waters from the summer flooding must be directed somewhere in the Shire, and road easements are often a practical option. Litchfield Shire argues that such easements are relatively easy to maintain if they are 30 metres wide. This provides space for a wide, flat drain with gently-sloping walls, that are easy and safe to mow. Erosion and siltation are then less of a problem, since water runs through wide easements slowly, and consistent ground cover can be maintained. Wider easements also allow more roadside remnant vegetation to be retained. 30 metre road easements are now the standard.

The costs associated with narrow easements accrue to LGs like Litchfield Shire, since they are responsible for the long-term management of the roads and their edges. The ongoing costs

of this are very high. Litchfield Shire could spend its whole annual budget on drainage, but still not come close to solving the ongoing problems caused by the narrow drains (Wood 1998).

The NT government has also sometimes also approved the sale of blocks of land that really are unsuitable for development. Figure 2 for instance, shows a residential block for sale on the banks of a small creek bed in the dry season. Most of this land would be underwater in an average wet season. Litchfield Shire officials were not told of the intended land sale before the block went on the market, and only discovered it while driving past the site. Yet they will be the agency that receives demands for improved infrastructure once the block is sold and the new owners have attempted to build (Wood 1998).

Figure 2: Creek for sale in Litchfield Shire

There are many other examples of arguments from Litchfield Shire Council being overlooked in planning decisions. For instance, a proposal to build a 34 block industrial estate in a local wetland was supported by the NT government but opposed by Litchfield Shire. The existing drain at the wetland already showed signs of pollution, and Litchfield argued that pollution control infrastructure should be installed for the whole site, rather than be left to individual operations. The NT government preferred to rely on general pollution prevention principles in its Environmental Protection Act. The Act makes pollution from individual operations illegal, but doesn't provide mechanisms for ongoing inspections or enforcement. The NT Government also argued that the issues must minor because only the one complaint (from Litchfield Shire) had been received. The absence of current residents in the area was not considered to be a factor in the low response rate (Wood 1998).

There are some local examples of agreements between Litchfield Shire, the NT government, and developers, which have increased the sustainability of development. For instance, developers agreed to change the shape of a subdivision planned for Benjamin's Lagoon. In the original design, each residential block would have included a large section of the permanent wetland. Now the blocks border the water, but landholders do not own it.

Councillor Wood, the President (Mayor) of Litchfield Shire adopts creative strategies to take up environmental arguments in such cases. Initiatives include low-cost projects to encourage people to take personal responsibility for pollution and litter management, waterway preservation and other local environmental initiatives.

Councillor Wood has also worked with the local media to raise public awareness about the broader issues of environmental planning. Woods criticisms of the flaws in the NT planning arrangements and other territory environmental problems have featured in most editions of the local paper for over a decade. But Wood also frequently goes further than this. His more colourful comments have included an article in the local newspaper, where he posed as a fictional wealthy sheik, claiming to have bought all outer Darwin from the Territory Government. Wood himself was also quoted in the article, saying "the government probably consulted with us like they usually do, but forgot to tell us about it" (Litchfield Times 1998, Wood 1998).

As a result of its constant lobbying on planning issues, Litchfield Shire was used as a model during the development of new local land use objectives. The process was arranged by the NT government, whose employees also worked as facilitators in the consultation process. The public consultation highlighted differences, as much as it encouraged consensus. But the process clearly demonstrated that local governments and communities are interested in the issues, and willing and able to tackle them. Perhaps continued recognition of local voices in planning decisions might help bring development and management issues together in the NT.

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Litchfield Times. 1998. Wealthy sheik buys all outer Darwin. Humpty Doo: Litchfield Times.

NT (Northern Territory) Government. 1993. *Northern Territory Planning Act.* Darwin: Northern Territory Government.

Wood, Councillor G. 1998. Interview with Su Wild River. Unpublished.

T2: Striving for balanced environmental planning in Litchfield Shire

Perspective: Mixed
Role: Councillor (Mayor)
LG type: Other centre (poor, extensive, populous)
Focus: Planning

Context Issues
With few, poor formal roles in the planning process, Litchfield both has no flexibility to act, and also complete flexibility to make any comment they choose.

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Improve planning in Litchfield Shire, so that long term issues are addressed in developments,
- Avoid building in wetlands, narrow drainage easements and other planning decisions bringing excessive long-term costs and management problems,
- Encourage sustainable land use practices in Litchfield Shire.

Drivers
- Enthusiasm from Shire President, other Councillors and Council staff for better planning practices,
- High management costs resulting form bad planning decisions underpin arguments for better future decisions,
- New land use objectives brings opportunity for better strategic planning,
- Local community gradually learning about the natural environment and its limitations,
- Freedom for Councillors to speak views openly in media and public forums.

Processes
- Planning decisions made without effective input from LGs,
- LGs using formal, and also non-formal means to comment on planning and other environmental issues,
- Many blocks sold for developments are on environmentally inappropriate land (eg waterways and wetlands),
- Community expectations that infrastructure such as stormwater drains will be provided regardless of cost.

Constraints
- Council lacks control over planning decisions and processes, but must manage resulting problems,
- No LG statutory powers over pollution in industrial areas or other environmental problems,
- Few financial resources for any environmental initiatives,
- Low finances further impacted by legacy of poor planning decisions (narrow drainage easements),
- Community view that anything goes on own land, but LG must maintain all other infrastructure.

Outcomes
- Community and NT government understanding of complex planning issues raised due to lobbying by Litchfield Shire,
- New land use objectives likely to reflect more community concerns, due to consultation,
- Many subdivisions and individual land sales continue to breach good environmental practices,
- Community participation in managing many natural assets (eg hole in the road landcare group),
- Some developers convinced to design environmentally aware subdivisions.

About the Models

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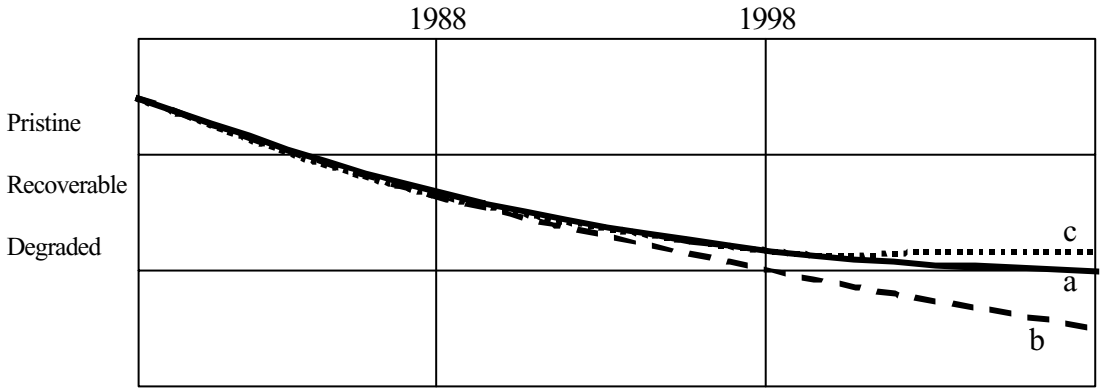
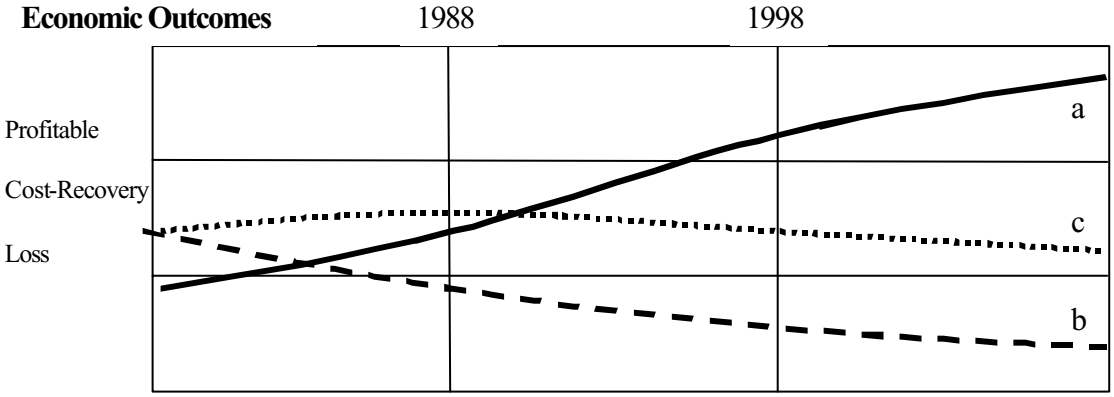
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



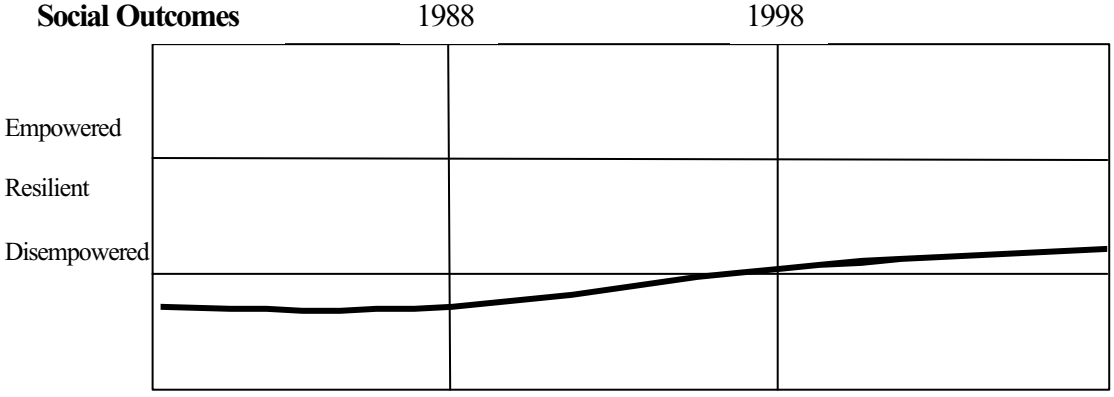
Environmental values in Litchfield Shire have been degrading steadily for many years, due to development pressure and many poor planning decisions. Litchfield Shire has been able to reduce the rate of degradation slightly, by lobbying the NT government, negotiating with some developers, and supporting community initiatives (a). Without these efforts, the degradation would have continued at the same, or a greater rate (b). However, degradation could have been further slowed if the NT government took a more precautionary approach to local land use planning in Litchfield (c).

Economic Outcomes



The economic impacts of planning decisions in Litchfield Shire have varied considerably for different parties. The NT Government has made steady profits from the subdivision and sale of 'crown land' in the Shire (a). Meanwhile, Litchfield Shire has had its small budget constantly and increasingly strained by providing and managing infrastructure for inappropriate subdivisions. Costs are particularly high when drainage easements are to narrow, and where construction is in wetlands and other waterways (b). Meanwhile, Litchfield residents have benefited slightly because the extra population enabled by the subdivisions raises the level of economic activity in the Shire, but also face high property management costs in the long term because of poor planning decisions (c).

Social Outcomes



Empowerment in relation to planning and land use issues has increased slightly in Litchfield Shire over recent years. Constant lobbying by the Shire and some community members has resulted in some small improvements to land use practices by the NT government. The recent consultation on the new Land Use Objectives was also empowering, since comments were sought from the community. Land care work and other community initiatives have also increased the level of community empowerment in environmental management.

Improving the management of Mitchell Creek, Palmerston

Case Study T3: By Su Wild River with Simon Goodhand (formerly with Greening Australia, now with the Department of Land, Planning and Environment) and Tony Scherer (Palmerstone City Council)

Comparative Statistics for Palmerston Town

Category	Measure	Comparison
Area (Sq/Km)	56.27	Bottom 14%
Population	21,850	Top 20%
Pop Sq/Km	388	Top 18%
Total Income ($)	8,082,989	Bottom 41%
Rate Content ($)	5,002,927	Top 45%
Expenditure ($)	11,509,776	Top 50%

Source: Information Australia, 2000

Environmental values at Mitchell Creek are threatened by the pace and form of development at Palmerston Town. Local residents, Palmerston Town Council and community environment groups have worked successfully together to ensure the protection of many of the creek's key environmental values. The NT Government (through Dept of Lands, Planning and Environment) prepared the Mitchell Creek Parkland – Drainage and Environmental Study in 1996 which has given formal recognition of the creek's values.

Mitchell Creek flows through Palmerston Town (now City) Municipality in the Northern Territory. Palmerston is a new residentialdevelopment located between Darwin City and the large Department of Defence base nearby. Many of the residents are Defence Force personnel.

Environmental factors such as the tropical wet season, with torrential rains and high levels of surface-water runoff also affect building. Soil loss can be very high when building activities extend into the wet season.

The pace of development in Palmerston has threatened the environmental values at Mitchell Creek. Development has been speedy, and continues at a fast pace. There has been little time for the local community to form coherent groups about issues, or to form strong attachments to values in the local area.

Despite the newness of the community, many of the residents have shown a proactive interest in protecting environmental values at Mitchell Creek. Several successful initiatives have been used to address the problems. The Mitchell Creek Landcare Group are actively involved in planning and planning issues throughout the catchment, and have replanted and maintained vegetation along the creek. Palmerston also boasts the only 'Adopt-a-Park group' in the Northern Territory who focus on the public open space around theCreek. Other community environment groups such as Greening Australia have also become involved in strategic and practical work to protect and manage the creek.

There have been two successful bids at securing funding to help maintain the environmental values at Mitchell Creek. The Natural Heritage Trust (through the Bushcate Program) has provided three years of funding aimed at encouraging broad community involvement in sustainable catchment management. Funding was also provided by the National Corridors of Green Program. As well as helping with these other funding proposals, Greening Australia also provided some direct funding for tree planting and other conservation work in the catchment. This work has helped to educate the community about the environmental values at Mitchell Creek. Together, these funds have helped to create a position at Palmerston City Council, to focus on the management of Mitchell Creek.

Community awareness and interest has been strong and has contributed to the setting aside of land for reserves which would otherwise have been developed. An example has been the creation of the Mitchell Creek Escarpment Reserve which has ensured that a green skyline will be protected in the long term. This supports the provision of environmental values such as natural habitats, a green corridor, and passive recreation area. It is also in the economic public interest, since the native bushland area is also likely to help individual residential blocks to retain and enhance their market value.

Problems faced by the Mitchell Creek initiatives have mostly been bureaucratic. There are only narrow bands of eligibility for each of these funding programs. At times this has constrained the type of work that seemed most pertinent for the local area. The bureaucracy within Palmerston City Council was an additional

challenge, since this initially slowed down approvals for funding applications, while their deadlines remained fixed. The City Council are now very supportive of the Mitchell Creek project, and provide considerable inkind support to the NHT position.

A further constraint on activities has been the relunctance by NT Government to declare formal boundaries for a proposed Mitchell Creek corridor reserve (as recommended by the Mitchell Creek Parkland: Drainage and Environmental Study in 1996). This has created some uncertainty for project activities in terms of the long term viability and maintenance of onground works, plus the planning of future works.

References

Information Australia. 2000. *Australian Local Government Guide, 28th Edition. July 2000-November 2000.* Melbourne: Information Australia.

T3: Improving the management of Mitchell Creek, Palmerston

Perspective: Other/Local Govt
Role: Officer
LG type: Capital fringe (populous, compact, poor)
Focus: Management

Context Issues
Natural Heritage Trust (Bushcare) provided most of the funds and impetus for the attempt.

Context continuums

Scale
<local **local regional** state national international

Flexibility of Process
Full **mostly** equal partial none

Origins of initiative
<local **local regional** state national international

Goals
- Improve the processes for planning and management of the natural systems in Mitchell Creek catchment.
- Protect significant native flora and fauna species and communities in the local area, including the creation of reserves
- Enhance awareness and community involvement in the management activities of the catchment

Drivers
- Landcare Group and local community, including many new residents interested in Mitchell Creek,
- Adopt-a-Park group formed (only one in the Territory),
- Natural Heritage funding, also encouraging a land management perspective,
- Greening Australia, and dedicated individuals within it,
- National Corridors of Green Program attracting national funding, and funding from Greening Australia, LG

Processes
- Greening Australia survey in 1995 identified a rare eucalyptus species in the local area.
- Lands, Planning and Environment identified the value of vegetation, including its control on mosquito-breeding (first time for such formal recognition). Formal inclusion of Greening Australia findings in LPE Mitchell Creek Parkland Study 1996.
- Escarpment area in west of catchment identified as steep slope with significant vegetation. . Now managed by LG

Constraints
- Bureaucracy within LG challenging due to external funding deadlines,
- General bureaucracy and administration in accessing funding
- Narrow band of eligibility for funding.
- Creation of a creek corridor reserve (as recommended in the Mitchell Creek Parkland Study) still not confirmed

Outcomes
- Community education and involvement (ongoing),
- Position (externally funded but within council, and support of council,
- Creation of Mitchell Creek Escarpment Reserve, now managed by Palmerston City Council,
- New landcare group

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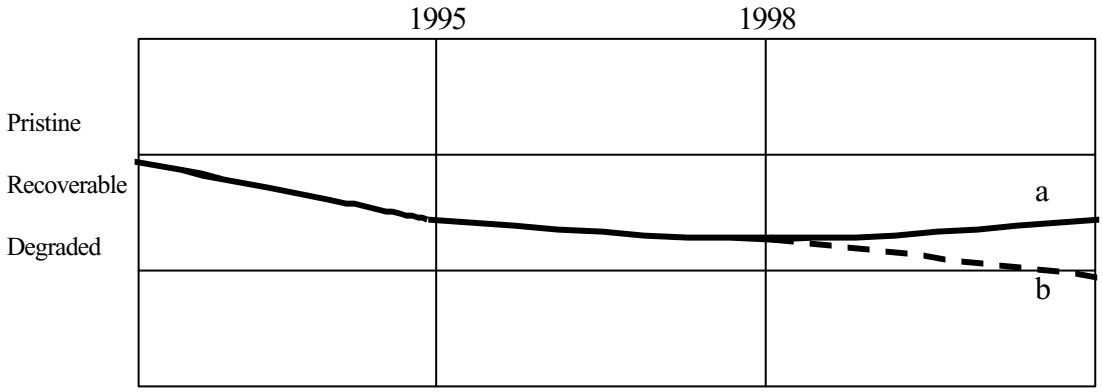
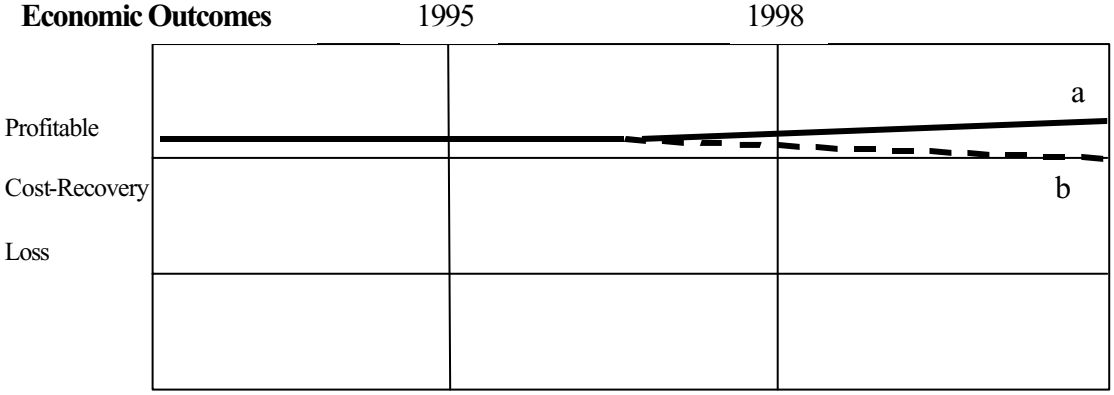
Environmental Outcomes



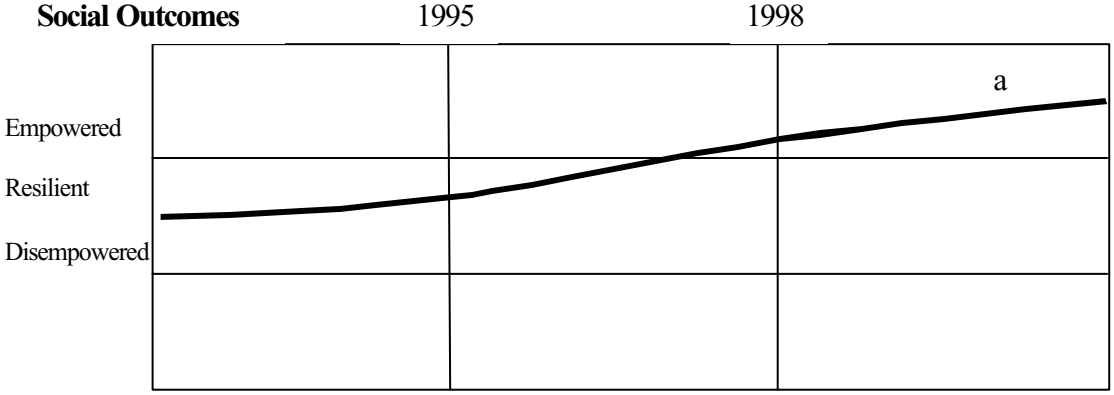
The environmental values at Mitchell Creek were deteriorating prior to 1995, with heavy development pressure throughout the catchment in Palmerston. The initiatives targeting catchment management have delivered some important enviornmental outcomes. The protection of the rare eucalypt species, and the reserve on the steep western slopes of the creek mean that existing environmental values there will be protected (a), rather than lost, as may have occurred (b).

Economic Outcomes



The retention of environmental values at Mitchell Creek, and the community involvement in managing the local values have the potential to add some value to surrounding suburbs, and to ongoing developments nearby (a). Minor opportunity costs will result from the inability of developers to build on the now-protected areas of the Mitchell Creek Catchment. However, these are minimal, because other areas are available for development, and because building would have been expensive on the steep slopes anyway (b).

Social Outcomes



The Mitchell Creek initiatives seem likely to result in positive outcomes for the community. The Landcare Group, the Adopt-a-Park group, work between the existing community and new residents, and the availability of some funding for practical initiatives have all made this a positive experience for community members.

Planning Darwin

Case Study T4: By Su Wild River, with Margaret Clinch (PLAN – community action group), Lex Martin (NT Greens Candidate). With advice from Darwin City Council and NT Power and Water Authority.

Comparative Statistics for Darwin

Category	Measure	Comparison
Area (Sq/Km)	135	Bottom 21%
Population	70,000	Top 12%
Pop Sq/Km	519	Top 16%
Total Income ($)	37,892,509	Top 19%
Rate Content ($)	25,265,500	Top 14%
Expenditure ($)	37,892,509	Top 21%

Information Australia, 2000

The locations and boundaries of new rural subdivisions throughout Litchfield Shire, and a proposed industrial estate highlight the need for long-term infrastructure management to be considered in planning decisions. However planning and management functions are split between the Northern Territory (NT) Government and local governments (LGs). A shift to sustainability would probably require an effective system for coordinating between the two functions.

Darwin is Australia's smallest, most tropical, and remote capital city. Darwin's indigenous population is very high compared with the other capital citie. Federal and NT Governments have made concerted efforts to increase economic development and population growth in Darwin for nearly 100 years. In 1913 a royal commission was established to report on the development of the NT in relation to railways and ports, and the desirability of setting apart an area for the eventual creation of a new capital. Present day development and population growth relies heavily on the defence forces, tourist industry, mining companies, various government departments, the NT University, and other large agencies. Darwin's non-indigenous population remains highly transient, with a relatively low proportion staying more than a few years (see Blandy and Forbes 1998).

Environmental planning processes in the NT differ greatly from those in Australian states. Planning responsibilities lie with the NT Government, but ongoing infrastructure maintenance and land management in the cities and towns is the responsibility of local government. Many resulting planning decisions appear to ignore fundamental constraints to long-term management. This raises questions of whether the NT's division of planning and infrastructure responsibilities might reduce sustainability (see for instance Jones 1998).

Environmental interest groups and stakeholders in Darwin are convinced that environmentally damaging land use planning has been occurring there for decades. A comic novel by Kaz Cooke even popularises the issue with hilarious eloquence (Cooke 1992). However knowledge of incidents has not helped these groups to improve either the processes or their environmental outcomes. Developments at Cullen Bay, and Bayview Haven provide good examples.

Cullen Bay was a small natural bay close to inner city Darwin, with a distinctive sandbar just off shore. In 1992, the NT government approved a development to build a lock, and large marina, for easy ocean access during any tide. A high-priced housing estate, tourist district and shopping centre was also planned for the bay. This made it an attractive proposal for the growth-oriented NT government, and approvals were rushed through. The contract included few environmental controls, or guarantees that the developers would complete the project (this (see The Environment Centre, NT, 1990)

The stability of the sandy base at Cullen Bay proved to be a building constraint, and the developers threatened to pull out from the project. They applied to the NT government to use material from the adjacent sandbar to help stabilise the building. Many community members and Councillors opposed this move on environmental and other grounds (Muddimer, 1992).

The NT government approved use of the sandbar after feasibility and hydrological studies and subject to a number of conditions and securities. Construction was finally completed, and over time, the sandbar has been reformed through natural processes. There has also been one occasion where internal pipes at one of the four sewer pump stations servicing Cullen Bay separated due (mainly but perhaps not only) to settling of previously deep sections of the marine clays and mud. Because infrastructure in the Cullen Bay precinct is a 'gifted asset', the maintenance of such problems is funded from public sources. Figure 1 shows the view looking out from the lock at Cullen Bay, with a natural foreshore on the left, and the constructed foreshore on the right.

Figure 1: Cullen Bay

Another case of Darwin foreshore planning is Bayview Haven. Environmental activists in Darwin refer to the site as 'Baygone Haven', because of the mosquitoes and sandflies there. Mangroves previously covered this inner-city foreshore area. However at the time of this research, a large area had been cleared to make way for a proposed development. Figure 2 shows a landfill site in an adjacent, recently cleared mangrove area. Paint tins and other wastes that are regulated in many states are present.

Figure 2. Mangrove landfill at Gonzales Road, adjacent to Bayview Haven

Approval processes on the site also appear to be lacking. Figure 3 shows a pink sign indicating that public comment is currently being sought on an application to rezone this area for development. Yet next to that sign, housing units are advertised for sale on the same site. Clearly, the planning process has been undermined, since a core purpose of such processes is to ensure that rezoning decisions precede resulting land sales.

Darwin City Council ran a campaign during the public submission stage of the new Planning Act, criticising the planning system that led to this type of problem. They stated that:

> "Darwin City Council, aware that community acceptance of town planning is greatest where political accountability is most direct, has lobbied the Territory Government and will continue to lobby, for decision makers who are accountable to their local community." (Darwin City Council, 1999, p.1)

Figure 3: Apparently simultaneous rezoning and property sale at Tipperary, adjacent to Bayview Haven.

Both the NT and LGs can benefit financially from development, whether or not it is environmentally sustainable. The NT government retains profits from the sale of 'crown land'. LGs have the opportunity to charge rates once the land is occupied. It is not clear from interstate or international experiences, whether either sphere is more liable to ensure sustainability in environmental planning decisions. However it is clear that key environmental and social issues are being downplayed in the NT. And since LGs live with long-term infrastructure management responsibilities, it seems very likely that these at least would feature in planning decisions made by LGs.

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T4: Planning Darwin

Perspective: Other/LG
Role: Office/Manager
LG type: Capital (rich, compact, populous)
Focus: Planning

Context Issues

Flexibility and origins continuums are split because Darwin City has no planning powers. This allows them a full range of informal options for comment on issues.

Context continuums

Scale

<local **local** regional **state** national international

Flexibility of Process

Full mostly equal partial **none**

Origins of initiative

<local **local** regional **state** national international

Goals

- Increase LGs role in planning in the Northern Territory, and its capital city,
- Provide local representation and accountability for local land use decisions,
- Increase community participation in and ownership of planning processes and outcomes.

Drivers

- Long term LG responsibility for land management,
- Inherent duty for local representatives to influence local form,
- Higher management costs from poor planning decisions and construction methods,
- Community demand for better planning decisions,
- Obvious environmental harm from some developments,
- LG Association of the Northern Territory, Litchfield Shire and other local government support for campaign.

Processes

- NT government planning legislation excludes LG from decision making,
- Independent review of the legislation found many problems, but did not strongly suggest an increased role for LGs,
- Lobbying by many LGs and the LG Association has so far failed to provide additional powers.

Constraints

- Strong development and population growth agenda of Country Liberal Party,
- Lack of statutory power to participate in planning, or to change the planning legislation,
- Environmental constraints to many development projects.

Outcomes

- Community support for changes to the planning system,
- Cooperation between LGs and the LG association in lobbying for planning reforms.

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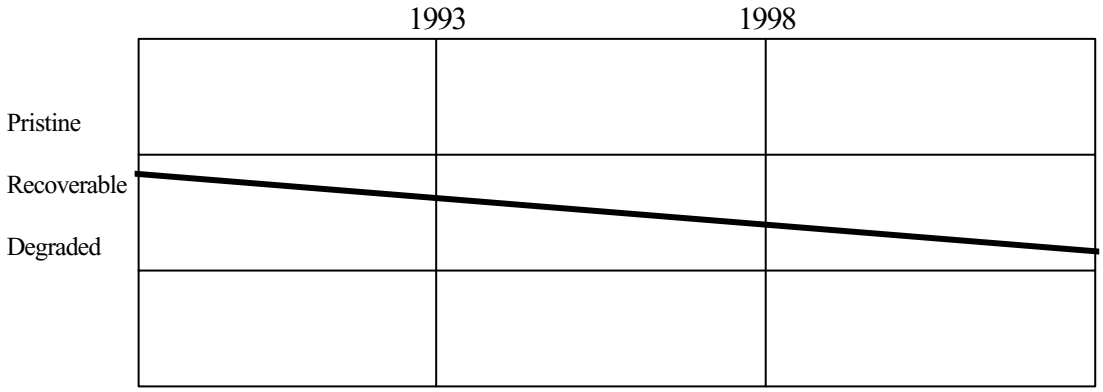
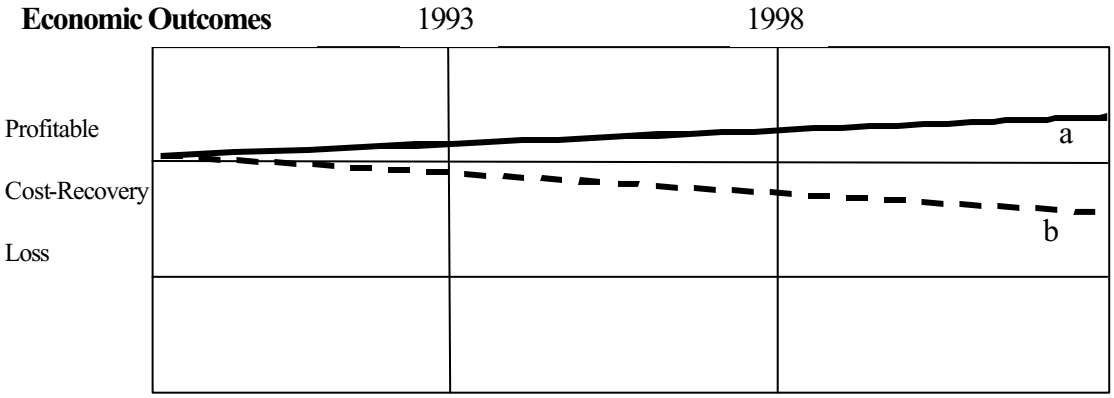
Ecological Outcomes



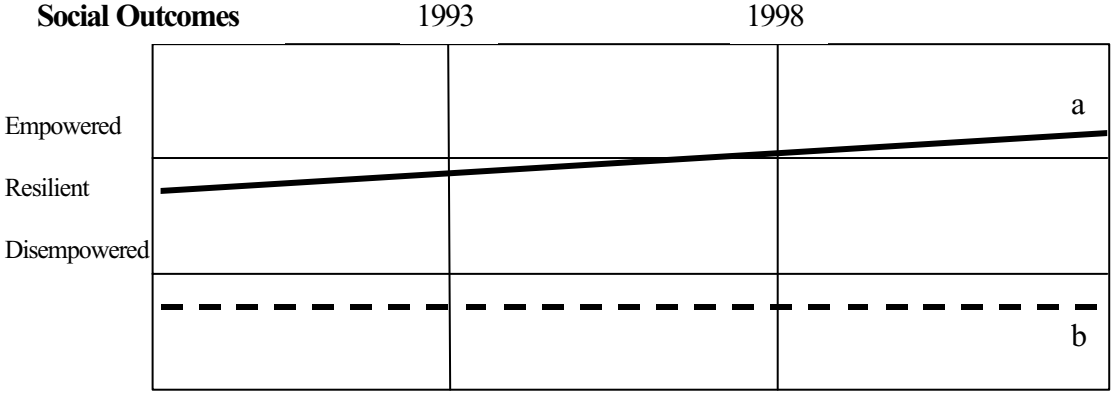
Environmental values in Darwin are continually degrading because of ongoing development pressure. Lobbying by LGs and communities, and the review of the planning legislation have not led to any change in either the planning processes or the development outcomes.

Economic Outcomes



There are some clear financial winners and losers from the planning practices in Darwin. Private developers and the NT government both benefit financially from ongoing development. The NT government retains profits from the sale of 'crown land'. Developers profit from the sale of properties once they have been developed. There has also been an ongoing increase in economic activity in the Territory as a result of ongoing development (a). Darwin City Council gets a small, ongoing financial benefit from the ability to obtain rates from many new land-holders. However these benefits are off-set by the necessity of providing and managing infrastructure services to properties. These are often poorly designed to meet the inherent environmental constraints of the local area. As a result, ongoing management costs are high (b).

Social Outcomes



Property developers are highly empowered in Darwin, with clear strong NT government policy encouraging population growth, and associated construction and land development. The Country Liberal Party also remains highly empowered, after 26 years in power in the Territory, during which time it has defined policy agendas in relative isolation from other Australian governments (a). Darwin City Council and the local community have continued to be disempowered, despite a review of the planning legislation which may have provided for greater local input to planning decisions.

Improving waterways management with the Rapid Creek Catchment Advisory Committee

Case Study T5: by Su Wild River with Simon Goodhand (Northern Territory National Landcare Coordinator) and Margaret Clinch (Plan: the Planning Action Network).

Since its formation in 1997, the Rapid Creek Catchment Advisory Committee (RCCAC) has worked to implement the Rapid Creek Plan of Management (prepared by Greening Australia and Darwin City Council) to promote both increased protection and appropriate management of the catchment, and greater awareness of the presence and importance of the whole system.

The Rapid Creek catchment is contained within the Darwin urban area, and the 10 kilometres long creek flows out into the Timor Sea through a large mangrove community in Darwin's northern suburbs. The upper part of the catchment is contained within the RAAF Base and Darwin International Airport lands. Like all creeks in the area, it floods in the summer wet season, and shrinks, with parts drying out altogether during the winter dry. Crocodiles, many fish, birds and other species occur naturally in the creek and its environs. Rapid Creek supports a number of important remnant vegetation communities, and the creek channel is virtually undeveloped for its entire length.

The main driving force behind the creation of the RCCAC was the recognition by the community and government (local and Territory) that the catchment was under increasing threat from intensifying land use and increasing urban pressures.

The Northern Territory (NT) government has also undertaken to retain 80% of the productivity of the mangroves within Darwin. Exactly how this is to be achieved is unclear, and various NT government and independent parties are researching the issues. The policy does provide some leverage for community groups like Greening Australia and the Environment Centre to lobby for effective management of mangrove areas within Darwin. Such lobbying also helped encouraged the TG to appoint the RCCAC to consider the issues for that catchment.

The Department of Defence RAAF Base in Darwin is a major stakeholder in the Rapid Creek catchment. The Commonwealth Department of Defence in the NT have proactive environmental policies. It has independently developed catchment management plans for the area of the Rapid Creek catchment that lies within Defence land. Those efforts further helped to encourage the NT Government to support further waterway management activities in the catchment.

In 1997, the Minister for Lands, Planning and Environment appointed the RCCAC with broad representation. This included all major landholders in the creek catchment (such as the Northern Territory University, Darwin City Council, Dept. Lands, Planning and Environment, Parks and Wildlife Commission, Darwin International Airport, and the Department of Defence), many important stakeholders (including Greening Australia, Rapid Creek Landcare Group, relevant government departments (the Departments of Transport and Works, and Primary Industry and Fisheries) and the traditional owners (the Larrakia Nation).

The RCCAC did not have an entirely smooth start. Ratification of its membership was slow, and it was initially short of financial resources. The breadth of representation in the group was certainly beneficial in the long-run, but initially, it contributed to a lack of vision and cohesion in the group. There were a huge variety of views, knowledge and environmental commitment amongst members. Bureaucratic hurdles were also an issue, because of the formal nature of the committee and its broad membership.

The RCCAC also faced major challenges in the implementation of catchment management decisions. An historical lack of environmental controls in the catchment meant that large and small landholders were unused to being directed in their environmental management practices. In addition, there were few resources available to manage the large area of the catchment on crown lands. Some stakeholders felt that the Northern Territory Planning Act 1993 provided few avenues for public input to planning decisions, or for environmental controls on developments. Now a new Act still provides for limited public input, through its clause 51.

The RCCAC has however, enjoyed several successes. Over the years since its ratification, it has developed a coherence and vision for its

work. It secured funds and other resources from various sources. Funding has been obtained through the Natural Heritage Trust (Bushcare Program), and the National Corridors of Green program. Prior to the formation of the RCCAC, funding through the One Billion Trees Program, and a 'Save the Bush' consultancy undertaken by Greening Australia and the Darwin City Council which led to the development of the Plan of Management for the Rapid Creek catchment. This document is now used as a framework for catchment management decision making by the RCCAC. Frameworks for action were also provided by 'Waterwatch, the Department of Defence catchment management plans and other sources. Figure 1 shows some community information about creek management issues and practices.

Figure 1: Community information about creek management practices

A community consultation program run by the committee has also been successful in educating catchment users about management issues. One outcome was the formation of a Rapid Creek Landcare Group, which is now active in on-the-ground works, improving parts of the creek corridor through plantings and weed control. The Landcare group's work also further increases local knowledge of management issues, and ownership of the creek. The major catchment landholders are now committing increased resources to environmental management issues on their land, reducing the requirement for external funding in the future.

Together, these efforts have provided a more integrated effort for managing a significant catchment in the Darwin urban area. One outcome has been the government publication of the *Rapid Creek Land Use Objectives and Planning Concepts.* These recognises the special environmental nature of the creek, and a creek corridor, zoned for conservation was declared for Rapid Creek. However the document is not legally binding, and subdivisions that appear to conflict with the stated environmental values continue.

Figure 2: Mangroves near the mouth of Rapid Creek.

References

Northern Territory Government 1993. *Northern Territory Planning Act.* Darwin: Northern Territory Government.

T5: Improving Waterways Management with the Rapid Creek Catchment Advisory Committee

Perspective: Other
Role: -
LG type: (Capital City)
Focus: Management

Context Issues
Rapid Creek flows through Darwin, through Defence Department-managed land, and through a large area of private and Crown Land.

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Achieve a more integrated effort for managing a significant catchment,
- Integrate on-the-ground effort with community education to promote awareness of issues,
- Provide feedback to the Minister on catchment management issues,
- Encourage a more systematic use of the resources going into the catchment management.

Drivers
- Rapid Creek Catchment Advisory Committee with wide membership,
- Waterwatch framework,
- Natural Heritage Trust and National Corridors of Green provided funding and advice,
- Department of Defence as a major stakeholder in the catchment. Developed catchment management plans for their area and were cooperative and proactive beyond that. Royal Australian Air Force Environmental Management Steering Committee also helpful,
- Greening Australia and Darwin City Council involved through one billion trees program and save the bush plan

Processes
- Minister for Lands, Planning and Environment appointed the Rapid Creek Catchment Advisory Committee including major landholders, stakeholders (such as LPE Department, Northern Territory University [a landholder], Department of Defence, Dept. of Transport and Works, Department of Primary Industry and Fisheries, Parks and Wildlife Commission, Darwin City Council, Rapid Creek Landcare Group, Greening Australia, Larrakia Nation [traditional owners], Waterwatch),
- Meetings and actions for

Constraints
- Initially starved of financial resources,
- Initial lack of vision and cohesion in group,
- Slow ratification of the committee and its directives by various stakeholders
- Huge variety of views, knowledge and environmental commitment amongst landholders,
- Historical lack of environmental controls,
- Lack of resources to manage crown lands,
- Bureaucracy in organisation and committee,
- Need for higher priority for environmental issues in planning processes in

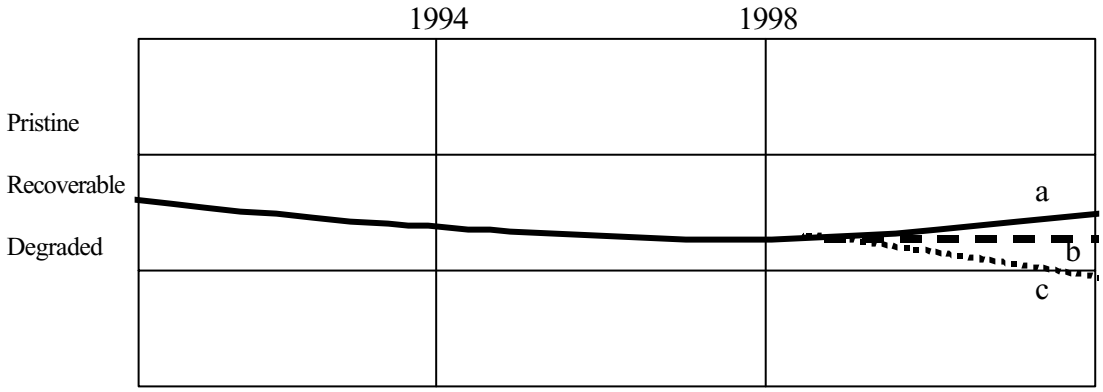
Outcomes
- Community consultation phase useful. Rapid Creek now seen more as an educational and recreational resource that is worth preserving and managing sustainably,
- Support from Department of Defence, NT University, NT Government and Darwin City Council for the process, Committee and onground management activity,
- Rapid Creek Landcare Group now active in on-the-ground work improving areas,
- There are still issues of wildfires, weeds, uncontrolled vehicle access and other problems

About the Models

The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the ecological, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

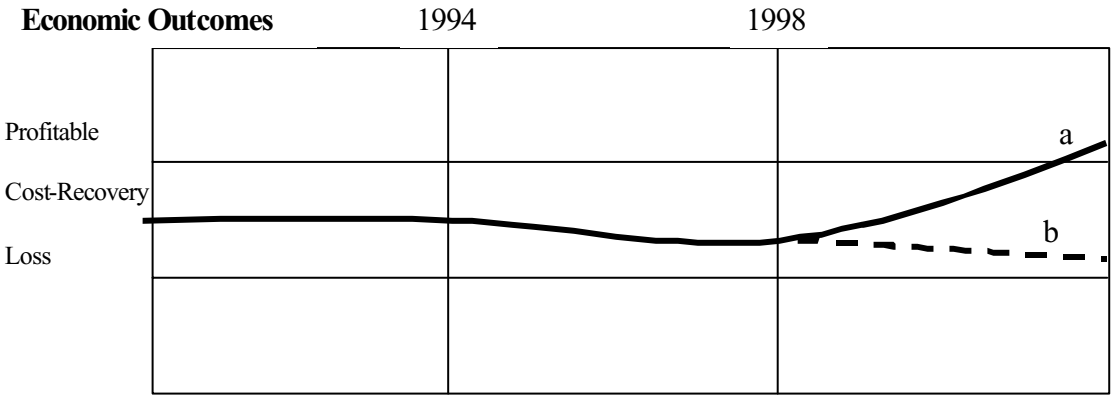
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



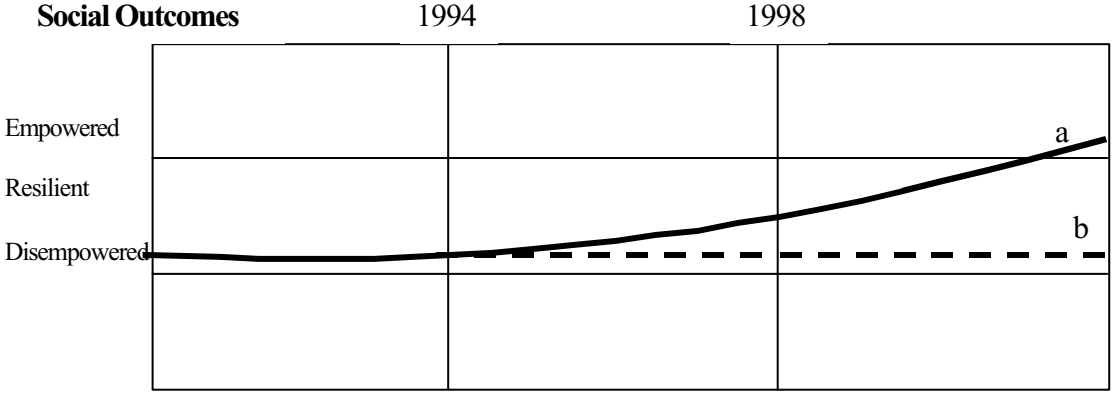
Parts of the Rapid Creek Catchment have been improved through the actions of the Rapid Creek Catchment Advisory Committee and associated initiatives. Weed control, fire management and protection of some areas have occurred (a). There are flow-on effects of these efforts into other parts of the Creek, which have slowed down the rate of degradation despite minimal efforts in those areas (b). In other areas, and in other ways, Rapid Creek management remains the same, and degradation continues (c).

Economic Outcomes



Environmental problems in Rapid Creek have not historically been a financial cost to the community, but some small costs have been involved in developing integrated catchment management systems. Continuation of the catchment management efforts has the potential to save money in the long term, since problems such as weed infestation, erosion and other problems could be avoided (a). Failure to continue these processes is more likely to result in long-term costs, as environmental problems would eventually require remedies, which would be more costly than avoidance (b).

Social Outcomes



The broad representation of the Committee, and the on-the-ground efforts of associated Landcare and Waterwatch initiatives have made this an empowering process for many of the stakeholders. Inclusion of such varied groups as the Larrakia Nation, various community representatives and government departments, and the Defence Department has proven successful, as the parties have worked together well (a). More work is needed to connect these initiatives with the needs and expectations of other land holders, and to provide sustainable long-term management strategies throughout the catchment (b).

Wanneroo Recycling Strategy

Case Study W1: by Su Wild River, with Robert Elliott (Manager, Environmental Waste Services, Wanneroo City).

Comparative Statistics for Wanneroo City

Category	Measure	Comparison
Area (Sq/Km)	6,817.51	Top 18%
Population	72,033	Top 12%
Pop Sq/Km	11	Top 40%
Total Income ($)	49,792,515	Top 16%
Rate Content ($)	18,212,846	Top 19%
Expenditure ($)	53,208,155	Top 14%

Information Australia, 2000

The Western Australian government requires local governments to reduce the amount of waste going to landfill by 50%. The City of Wanneroo decided to trial divided recycling cartsand took the advice of a statistical consultant in designing the trial. But the statistical experiment was met with community anger when residents realised that different systems were being trialled in different areas of the one City. The sensationalising of the issues by the media made accurate communication with the public more difficult.

Wanneroo City includes much of Perth's north coast area. The city is developing rapidly, with new housing estates and shopping centres being built in most of the remaining undeveloped land.

In 1989 the Western Australian state government announced a policy to reduce waste to landfill by 50% within 10 years (see Department of Environmental Protection 1998, p. 7).

Wanneroo/Joondalup had some good information to build on, in deciding how to develop its new waste system. Since 1992, the City of Wanneroo had conducted a limited recycling service, involving a bag system for the recyclable wastes, and hand-sorting at a local Municipal Recycling Facility (MRF).

In 1995, Wanneroo City Council was under increased pressure from the state government to expand this system, and resolved to develop an Ecologically Sustainable Waste Minimisation and Recycling Strategy, involving consultation, research and action. In the absence of an off the shelf model for the consultation, Wanneroo hired a research team from Edith Cowan University, who worked to ensure that consultation was meaningful, and inclusive of the entire community. The consultation confirmed strong community support for "Council's involvement in environmental issues, particularly education, reducing the enhanced greenhouse effect, sustainable development and recycling" (Elliott. Undated.)

However several issues required resolution for council to ensure a cost-effective system that would meet the community's recycling needs. For instance, there were a range of possible systems, ranging from the existing bag-system, to a cart where wastes would be co-mingled, to a split bin, where residents would separate different types of recyclable materials themselves. These systems had different costs associated with them, which would also vary depending on the effectiveness of the systems for sorting wastes. In particular, Wanneroo's existing MRF could be used if the recyclable materials were well separated, but the material would have to be sent to a neighbouring council's MRF if the wastes were co-mingled. The cost of the system would also vary depending on which system was used (Elliott. Undated).

The cost of the proposed service was another central issue requiring resolution. The previous consultation had shown that around half of the local residents were prepared to pay more for recycling services, and the rest were not. With all of these issues in mind, council engaged in a trial to provide information on which to base its decision on a waste and recycling system. The trial would involve provision of split-recycling carts for no up-front charge to one group of residents, who would eventually pay for the system through their rates. A second group would be offered the carts on a voluntary basis, including an up-front charge for the cost of the cart. The remaining council residents would continue with the existing bag system.

The trial was specifically intended to answer the following questions:

1. Would residents really support a use pay system?
2. Would a divided cart system significantly reduce contamination compared with a co-mingled cart system?
3. Would there be significant variation in the way use pay (voluntary) residents used the

recycling carts compared with the control group (compulsory)? And

4. If contamination rates are reduced with the divided recycling carts, is it sufficient to compensate for the more expensive system?

The trial gained initial community support, as several thousand local residents rang up to sign up for the voluntary system. A total of 2,223 households were issued with the bins on the 'compulsory' basis, while 6,974 households joined the voluntary trial. The decision was made not to publish the details of the compulsory/voluntary system trial, as this might have influenced people's behaviour during the trial. Unfortunately for council and the community, some hold-ups with the delivery of the carts for the optional trial meant that those who had paid for their carts were still awaiting delivery some time later. Meanwhile some of their neighbours and local friends had already received a cart under the 'compulsory' trial, without having asked or paid for it.

Some local residents became angry at the apparent disparity in the systems applying across the city. They alerted the media, who took on the story as a sensational case of council blundering (although the same journalists also acknowledged the benefits of taking a statistical approach). The experiment immediately became a public relations nightmare. However council was eventually able to explain some of the issues to the wider community, and the trial continued.

Despite the problems that the trial encountered, its outcomes have been positive for council and the community. It was found that users of the voluntary system sorted their wastes better than those in the compulsory system. The voluntary users' separation was sufficient to make it cost effective for council to continue to use its existing MRF to further sort the recyclable materials. They have since instituted a voluntary system across the council area, that provides for cost-recovery. Council has received over 1000 phone calls from residents wanting a recycling cart and the rate of calls continues at about 20 per week, a year after the last promotional material was issued.

References

Department of Environmental Protection. 1998. *Western Australian Waste Management Strategy.* Perth: Department of Environmental Protection.

Elliott, R. Undated. User Pay Voluntary Recycling. Unpublished report to the City of Wanneroo, Perth.

Project Report. 1999. Former City of Wanneroo divided cart trial. Unpublished report to the City of Wanneroo, Perth.

W1: Waneroo/Joondalup Recycling Experiment

Perspective: LG
Role: Manager
LG type: Capital fringe (rich, compact, populous)
Focus: Protection

Context Issues
Strong regional advances in waste management systems recently. State Government policy requirement to reduce waste to landfill by 50%

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Increase recycling,
- Meet SG targets for waste minimisation,
- Find out whether people recycle more efficiently if they pay for the service.

Drivers
- State Government policies requiring increased recycling,
- Neighbouring LGs MRF able to take co-mingled wastes from Wanneroo for sorting,
- Researcher's with ideas for trials and consultation processes,
- Local community interest and support for recycling, with half the residents indicating that they would pay for an improved recycling service.

Processes
- 1993-94 economic evaluation showed recycling of plastics etc. not cost-effective ($1200/T),
- Nov. 1997 – community consultation report to Council showed support for recycling, and that many would be prepared to pay more for better recycling services,
- 'experimental' version of community consultation. Different waste systems applied to different suburbs.

Constraints
- Challenge to design and select best system for waste collection, sorting, recycling and disposal,
- Challenge to inform community of recycling options, and to gauge their responses to different options,
- Poor program delivery – recycling bins delivered in wrong order to ratepayers,
- Community opposition to experiment about pricing and service options,
- Negative media coverage of issue,
- Time pressure due to negative responses from community, media, Council.

Outcomes
- In the short term- negative community attitudes towards LG and its recycling initiatives,
- In the long term, a cost-effective recycling system that appears to meet the community's demand for recycling services.

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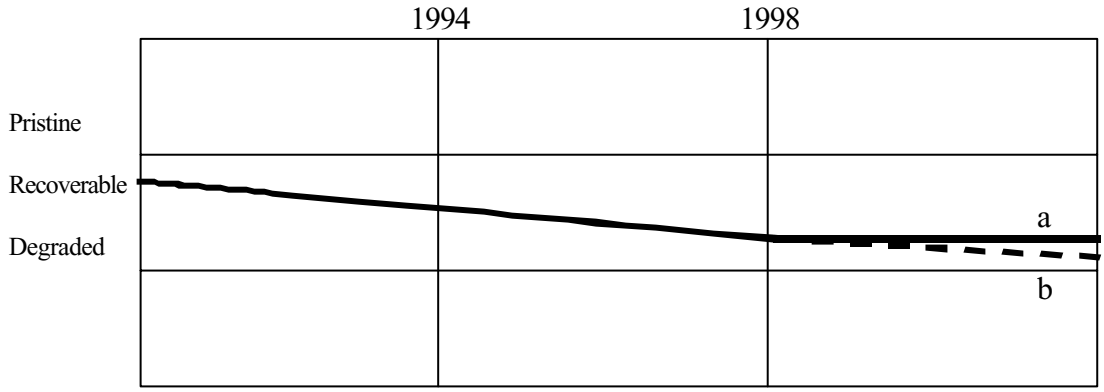
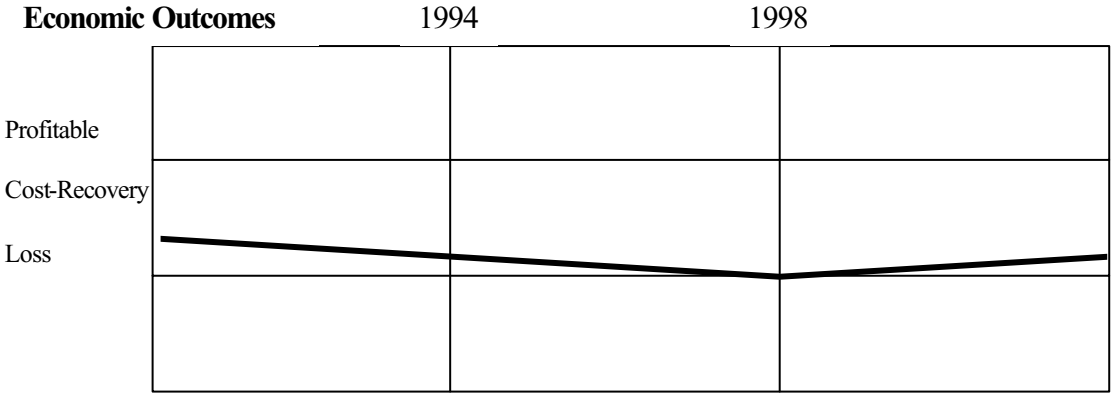
Environmental Outcomes



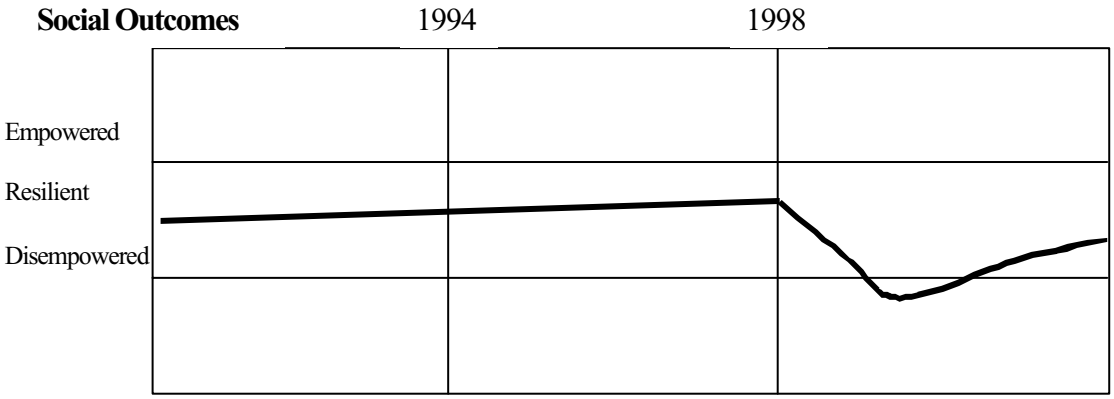
The recycling initiative aimed to reduce resource wastage in the local area, and therefore to reduce the rate of degradation of environmental values (a). The negative media response to the issue probably constrained the effectiveness of the trial, and subsequent uptake of recycling (b). However recycling continues to increase in Wanneroo, suggesting that the long-term outcomes are likely to continue to improve.

Economic Outcomes



Waste systems such as those in place at Joondalup/Wanneroo prior to the experiment are typically costly to run. As a result of the recycling initiatives, council has managed to put a cost-recovery, user-pay system in place, that will help to deliver cost-effective recycling in the long run.

Social Outcomes



Council's preparatory work leading up to this initiative would have had empowering impacts on the local area. The community consultation showing public support for recycling initiatives and that around half of the residents were prepared to pay for improved recycling services. The initiative aimed to continue this empowering trend, but ensuring that the most popular initiative was adopted. The trial, and negative publicity over it were disempowering for the community, and also angered many of the most supportive individuals (those who had volunteered to pay for recycling). Over the longer term, the level of support for the system appears to be continuing to slowly improve.

Stirling City Waste Minimisation

Case Study W2: by Su Wild River, with Viet Nysen (Manager, Stirling City)

Comparative Statistics for Stirling City

Category	Measure	Comparison
Area (Sq/Km)	100	Bottom 17%
Population	175,569	Top 2%
Pop Sq/Km	1,756	Top 9%
Total Income ($)	78,885,314	Top 6%
Rate Content ($)	47,029,011	Top 5%
Expenditure ($)	76,252,413	Top 7%

Information Australia, 2000

Stirling City's long-term research, and consideration of local waste issues has paid off for the City. It has strategically outsourced its recycling and waste disposal functions to an innovative private company. Stirling has far exceeded the government's waste reduction targets, with only 24% of the City's waste now going to landfill.

Stirling City is a relatively large local government in Perth's northern metropolitan area.

Lateral thinking and long-term research into local waste issues has paid off well for Stirling City. Many local governments (LGs) around Australia responded to waste reduction requirements with their own targets, for significant reductions of waste to landfill by the year 2000. Many introduced a new residential bin for 'recyclable' wastes (primarily discarded packaging and paper products), and asked the community to sort them waste home. Stirling was in a strong position to work out its own targeted response to waste reduction requirements, since it had been carefully analysing its waste stream since 1969. This research showed that the proportions of waste being thrown out in Stirling City were as follows.

Table: Makeup of Stirling City Waste

Waste group	Percentage of Waste
Paper and cardboard	21
Food, Garden, other organic	57
Glass	5
Plastic	10
Metal	3
Hazardous and Soil	4

City of Stirling 1998. p.3

Stirling recognised that recycling discarded packaging alone would never achieve their goal of a 50% reduction of landfill waste. Council also recognised that discarded packaging did not contribute to the immediate problems of landfill gas emissions, caused by organic wastes, which comprise the largest proportion of landfill wastes. Recycling packaging would also not solve the equally pressing leachate problem in landfill sites. Stirling found that it was also not cost-effective to recycle many of these materials in Perth. For instance, the closest plastic recycler is thousands of kilometres away, and the shipping costs for the wastes could far outweigh any possible financial returns from recycling.

Stirling also noted that their own City, all of Perth and indeed most of the State of Western Australia, lies on deep, sandy soils. These soils usually lack the organic material needed to hold nutrients and water for crop growth. These soils were also being destroyed through increasing salinity and acidification, which has been reducing the amount of land available for agriculture each year. Stirling realised that the large proportion of organic material in its residential waste stream probably had great potential for recycling by conversion in to compost.

Another difference between Stirling City's approach, and that of most Australian LGs, is that they have not operated a landfill since 1984. An area within the city serves as a landfill, but is operated by Stirling's long-term waste contractor, Atlas, which also owns large tracts of farmland. The company was also confronted with the need to introduce leachate controls on its landfill. Rather than install a synthetic liner, the company examined the option of removing the organic fraction from the domestic waste and only landfilling the residual inert fraction.

Working together, within the confines of the existing contract, the City of Stirling and Atlas have developed a new process that incorporates the recycling of organic materials and the recovery of other materials such as discarded beverage containers. Atlas designed and constructed a new waste sorting facility. This uses mechanical processes incorporated in "trommels" to remove the organic fraction of the waste stream. Magnets are used to recover the ferrous waste. Conveyor belts then carry the inert residual wastes past workers who pull out the packaging wastes that cannot be sorted

mechanically. Figure 1 shows the sorting facility in action.

Figure 1. Waste sorting in the Atlas Plant, Stirling City.

The separated wastes are each directed to a chosen disposal or recycling area. One feature of this intensive sorting is that any wastes that are not currently recycled, can be carefully stockpiled for any future markets that develop for these materials. So non-recyclable plastics and other inanimate objects are compacted into large blocks of similar material. These are stored together in a landfill site, thus ensuring that they can be readily recovered if required in the future. Research will soon commence with a view to converting this residue to energy through a gasification process.

The organic material is readily sorted in the plant. Over 50% of the waste that enters the plant is recovered as organics. Small particles of glass and gravel stones are screened out at the Atlas Farm in Calingiri after a 14 week windrow composting process. The compost made to date has met the Australian Standard 4454-1999 and can be used in playgrounds, sports fields, or other areas. However the Atlas group believes that the highest priority market for the compost is on Western Australia's depleted agricultural soils. At present, the organic material is taken to Atlas' land outside Perth, and composted in an area where the resulting mature compost will be used

The long-term plan for the organic waste however, is even more innovative. Atlas has designed a system for vertical composting of Stirling's organic waste. The Atlas plant in Stirling already has three large anaerobic composting units. These are designed to process all of Stirling's organic waste, in an air tight environment for the production of methane gas. The digestion process takes 20 days, for the transition from waste, to a denatured organic sludge and methane gas. The denatured sludge is then added to the windrow composting process at the Atlas farm in Calingiri and matured through a 14 week process. After the screening process, the compost can be pelletised for storage purposes and for compatability with contemporary farming practices. It takes around 20 years for the same decomposition to occur naturally in a landfill environment (City of Stirling 1998. p.10).

Due to limited financial resources and a contractual commitment to manage the City's waste stream, Atlas has concentrated on the refinement of the sorting plant and the aerobic composting process and postponed the commissioning of the three anaerobic digestion tanks,. Figure 2 shows two of the large, vertical composters in place, but not yet operational.

Figure 2: Vertical composters

Cultural factors have influenced Stirling's waste system. Although the City recycles a far more of its waste than most Australian LGs local community members continue to campaign for a better recycling system. Many equate good recycling with the presence of a 'recycling' wheelie bin in addition to the normal waste bin, with good recycling practices. But since the Atlas plant sorts all wastes, the extra bin is unnecessary.

Community education has worked in other ways though. In order to produce a high quality compost, the City recognised that toxic and hazardous materials should not be disposed of in the domestic rubbish bin. To recover these materials the City started educating its schoolchildren about the environmental hazards of some household waste. Dry cell batteries were used as the example for school children. The City also maintains a hazardous household waste collection facility to support this.

References

Information Australia. 2000. Australian Local Government Guide. 28th edition, July 2000-November 2000. Melbourne: Information Australia.

City of Stirling. 1998. *Case for the 1998* City of Stirling. 1998. *Case for the 1998 Recycling and Waste Reduction Awards.* Stirling: City of Stirling.

W2: Stirling City Waste Minimisation

Perspective: LG
Role: Manager
LG type: Capital (rich, compact, populous)
Focus: Protection

Context Issues

The process itself was mostly flexible, with constraints to that deriving from origins, including SG 1988 policy, and entrenched views of various stakeholders.

Context continuums

Scale

<local local regional state national international

Flexibility of Process

Full mostly equal partial none

Origins of initiative

<local local regional state national international

Goals

- Achieve targets from the national campaign of 50% reduction of waste to landfill,
- Achieve outcomes envisaged at the Rio Earth Summit in 1992,
- Achieve the intended outcomes of a Local Agenda 21 (not the detailed off-the-shelf model),
- Provide a cost-effective system for waste reduction and disposal in Stirling City,
- Reduce greenhouse gases and leachate associated with landfill waste,
- Improve the sustainability of waste management practices in Stirling City.

Drivers

- Lack of a landfill suitable for mixed waste, so all waste services contracted out,
- Broad technical base of the waste consultants (Atlas), and innovative attitude,
- Strategies in place in the Regional Organisation of Councils,
- Consolidation, toughening of SG waste requirements,
- Research findings that have identified the most cost-effective components of landfill waste to tackle for recycling (organics),
- Community education campaign,
- The need to produce a net environmental benefit from recycling.

Processes

- Still using 'old-style' waste collection system (bags, not wheelie bins for recycling),
- Exploration of options for waste management – incineration anaerobic digestion, etc.
- Selection of anaerobic digestion for organics,
- Education campaign targeting teachers, schools, on recycling issues (batteries, regulated wastes),
- 'junk' collection scheme in addition to existing 'green waste' collection,
- charging for costly waste sorting (garden, regulated),
- full-time inspector at transfer stations,
- Atlas sorting infrastructure built, and brought on line May 1997.

Constraints

- Community perception that optimal recycling only occurs where LG provides two wheelie bins.
- Government Bureaucracy that was focussed on recycling of packaging waste and that regulated rather than facilitated.
- No immediate government support for the production of Green energy.

Outcomes

- Best quality organic waste removal from landfill, and used to improve the quality of agricultural farmland etc,
- Have almost cleaned out garden and food waste from landfill, eliminating greenhouse gas and leachate emissions associated with landfill.
- Mechanical and hand sorting operation sorts out most recyclable wastes,
- Only 24% of City waste now goes to landfill,
- Stirling City/Atlas a model for national waste management – award won.

About the Models

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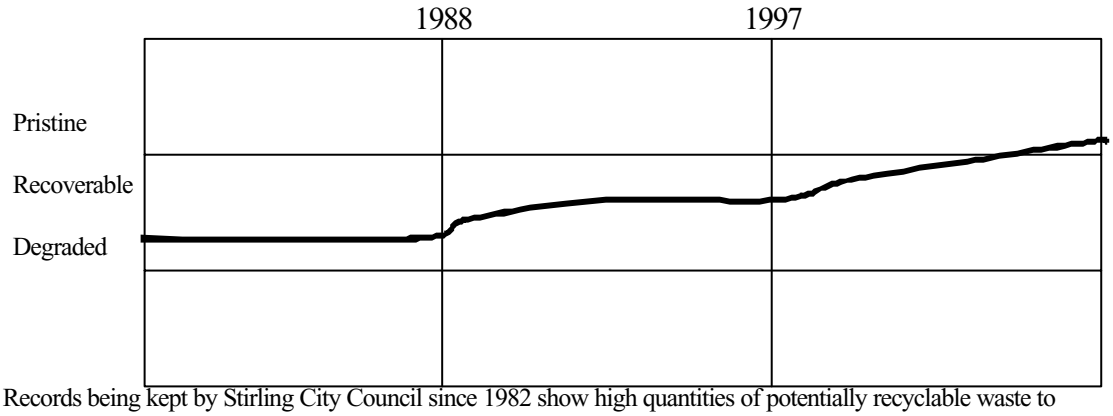
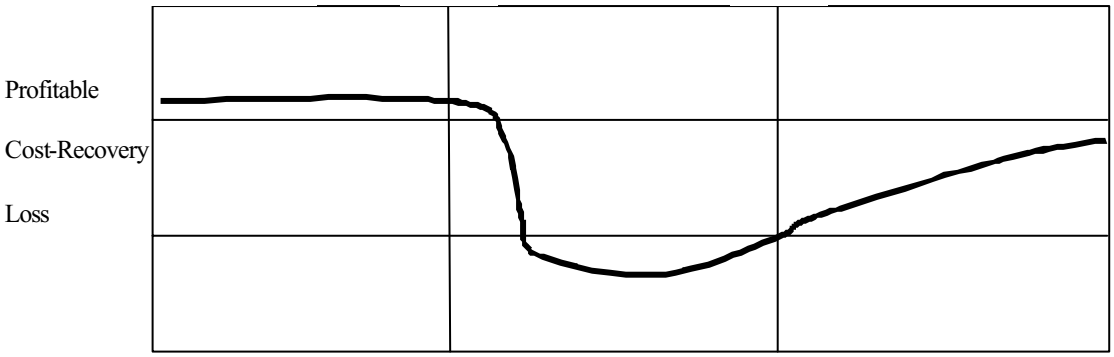
Ecological Outcomes



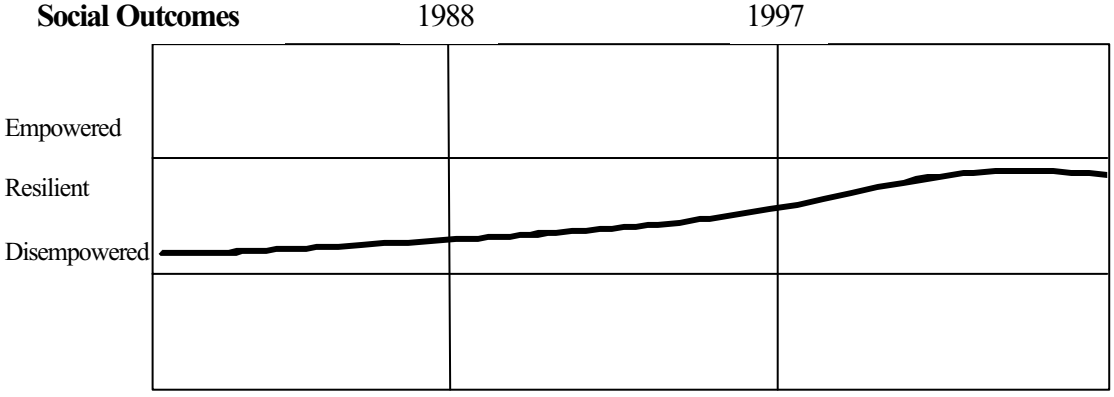
Records being kept by Stirling City Council since 1982 show high quantities of potentially recyclable waste to landfill prior to these initiatives. Sustainability literature and the 1992 Rio Earth Summit goal of a 50% reduction in waste to landfill by 2001 spurred Council's actions from 1988. By 1997, Stirling had achieved a 74% reduction in the quantity of waste going to landfill. Now, todays food becomes tomorrows compost, then tomorrows food, as well as today's energy at Stirling.

Economic Outcomes



Waste management activities were profitable before 1988, when glass and metal packaging were being removed from landfill through an existing recycling program. Profitability of glass recycling has since declined. In addition, the State Government brought in new requirements for LGs to recycle paper and plastics. Recycling became a costly process due to the need to conduct multiple collections, a lack of market demand for the materials collected and oversupply. The new systems in place, including organic waste recycling, are probably now verging back on profitable.

Social Outcomes



Prior to 1988 there was a low level of community awareness about waste issues, and a low degree of recycling. The combination of community awareness campaigns started to increase community awareness of waste issues and recycling from 1988. School awareness programs focus on recycling, and kerbside pickups, as the new waste systems have increased the proportion and type of waste that are actively recycled by the community.

City of Nedlands Tree Protection Policy

Case Study W3: by Su Wild River.

Comparative Statistics City of Nedlands

Category	Measure	Comparison
Area (Sq/Km)	20.6	Bottom 7%
Population	21,000	Top 31%
Pop Sq/Km	1,019	Top 12%
Total Income ($)	14,634,800	Top 40%
Rate Content ($)	7,693,943	Top 34%
Expenditure ($)	23,142,534	Top 31%

Information Australia 2000

A large part of Nedlands' environmental and cultural heritage is held in its trees. An enforceable Tree Protection Policy has been successful in protecting trees, but has drawn community opposition because of threats to perceived personal property rights.

Nedlands is one of Perth's oldest suburbs. The local native vegetation was a mixed sandy scrub, but included some tuart, jarrah, and other highly prized tree species. Throughout the 1800s and 1900s, the city became populated until residential development covered 90% of the land area. This brought houses, but also many new trees, with some of the residents planting productive exotic and other valuable trees. Figure 1 shows a typical tree-lined streetscape from the City of Nedlands.

Figure 1: Tree-lined street in the City of Nedlands

A building boom in the 1990s brought a new threat to Nedland's green character. Many small detached houses located on large lots with plenty of room for trees were replaced by larger dwellings. These had multiple garages, swimming pools and extensive paved areas. Many established trees were removed with little thought, to provide 'a clean slate' and make the new building simpler.

Through the 1990s, the City of Nedlands had several councillors who were originally from outside of Western Australia. Some also had experience of local governments protecting trees as part of their planning schemes, or through local laws. One had experience in England, from a local government which has had tree protection in place for 20 years. Seeing the distinctive streetscapes, and large, old trees throughout Nedlands City, these officials councillors realised that they formed a special part of Nedlands' local character and decided to protect them. Fortunately the City had some officials with experience elsewhere, including interstate with local governments whose planning policies aimed to retain and build on environmental values, in order to facilitate conservation of its trees.

Nedlands opted to develop a tree protection policy, linked to its planning scheme. The policy was developed through of community consultation and education. This included wide publication of the policy through Nedlands' news page in the local newspaper. There was a very good initial response to the policy from within the local area.

Part of the consultation involved surveys to determine public opinion about tree protection. The results showed that 80% of residents didn't care one way or the other about the tree preservation. This group just wanted to know what the rules were and they would abide by them. Of the remaining 20%, about half were strongly in favour and half strongly against tree protection.

Because the policy was linked to the planning scheme, Council needed to obtain state government approval for it. There were no model tree protection policies, or other supportive legislation in place to assist in developing the tree protection policy. Neither the WA Planning Commission nor the Planning Minister initially resisted the idea.

The changes to the City's Town Planning Scheme were passed in 1997, and commenced without problem. The changes required that landowners obtain approval from Nedlands City before removing mature trees from their properties, unless those trees were exempted because of their closeness to buildings or power lines, or for other reasons. The Planning Scheme also established an Inventory of Significant Trees. A proposed publication, called Significant Trees in Nedlands reports the following about the tree protection initiatives.

> "The tree management provisions were operated for more than two years, during which time approximately 1300 trees were approved for removal. Of these, 65 were of old growth tuart or jarrah species. Over the same period, approximately 130 applications

> "The tree management provisions were operated for more than two years, during which time approximately 1300 trees were approved for removal. Of these, 65 were of old growth tuart or jarrah species. Over the same period, approximately 130 applications for removal were refused.
>
> While there were many requests (successful more often than not) for the Council to reconsider its refusals, only one formal town planning appeal relating to tree management was made, and that was upheld.
>
> Greatest gains were made with rebuilding. Hundreds of trees that would have been lost were retained, through negotiations with owners, builders and architects during redevelopments. Tree management was administered by a part-time Environmental Officer." (*Significant Trees in the City of Nedlands* - unpublished)

As well as directly saving these trees, it is likely that the policy indirectly saved thousands of others. These were retained because people did not bother applying for removal because they thought it may not be given. Some were also more cooperative in redesigning the layout of their homes to retain trees because they knew council had the power to refuse approval in order to protect trees.

However the first prosecution under the policy caused many problems for the Council. A landowner had removed a tree without permission and was angry that his perceived property rights had been restricted. The local newspaper took the side of the landowner, and criticised Council and its policy. The resentment over the issue became so strong that several prominent residents formed an action group to lobby against tree preservation. Although clearly standing against any form of tree protection, the group called themselves "People for a Fair Tree Policy". They posted leaflets in opposition to tree protection in letterboxes, and took out full page advertisements in the local newspaper to promote their cause.

In 1999, half the Council was up for re-election. This included the retiring Mayor, who had supported tree protection, and the Councillor who had been its strongest advocate. The election was fought almost wholly on tree preservation. The new Mayor and all but one of the new Councillors were anti-tree preservation, and this shifted the balance of power in the Council. The Town Planning Scheme was amended to delete Council tree preservation. For a time it seemed possible that a voluntary *Register of Significant Trees* might be retained, but it too was finally scrapped.

The official policy of the new Council was to encourage tree protection in subtle ways, rather than punishing tree removal. The proposed publication of a book on *Significant Trees in the City of Nedlands* was consistent with the new approach, and a budget was provided for the publication. However Council stepped in to halt the publication, after it had been commissioned.

Some important lessons emerge from this experience. They are:

- This was a particularly difficult initiative since the City of Nedlands was the first Western Australian local government to attempt to implement tree protection. It seems that it is tough being a pioneer when trying anything new.
- With hindsight, it would have been better to go easy on individual cases of tree removal, to lose the battle in 10% of examples, to achieve a 90% success rate. If such an approach was followed, this possibly would not have produced the supporters of People for a Fair Tree Policy.
- Many other Councils were watching the Nedlands approach with a view to implementing their own tree protection policies. The failure of this approach probably set back tree preservation by many years in Western Australia.

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W3: City of Nedlands Tree Protection Policy

Perspective: Local Government
Role: Manager
LG type: Capital (rich, compact, populous)
Focus: Management

Context Issues

-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals

- Preserve green character in the City of Nedlands,
- Continue the perception of Nedlands as 'different', and 'greener' than surrounding local areas,
- Green inner-city areas.

Drivers

- Councillors coming from elsewhere where Tree Protection Orders were in force (eg Sydney, and England, with tree protection spanning 20 years),
- Belief by planners managers that tree protection should be part of the planning scheme,
- Planning manager with experience in other WA LGs that had formalised tree protection into Planning requirements,
- Good initial community response to policy,
- Wide publication of initiative through LG news page.

Processes

- Councillors pushing for tree protection,
- Good community responses to wide publication of tree protection policy,
- Bad community response to media reports about restrictions due to policy now it is in place,
- Some Councillors now worried because people have threatened to oppose them at the next election, on anti-tree protection stances.

Constraints

- No supportive legislation in place (state or local) prior to the Policy,
- No support from Planning Minister or Planning Department,
- Community opposition stemming from first prosecution (6 months after the policy commenced),
- Media sensationalism over prosecution – 'property rights' issue.

Outcomes

- More trees to remain in Nedlands than would otherwise be the case,
- Local people more aware of trees and tree management issues than without the initiative,
- Tree protection policy now removed from Planning Scheme,
- Register of significant trees partly developed but now scrapped,
- book on *Significant Trees in Nedlands* written, but seems unlikely to be published,
- General discussion and awareness of greening issues in the local area.

About the Models

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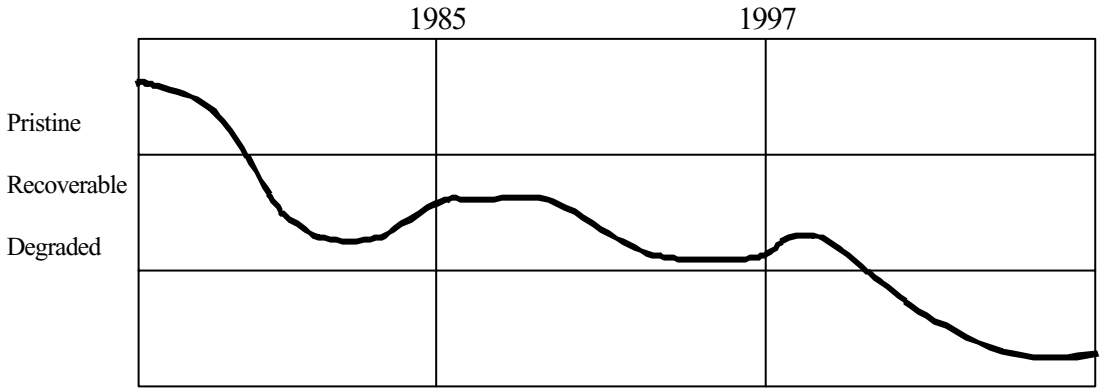
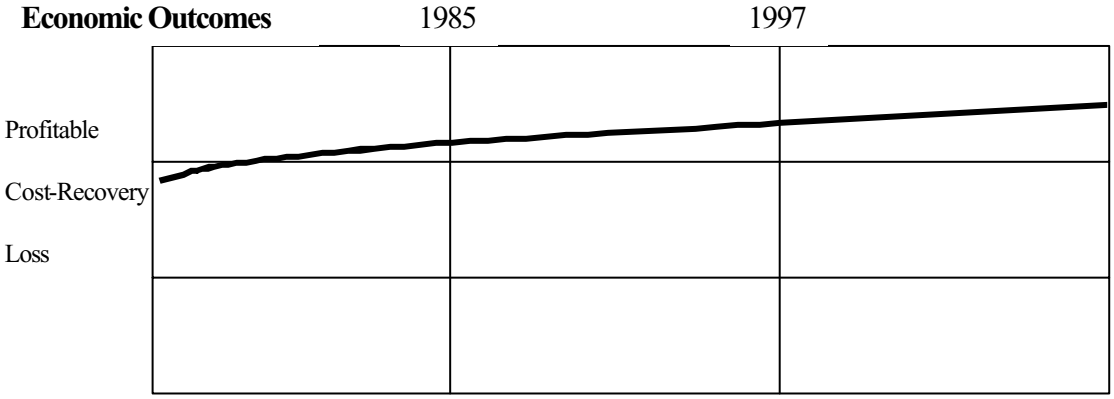
Ecological Outcomes



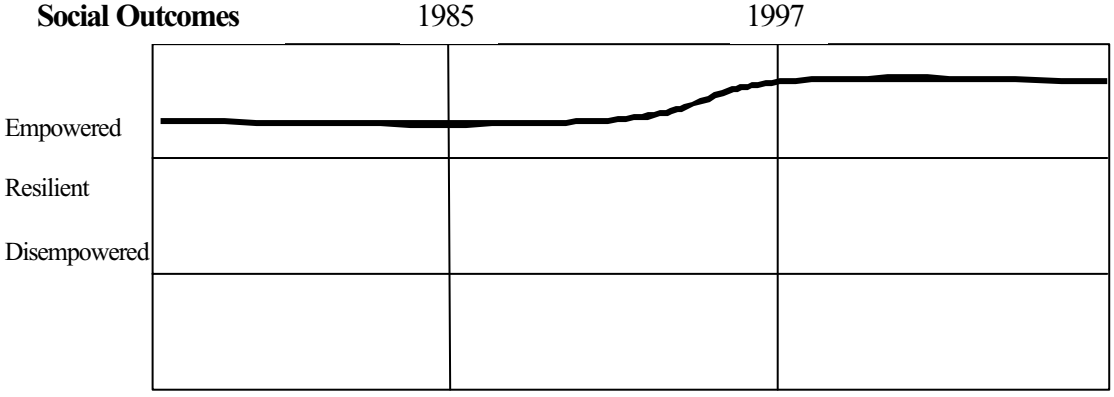
Prior to the 1960s, trees in Nedlands were gradually being cut down to make way for development in this inner-metropolitan area. During the 1960s, there was an increase in trees in Nedlands, from state government requirements that all residential development have 50% landscaped open space. The requirement was removed during the 1980s, and development pressure led to the removal of many trees. The tree protection policies that constrained the removal of old trees, and promoted indigenous planting, have slowed down the tree removal trends, and temporarily reversed them. Without the policies, the trend towards greater tree clearing, and reduced ecological values has resumed.

Economic Outcomes



Nedlands has enjoyed a strong economic base over its life. Residents have always been upper income, many are retired, with time on their hands for gardening. The private and public management of green spaces has probably contributed positively to Nedland's sound economic base over the years. Despite some recent poor publicity for the tree protection policies, these are also likely to help with the retention of high land values in the local area over time.

Social Outcomes



Community empowerment has been at a high level for decades in Nedlands, with some individuals satisfied, and some dissatisfied with the various and changing government requirements about green space. At present, some locals are happy with their 'rights' as landowners, but many still seem to regret the lack of support for the concept and detail of the Tree Protection Policies.

Greening Gosnells Advisory Committee

Case Study W4: By Su Wild River, with Greg Allen (Western Australian Department of Environmental Protection), Wayne van Lieven (City of Gosnells).

Comparative Statistics for Gosnells

Category	Measure	Comparison
Area (Sq/Km)	127	Bottom 20%
Population	79,372	Top 11%
Pop Sq/Km	625	Top 16%
Total Income ($)	35,301,224	Top 20%
Rate Content ($)	18,757,560	Top 19%
Expenditure ($)	31,524,314	Top 24%

Information Australia, 2000

The Greening Gosnells Advisory Committee , a Committee of Council with majority community membership, has assisted the Gosnells City Council to deliver some important environmental outcomes. The Committee and Council supported a botanical survey that has mapped out the ecological values of remnant native vegetation within the City. This and other initiatives have helped to identify, protect and enhance many environmental features of the local area.

The City of Gosnells is located on the south-eastern edge of the Perth metropolitan area. Approximately 30% of the City remains under native vegetation. The City has a predominantly blue-collar population, but recent estate-type residential developments and a projected population growth of 25% in the next 5 to 10 years are driving change in population demographics.

Gosnells has been steadily improving its environmental management over recent years. This has been largely due to increasing awareness about local environmental values, within both the council and community. The City of Gosnells engages in regular community attitude surveying, with the environment consistently being listed as the highest priority.

The City's first major environmental management initiative, originated by the Greening Gosnells Advisory Committee, was a survey of remnant native vegetation in those areas generally facing future urbanisation. Natural Heritage Trust funding provided for a comprehensive report to be produced. This report has provided the City with immediate information on its own natural assets, and has been a significant factor in the assessment of areas for conservation under the State Government's *Bush Forever* planning strategy.

There were many immediate outcomes from local vegetation mapping. Most were positive, but there were some negatives. For instance, vegetation on one 5-acre block was allegedly burnt to avoid the risk that significant vegetation might be found there. Council initially expressed concern as to the ramifications of the report, with a number of Councillors concerned that if it produced strong arguments for the protection of environmental values, this might constrain broader local development.

Gosnells City Council also supported other local environmental initiatives raised by the Greening Gosnells Advisory Committee in many important ways. They created an Environmental Coordinator position within the Council. This has been a great stimulus for ongoing environmental action in the local area, and more broadly within the Upper Canning River Catchment.

Other Council initiatives included strong encouragement from the Mayor for the coordination of environmentally relevant work within the City. Planners, engineers and others were encouraged to work together on environmental issues. The Local Agenda 21 framework proved a useful model in the development of the City's Environmental Management Plan. Gosnells was one of Western Australia's first Councils to consider Local Agenda 21 initiatives.

Council created the Greening Gosnells Advisory Committee in 1989, and ensured broad community representation and relevant staff representation in its membership. The Committee was initially convened to devise and promote tree-planting projects within the City. Broader emerging issues included the protection of remnant vegetation. Further goals were to be decided, following the release of the local botanical survey.

Together, these efforts raised local awareness of environmental issues, and have provided the means for Council to take action to improve local environmental performance.

W4: Greening Gosnells Advisory Committee

Perspective: Local Government/ State Government
Role: Officer
LG type: Capital fringe (rich, compact, populous)
Focus: Management

Context Issues

-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals

- Gosnells City Council established the Committee, with a clear goal of coordinating tree-planting projects. Committee reported direct to Council and gained approval to broaden objectives.
- Committee members had goals to protect the undeveloped bushland in Gosnells.

Drivers

- City staff with clear ideas about key environmental issues,
- Report and botanical survey in 1995 showed special features of much of the remaining bush in Gosnells,
- Natural Heritage Trust funding enabled mapping and preparation of the report,
- Individual committee members commitment,
- Appointment of Environmental Coordinator,
- Encouragement from Mayor for environment, planning and engineering officers to work together,
- Local Agenda 21 framework.

Processes

- Council establishment of the Advisory Committee,
- Staff personal interest and commitment,

Local Agenda 21 model used to guide development of Environmental Management Plan

Constraints

- Some negative community response to the botanical report. One 5 acre bushland area allegedly burnt to avoid the 'risk' that threatened species might be found there,

Council in general initially concerned about the botanical report and its strong arguments for greater protection of environmental values.

Outcomes

- Environment Coordinator position in Council,
- Bushland inventory and botanical survey complete,
- Change, and some improvement in Councillor attitudes to environmental management,
- One of the first 10 LGs in Western Australia to consider a Local Agenda 21 framework,
- Mayor involved in Committee for 2-3 years, and sympathetic to environmental issues,
- Good work between different professions within LG.

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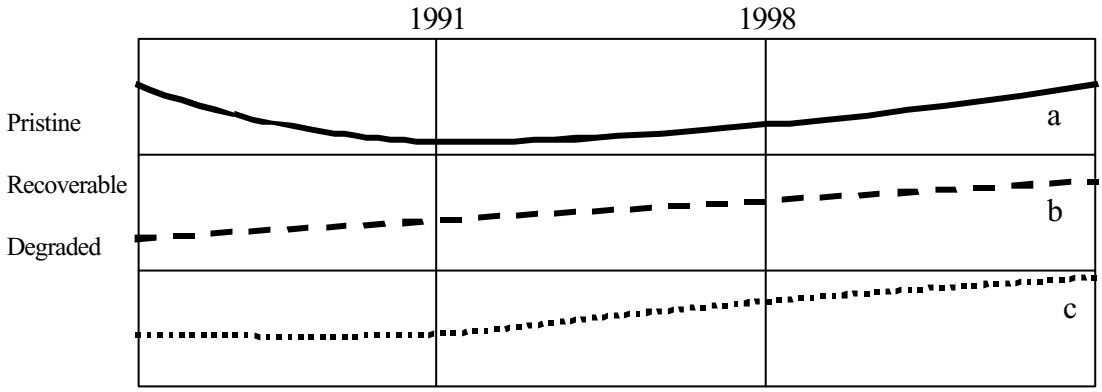
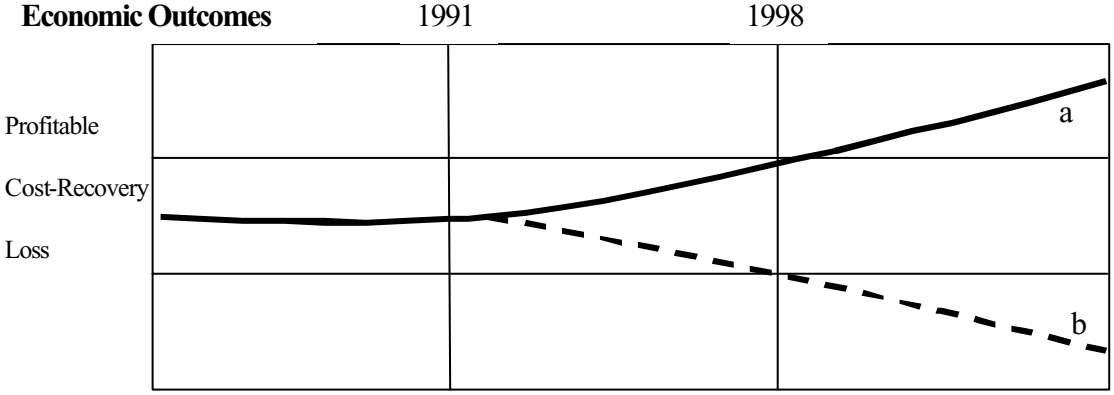
Ecological Outcomes



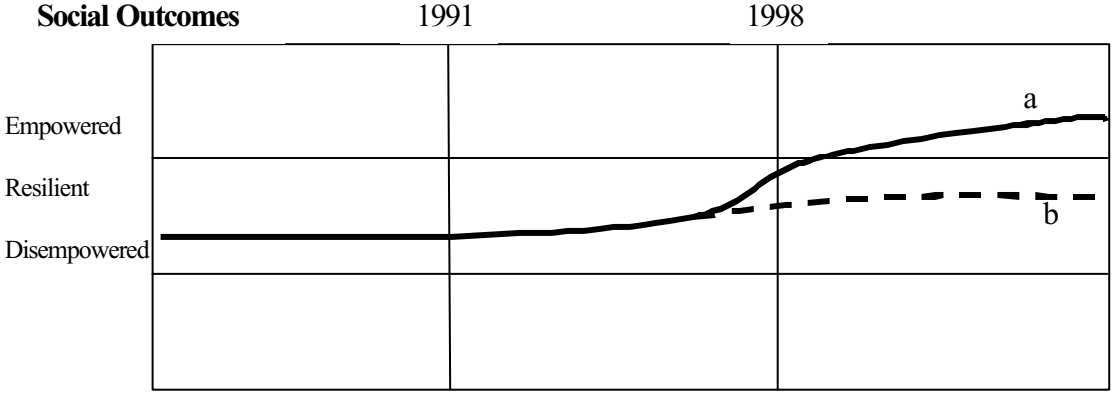
Gosnells has several different qualities of environmental values in the local area, each of which has had a positive input as a result of the Greening Gosnells initiatives. Some pristine areas that have been under threat from development have now been earmarked for acquisition by the State Government (a). Many of the areas that are already developed are now covered by management plans for the creeks, and some community groups are involved in managing them better (b). The contaminated site also has the potential for improved management, since groundwater quality is being assessed, and management strategies are being developed (c).

Economic Outcomes



Gosnells is generally an area with low socioeconomic status, which also has a high indigenous population. The economic impacts of the Greening Gosnells initiatives are currently a matter of perspective. There is a good chance that these initiatives will lead to increased land values in the local area over time (a). However, some members of Council and the community also believe that restrictions to development are a net cost (b).

Social Outcomes



Different members of the population have had different levels of involvement in the Greening Gosnells initiative. Those few that are heavily involved have had a significant increase in their sense of empowerment to improve their local environmental and community values (a). However the vast majority have only been slightly involved, and are just slightly more aware of their ability to impact on the local environment and decision-making (b).

Ground-up regional environmental planning in South West Western Australia

Case Study W5: by Su Wild River, with John Sherwood, South West Environment Centre (former Executive Officer of SWWA Local Governmment Association) and Keith Bradby (landcare consultant).

The South West Western Australia (SWWA) Environmental Strategy pulled diverse groups and individuals together in deciding actions for sustainable regional futures. However after the project's funding ran out, and another, similar project was overlaid on a larger, overlapping region, momentum for implementing the strategy was lost.

SWWA is a small, diverse, productive corner of a large, dry state. It is the only part of WA where forest is the dominant indigenous vegetation. It has WA's largest concentration of rural people, is the state's main focus for tourist and recreational visitors, and is an area where mining and heavy industry are developing rapidly. In contrast to other parts of the state, the area has managed to maintain much of its environmental health and integrity, despite ongoing and increasing residential, tourist and other development pressures (Bradby and Pearce 1997a, p.11).

Figure 1: Jarrah forest in SWWA

However there are some serious environmental problems, that will worsen unless they are effectively tackled. Many waterways in the region are becoming increasingly saline, and algal blooms are now common in river pools and estuaries. Some waterways are filling with silt and many aquatic species are becoming rare. Salinity of agricultural land is increasing, and hazardous wastes from current and past practices threaten long-term contamination of land and ground water. Biodiversity has decreased

significantly, largely because of feral animals, weeds and agricultural expansion. Other environmental values, such as air quality and ambience, are largely retained in most of the region (Bradby 1997a and b). Figure 1 shows a track through one of the Jarrah and Karri forests for which the region is famous.

In 1994, the Federal Government's *Working Nation* policy statement allocated money to a Regional Environmental Employment Program. Under this program $1.4 billion was to be made available "projects that reverse environmental degradation". (Finn 1997. p124). This work was to proceed within "regional environmental plans", a requirement that led to funding being made available for the development of six pilot environmental plans throughout Australia. These were developed by regional local government associations.

The SWWA Local Government Association, an organisation only just forming at the time,was one of the bodies who received funding under the program to develop a strategy. The Australian Local Government Association coordinated and supported the development of the environmental strategies, but each region developed its own strategy autonomously. While the funding was only sufficient for a short term project, there was a requirement for extensive community consultation. In SWWA this was achieved through a representative steering committee (described below) and through producing three widely circulated discussion papers. These were then re-written and produced as a green jobs strategy (Bradby and Pearce 1997b), a regional state of the environment report (Bradby 1997a) and the overarching environmental strategy (Bradby and Pearce 1997a). Additionally a set of environmental indicators (Galloway and Pearce 1997) was also produced, using funding gained during the initial project.

Consultation with various agencies, and with individual community members played a large part in developing the SWWA environmental strategy. For instance, the project steering committee included one representative from each of seven government agencies and seven non-government organisations. The steering committee led a consensus-building process throughout strategy development. While there were not large workshops, small meetings about the strategy were held with many groups across the region. Indigenous groups, foresters, environmentalists, farmers and tourist operators were among those consulted in this way.

This approach led to a very broad-reaching strategy with surprisingly strong consensus even about very radical environmental initiatives. These always considered ecological, economic and social issues, and aimed for long-term improvements to each of these values. For instance, consensus was reached on some guiding principles, applicable to all regional groups. These included:

"Development in Western Australia should be

> sustainable. It should not exceed the environment's capacity to assimilate its impacts. It should never jeopardise the wellbeing of future generations. Western Austrlaian have the right to know about and take part in major decisions affecting the environment" (Bradby and Pearce 1997a. p.5).

The premise that environmental and economic goals are fundamentally linked underlies the strategy, and is evident in most recommendations. Specific issues covered in the final strategy include the need for clarity and cohesion in government work, democracy, labour market programs, water quality, land, biodiversity, atmosphere and ambience. The strategy also identified processes for achieving environmental outcomes. These include asserting the right to work from the ground up, and using regional planning frameworks, rather than ad hoc decision making.

Several initiatives were quickly commenced during, or soon after the strategy was developed. These included a recycling strategy, which established kerbside recycling for the first time in the region.

The strategy identified a lack of resources as a major impediment to this, but rather than look for external funding, they sought a revision of federal/ state/local funding programs and responsibilities. Their justification for this was:

> Both the State Government and Federal Government have established a wide range of programs. While this has allowed some money to reach the ground, much is lost in the production of paper to service "big picture" planning and research needs. To meet the well recognised on ground needs, local councils and community groups are constantly involved in a short term scramble for funding, which has none of the continuity that environmental work needs. Additionally, the funding programs tend to promote competition between local allies who should be cooperating" (Bradby and Pearce 1997a. p.13).

Unfortunately, these concerns foreshadowed the future of the strategy itself. Before the strategy could be completed, the Regional Environmental Employment program was disbanded, following a change of government. This removed the primary funding target the strategy was aimed at, and through which significant elements could be implemented. Momentum was further lost when the National Heritage Trust provided funding for a second strategy, with a larger, overlapping area, but coordinated by a state agency. After this, even the LGs who had been the strongest drivers, became disillusioned or distracted and failed to effectively implement key parts of the strategy (Sherwood 1998). Finally, only three years after the strategy was completed, the SWWA Local Government Association itself was disbanded. Months later, some of the most successful environmental programs, such as the regional recycling strategy, were also wound up (Brown 2000. p.1).

However, this may reflect the difficulties faced by local government in Western Australia during this period. The development of regional coordination was in its infancy and local government was having extreme difficulty competing with state agencies for scarce environmental funding.

As it was, only two Regional Environmental Employment Programs were ever funded in Western Australia. One was along the Blackwood River where a detailed catchment strategy already existed, and one was managed by a group prepared to draft and complete a regional environmental strategy in two weeks, so as to meet the funding deadline. Both programs had budgets well over the million dollar mark, both employed hundreds of trainees, both did a wide range of useful environmental work on the ground and both were operating before the SW strategy even commenced (Bradby & Mates 1994).

But there is some evidence that the SW strategy may be continuing to have some influence. Three years after its completion a new regional organisation had been established, the South West Catchments Council. This represents the main catchment coordinating groups in the region, and is currently preparing a natural resource strategy that draws heavily on the original Regional Environmental Strategy.

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W5: Ground-up regional environmental planning in South West Western Australia

Perspective: Mixed/Other
Role: Councillor/Consultant
LG type: Region
Focus: Planning

Context Issues
This small, wet, forested region of a large, dry, desert-state has inspired many regional initiatives, usually with inconsistent boundaries.

Context continuums

Scale
<local **local** **regional** state national international

Flexibility of Process
Full **mostly** equal partial none

Origins of initiative
<local local **regional** state national international

Goals
- Establish strategic environmental plans, processes and partnerships in SWWA,
- Ensure that regional issues are reflected in future development decisions in SWWA,
- Increase ability of region to tap Regional Environmental Employment Funding
- Create new 'green jobs' in SWWA.

Drivers
- SWWA Local Government Association, and members' enthusiasm,
- Strategy coordinator and his enthusiasm,
- Voluntary Regional Organisation of Council structure and lead agency work,
- Australian Local Government Association, and its environmental officer, providing funding and other support,
- Autonomy provided by funding etc,
- Enthusiasm and participation from the stakeholder groups.

Processes
- 14 stakeholder agencies involved, including 7 government agencies, and 7 non-government organisation. This provided a balance,
- This was a 'brave' project, since only 1 of the 12 Councils involved had any clear environmental vision, and all had limited environmental budgets, and council cultures were non-environmental prior to the strategy,
- Public consultation on the strategy and its key issues.

Constraints
- National Heritage Trust funding for a similar but different regional strategy. The new strategy covered a bigger region with no identity, that was selected by Agriculture WA.
- Competition between groups to obtain funding under the new strategy,
- SWWA Local Government Association coordinator of the project left. His replacement was less interested in environmental issues,
- Change of government led to reduced support for the project.

Outcomes
- 4 publications. Strategy, Green Jobs, Environmental Indicators, State of Environment Report.
- SWWA strategy rated as the best environmental strategy in Australia. One of only three Voluntary Regional Organisations of Councils to receive extra funding for environmental indicators project.
- Poor take-up of strategy elements by responsible agencies (even SWWA Local Government Association, which had led the project, did not take on the recommendations),
- No coordinated follow-up to the strategy.

About the Models

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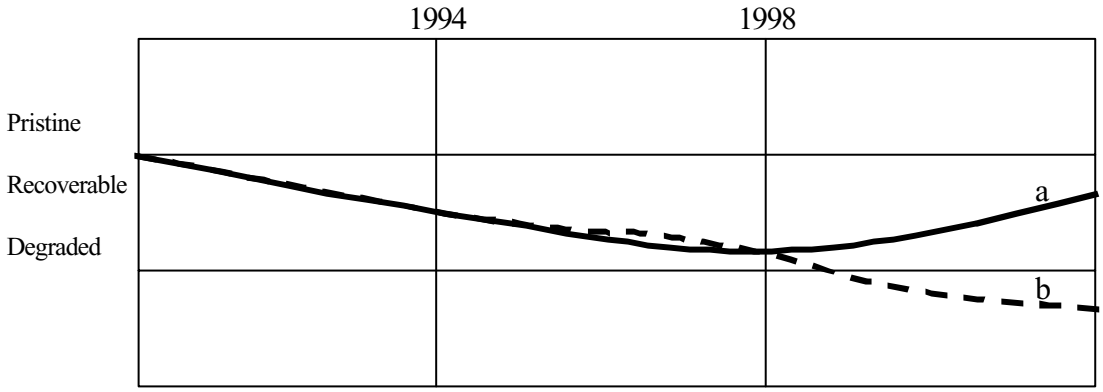
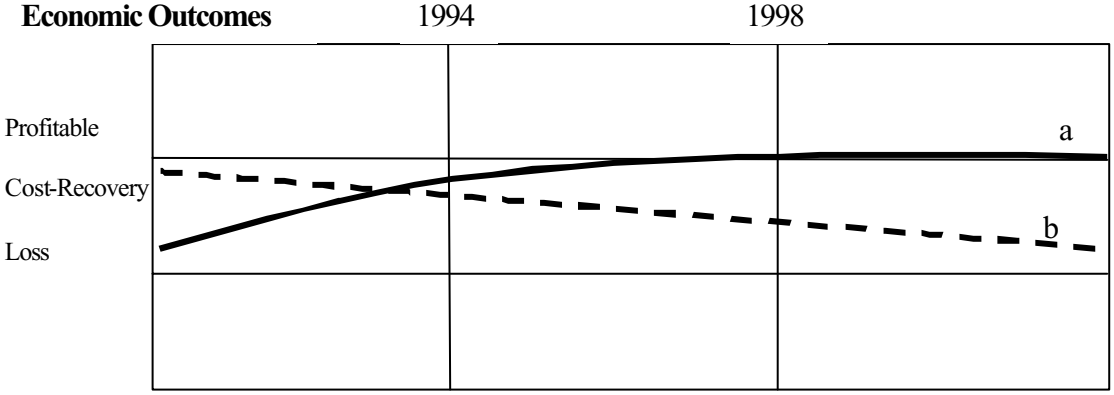
Notes: This is one of 34 case studies produced for Su Wild River's PhD research, undertaken through the Centre of Resource and Environmental Studies, Australian National University.

Ecological Outcomes



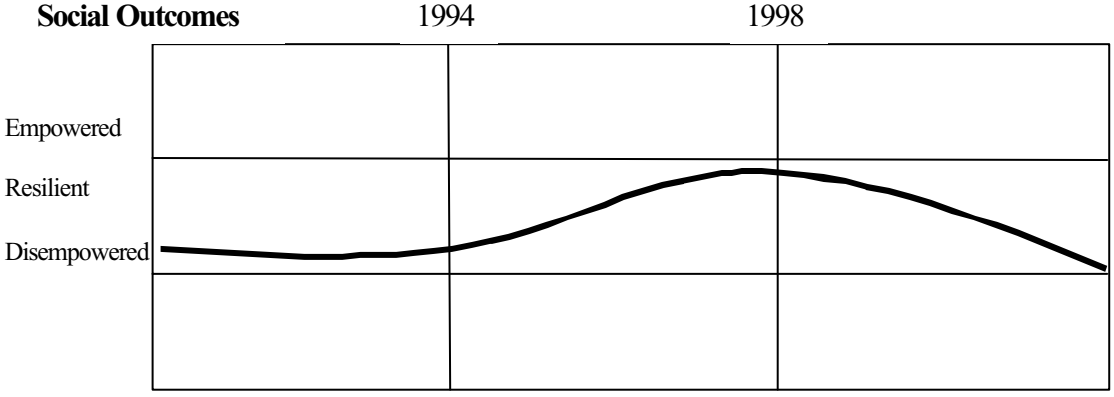
Environmental values have been diminishing in SWWA for many decades. Continued development pressure threatens many near-pristine, and often delicate environments. The strategic directions in the SWWA Environmental Strategy opens up the possibility of reduced environmental harm in the future. Some areas that are degraded could also be improved, and this might even improve the environmental values (a). However, without effective implementation, the Strategy will not stop the degradation (b).

Economic Outcomes



The economic impacts of the Strategy have been different for 'green' and 'non-green' industries and employment. Since the start of the SWWA environmental projects, the number of people employed in 'green jobs' has steadily increased. These include work in ecotourism, recycling, and other environmental areas (a). In contrast, the work available in non-green areas is declining. These include forestry and related work (b).

Social Outcomes



The social impact of the SWWA environmental strategy was initially positive. Many stakeholder and general community groups were involved. It was empowering for them to see their work translated into the final strategy. However the loss of momentum for strategy projects after the start of the alternative regional strategy has resulted in widespread disappointment. In some ways, this has led to less community empowerment than was the case prior to the commencement of the strategy processes.

Preserving ecological values in Busselton Shire

Case Study W6: By Su Wild River, with Illya Hastings and John Wroth (Busselton Shire Council).

Comparative Statistics for Busselton

Category	Measure	Comparison
Area (Sq/Km)	1,454	Bottom 40%
Population	19,000	Top 32%
Pop Sq/Km	13	Top 37%
Total Income ($)	17,230,699	Top 36%
Rate Content ($)	7,040,816	Top 37%
Expenditure ($)	17,045,158	Top 39%

Information Australia, 2000

Busselton Shire's efforts to protect local environmental values have been assisted by some broader policy and statutory directions. Some environmental gains have been achieved, however opposition from some local landowners, and strong development pressures have constrained environmental outcomes.

Busselton Shire lies on Australia's south-western corner. This is just one of the features that underpin its unique environmental values. Its region, south west western Australia, is the small, diverse, productive corner of Australia's largest, driest state. It has Western Australia's largest concentration of rural people, and is the state's main focus for tourist and recreational visitors (Bradby 1997).

Busselton itself is largely an agricultural district, as well as a major tourist destination. Figure 1 shows a vineyard in Busselton, bordering natural bushland.

The intense development in the south west places considerable pressure on Busselton's local environmental values. It has also stimulated broad interest in the region, and encouraged several initiatives aiming to retain the region's environmental values. The *South West Western Australian Environmental Strategy,* driven by local governments was one such initiative. A second strategy funded by the National Heritage Trust also focused on the south west. Unfortunately, these failed to build on one another, with the second strategy instead draining some resources and partnerships from the first strategy.

Other regional initiatives have proven to be of more long-term practical value to Busselton Shire's environmental efforts. This was the Western Australian Planning Department's *State Planning Policy* for the area. This policy provides the statutory backing for local environmental planning initiatives. It has proved valuable, partly because the State Planning Act requires that local government planning decisions must be consistent with relevant State Planning Policies. The policy sets out provisions for conservation zones to be identified and protected.

Figure 1: A vineyard in Busselton.

However the planning policy on its own would have been of little ecological value to Busselton, had it not funded its own environmental initiatives. A key action was to hire enthusiastic environmental strategists to some key positions within the local government. An environmental strategic planner has been working to identify and formalise key conservation zones within Busselton. Without this detail, the state planning policies are mostly indicative, and very difficult to enforce. However, once conservation zones are formally specified, enforcement becomes possible.

The potential to enforce conservation zones is further helped by provisions in the Planning Act, enabling some limited enforcement by local governments. Without this, enforcement would be very difficult, because state government enforcement officers are rarely on the spot to deal with breaches when they occur.

Another seemingly effective regional initiative is the GeoCatch Catchment Council. This regional group was established by the Water and Rivers Commission in 1997, in response to the local community's call for a coordinated approach to managing the natural resources of the Geographe catchment. Four local governments, including Busselton lie partly in the Geographe Bay Catchment, and they are all involved in this regional initiative. GeoCatch is helping to support Busselton Shire's efforts to investigate water quality problems in the lower Vasse River, in the mouth of that catchment

(Geocatch 1998). Figure 2 shows a structure set up to aid the aeration of the lower Vasse River in Busselton.

Figure 2:

Aerating the lower Vasse River

Some national and international agreements also help Busselton Shire's environmental work. Several of the waterways in the shire are internationally recognised Ramsar wetlands. These are rich and diverse refuges for migratory birds, as well as hundreds of other species. Such local wetlands include the Vasse-Wannerup wetlands, which is visited by at least 75 species of waterbird, and is the breeding ground for at least 9. Australia is committed to protecting the ecological values of Ramsar wetlands. The formal recognition of these ecological values makes it easy to include each wetland in a conservation zone. Ramsar agreements also provide for buffer zones to be protected around the wetlands. Again, this extends the local area that can readily have its ecological features identified and protected, regardless of whether those features are on private or public land (see Weaving 1998. P.16). Figure 3 shows a wetland in Busselton, on the border of privately-owned farmland.

The history of settlement at Busselton Shire provides the local backdrop for these environmental initiatives, and also much of the constraints to environmental protection. In the past, shire planning has been fairly ad hoc.

Many land boundaries are unclear, and there have been few

restrictions on land use. Property owners tend to believe that they have a right to do anything they want on their own land. Some of the conservation zone initiatives impact on activities that have been considered legitimate for decades. For instance, many of the Ramsar wetland buffers are on good farmland. Farmers are reluctant to halt farming in these areas, regardless of the ecological significance.

Figure 3: Ramsar wetlands on the boundaries for private farmland.

W6: Preserving Ecological Values in Busselton Shire

Perspective: Local Government
Role: Officer
LG type: Other LG (rich, compact, populous)
Focus: Management

Context Issues

Busselton makes up the distinctive South West corner of Australia. This is a readily identifiable and dynamic region.

Context continuums

Scale

<local | local | regional | state | national | international

Flexibility of Process

Full | mostly | equal | partial | none

Origins of initiative

<local | local | regional | state | national | international

Goals

- Protect ecological processes on both public and private land,
- Protect vegetation on both public and private land,
- Protect local and regional ecosystems,
- Protect the aesthetic sense of Busselton Shire,
- Retain buffers around areas of high ecological value.

Drivers

- Strong statewide interest in the South West Region, which fuels big picture strategic decisions about the local area,
- Local acknowledgement of highly diverse and unique values in the region,
- Ramsar wetlands and other areas with internationally recognised high ecological values,
- SG pushing a conservation agenda with its strategic environmental plans, especially the *State Planning Policy*.
- SG support for the conservation zone initiatives,
- Limited capacity for LG to take on enforcement role for SG conservation policies,
- Council staff committed to conservation zones and strategic environmental planning,
- Supportive regional initiatives, eg. GeoCatch.

Processes

- In the past, planning decisions have been ad hoc for environmental issues. Land boundaries are now being formalised, and fenced,
- Establishment of conservation zone controls over many areas, eg wetlands, areas with visual prominence. Restrictions on development potential and other activities in those areas,
- Some recognition of previous land use in new controls.

Constraints

- Expectations of property owners that they can do anything on their land,
- Political pressure on conservation decisions (eg on good farming land with proposal to subdivide, Council may agree with landowner's wishes),
- Lack of or ad hoc SG enforcement of conservation-oriented SG policies. SG reports are often too late, not specific or not available. This can make it worse if the proponent obtains the report,
- Current SG tends to favour developers if a subjective environmental argument opposes them.

Outcomes

- Conservation zones applied to many areas and blocks,
- Some areas listed as Ramsar wetlands in conservation zones,
- Boundaries formalised for private properties, conservation zones and other areas.

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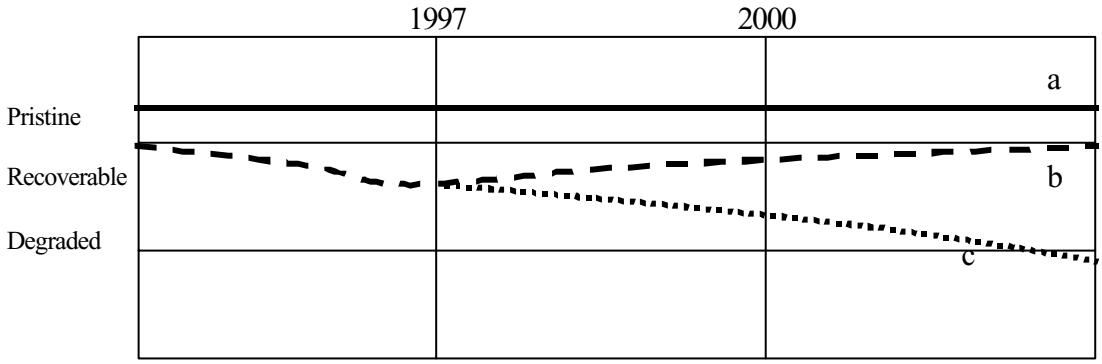
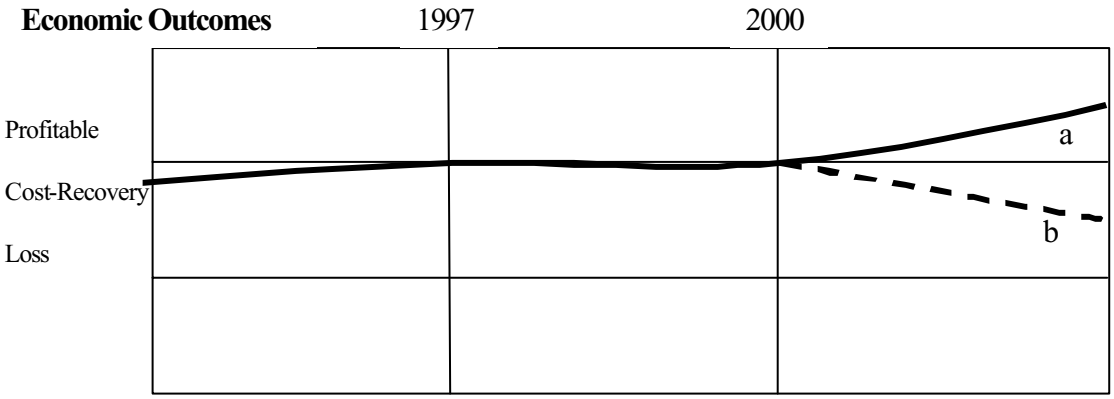
Other Notes

Ecological Outcomes



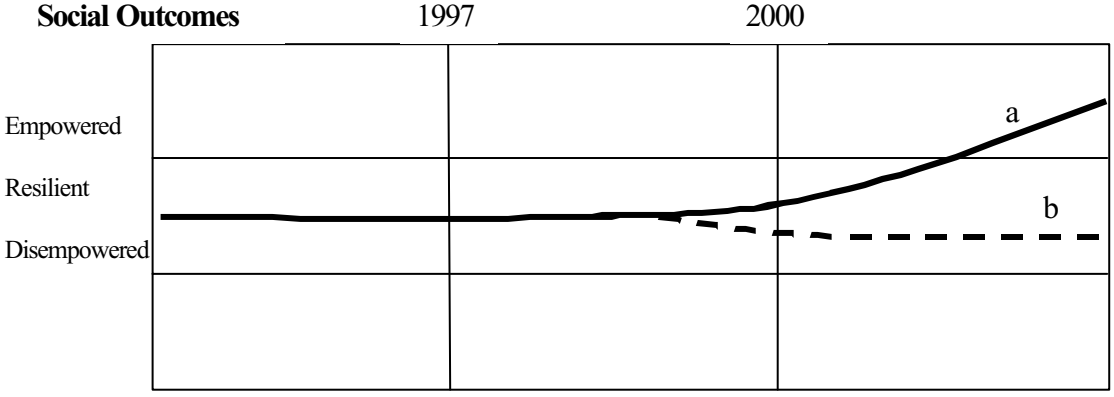
Busselton Shire includes many areas with pristine environmental values. Much of this will be protected over the long-term due to measures such as the conservation zones (a). Many other areas, such as farmland adjoining or including significant ecological values has been gradually degrading, but will be protected through the clear criteria for protecting significant values. Identification and protection of buffers could further help some of these areas to recover from past damage, as well as protecting it from future problems (b). Some decisions are still being made that are inconsistent with the conservation initiatives, and degradation is occurring and will continue in those areas (c).

Economic Outcomes



Busselton has been enjoying a fairly prosperous time for some time, predominantly as a result of tourism and primary industries across the region and in the local area. Both rely on broad environmental values for ongoing success. Protection of environmental values such as soil and water quality will ensure continued economic growth in the future (a). Poor management of these natural resources, and resulting environmental degradation will most likely reduce local economic performance in the long run (b).

Social Outcomes



Responses to the preservation of ecological values in Busselton Shire have been mixed. Many in the population have been involved in the strategic planning initiatives, and strongly support the protection of ecological values through conservation zoning and other measures (a). Others, including some landowners, and developers, have felt that they have had rights eroded as a result of the changes (b).

Albany Coastal Strategy

Case Study W7. By Su Wild River with Melanie Price (Albany City Environmental Planner).

Comparative Statistics for Albany City

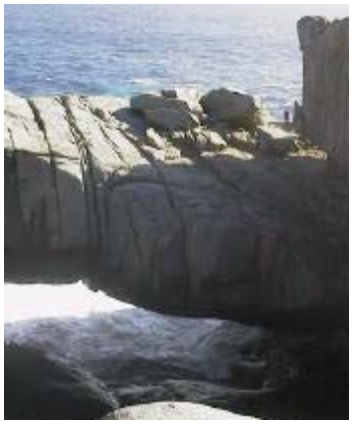
Category	Measure	Comparison
Area (Sq/Km)	4803.7	Top 26%
Population	28668	Top 25%
Pop Sq/Km	6	Top 44%

Information Australia 2000.

Albany City Council is seeking to protect its coastlines and waters from development and damage. Local knowledge of environmental protection issues has been increased, and some environmental gains have been made. Some locals believe that this has also restricted their recreational activities.

Albany lies on Western Australia's South Coast. It is the most remote of Western Australia's south coastal cities. Its magnificent coastline of huge, pink granite boulders has been protected in some areas in national parks. Figure 1 shows 'the Natural Bridge at the Torndirrup National Park in Albany. The immense size of this feature can be judged from the small dot of a person standing in the upper right-hand corner of the picture.

Figure 1: The Natural Bridge at Torndirrup National Park in Albany



Environmental degradation has been quite pronounced in some non-protected coastal areas. Problems such as dune destabilisation, and resulting erosion are common. These problems extend up the local rivers, where clearing for agriculture, water-skiing, and other activities have caused erosion.

Several officers and managers have a keen environmental interest. They have been influential in establishing programs to protect the local environmental values. As a result of their efforts, Albany City established a permanent position for an environmental planner. The first incumbent was trained in geology and planning. His background, training and ecological interests gave him considerable awareness of many fundamental environmental issues underlying the apparent problems. The new environmental planner is actively building on the projects that were already in place before her arrival.

A key initiative of the environmental planner is to develop the Coastal Strategy. This will identify areas for protection, and outline actions to be taken to achieve it. Council directors have been involved in developing the strategy. This has ensured a high level of understanding of the strategy and its goals, and is likely to result in broad council support for coastal protection initiatives.

Community consultation has also been a feature of the coastal strategy. The National Heritage Trust provided some funding towards this consultation. The result was the successful inclusion of many community members in the planning process.

As part of its ongoing community liaison, Council supports a South Coast Management Group, with broad membership. The group has been active in developing local beach management plans. These outline areas for protection, and actions to take in order to achieve that.

The beach management plans specify actions to be taken to protect or restore beach stability. Actions include building walkways, fencing off destabilised dune areas and using various materials to cover and stabilise the areas. Albany City has successfully applied for various grants to assist with these efforts. However although the programs have often been funded, few have included a budget for the practical work of building fences, paths and making other physical improvements. Instead, many of the federal and state government grants focus on planning and reporting on actions.

Community support has also been undermined in two important ways. First, many in the community believe that their recreational rights

are being restricted under the strategy. This is because driving on beaches, activities on destabilised dunes and, other damaging practices are now being controlled in some places. Second, the local media has reported issues in favour of these disgruntled recreationists. Council recognises that better liaison with the local media is essential, so that future reports might be more balanced.

Figure 2: Beachside toilet block managed by Albany City Council

Another challenge faced by Albany City Council is the State Government's views on the inherent duties of a local government. One example is that many beach-front areas are without toilet blocks. Albany City has tried to encourage the state government to support the building of such amenities. However the state government responded with the argument that the provision of public toilets is a local government responsibility, and would not help with funding. This is perplexing to Albany City, since the Local Government Act does not specify anything about public toilets, and they have no available budget for such facilities. Figure 2 shows one of the many beachside toilet blocks that Albany does manage, although this particular one is recognised as substandard. This site has also been the focus of coastal management work involving the community.

Albany's experiences highlight the need for environmental assistance programs for local governments to address a full range of policy development and implementation issues. Without effective means to implement the initiatives, even the best ideas will fail to deliver improvements on the ground.

References

Information Australia. 2000. *Australian Guide to Local Government. 28th Edition, July-November 2000.* Melbourne: Information Australia.

W7: Albany coastal strategy

Perspective: Local Government
Role: Officer
LG type: Other centre (extensive, populous)
Focus: Management

Context Issues

-

Context continuums

Scale

<local local regional state national international

Flexibility of Process

Full mostly equal partial none

Origins of initiative

<local local regional state national international

Goals

- Protect coastlines and other waters from development and damage,
- Supply and maintain infrastructure when needed and affordable,
- work with the community to define and achieve environmental goals.

Drivers

- Environmental strategists amongst Council officers and managers. Previous worker on this program was a geologist and planner,
- Permanent position for an environmental planner,
- South Coast Management Group with long-term outlook. Currently working on Phase 1, a Coastal Strategy,
- National Heritage Trust funding for community consultation,
- Successful inclusion of community in planning processes.

Processes

- Process started in 1995,
- Newly appointed officer is on steep learning curve to come to grips with the strategy,
- Local Beach Management Plans being developed,
- Hoping to adopt the Management Plans as policies under the broad strategy,
- Directors are involved, and have had input to the process and strategy,
- Strategic plans have short, medium and long-term components.

Constraints

- Challenges with much for the new Officer to learn quickly,
- Some conflict over the sand-trapping fences, which some locals say inhibit recreation,
- Poor media reporting of these issues, and the need for better liaison with the media,
- No grants available for the actual work. Council has funds for aspects of the programs, but not the humanpower needed,
- Other spheres of Government have inaccurate views of LG roles (eg think LG core business includes toilet blocks on all reserves).

Outcomes

- Directors aware of the strategy, and have ownership of it, due to long-term involvement,
- Beach Management Plans developed with community involvement (both in writing and implementing them,
- Some practical improvements to coastal areas, through erosion control etc.

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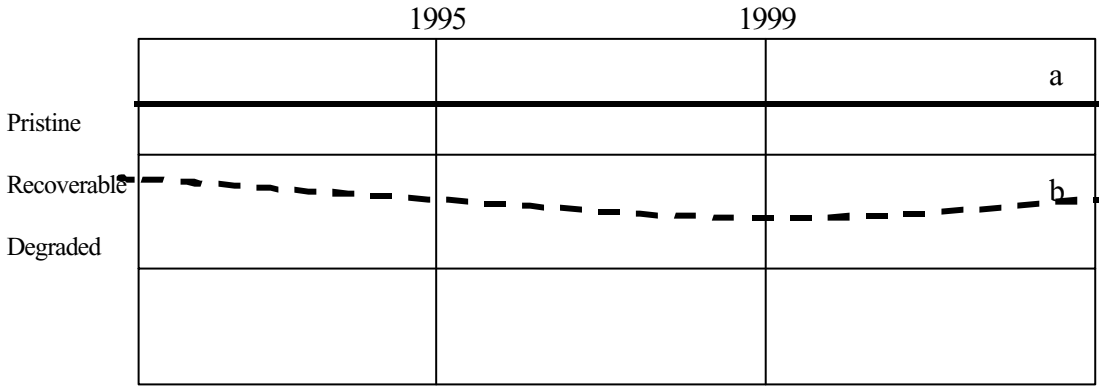
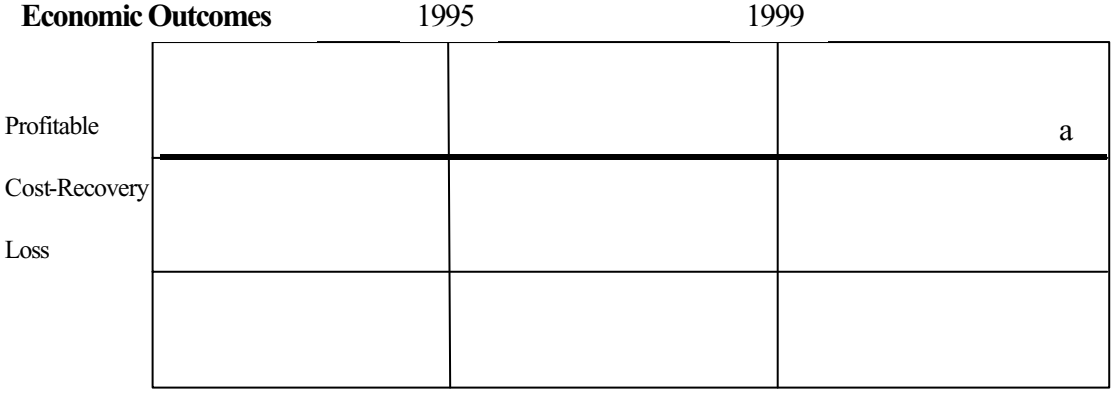
Ecological Outcomes



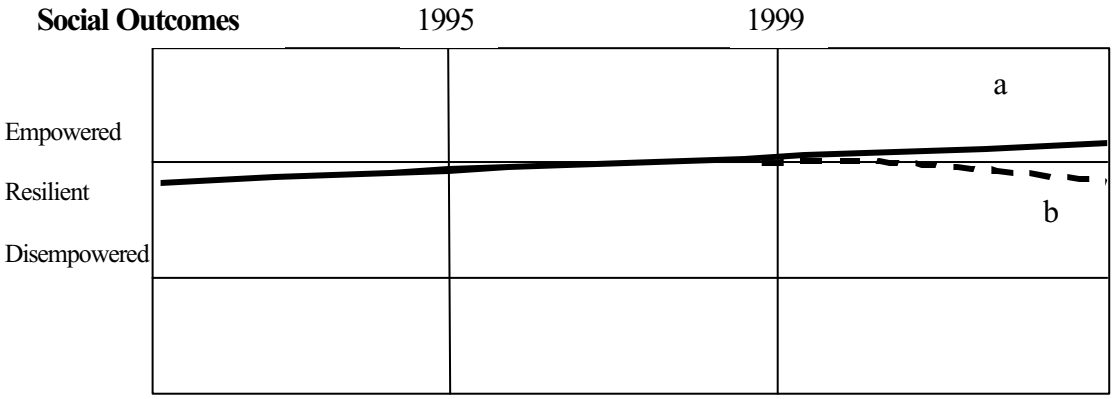
Many of Albany's beaches are in pristine condition, and some very special environmental values are protected in National Parks. Sensitive management of these areas will retain their high environmental values (a). Erosion, loss of vegetation and other damage has occurred on many other beaches and waterways. Progress to improve these is slow, due to the time needed to establish planning controls, management plans and groups. In addition, the lack of funding to employ people to do the physical work of beach maintenance has slowed progress.

Economic Outcomes



There are few direct economic impacts from these initiatives. The cost of Council of the strategic planning position is probably off-set by the benefits it accrues in terms of avoiding degradation, and inappropriate development. Some funding has been obtained for initiatives, but without budgets for a workforce to implement initiatives, there is little economic flow-on from the planning activities.

Social Outcomes



Developing the Albany Coastal Strategy has been an empowering process for Albany Shire and the Local Community. There has been good community involvement in the development of the Strategy and the associated Beach Management Plans (a). Some sections of the community have opposed elements of the protection measures, such as the sand-fences that aim to stop erosion, but have also been seen to inhibit recreational activities (b).

Showcasing urban environmental management in Moreland City

Case Study V1: By Su Wild River, with Richard Jennings (Moreland City Council Conservation Team Leader), Mike Hill (Victorian Local Governance Association).

Comparative Statistics for Moreland City

Category	Measure	Comparison
Area (Sq/Km)	51	Bottom 13%
Population	137,258	Top 5%
Pop Sq/Km	2,691	Top 4%
Total Income ($)	66,175,958	Top 9%
Rate Content ($)	36,837,451	Top 8%
Expenditure ($)	73,158,410	Top 8%

Information Australia, 2000

When Moreland City Council was created in 1994 from the amalgamation of the previous local governments of Brunswick, Coburg and the southern part of Broadmeadows, several opportunities followed. One was the renovation of the existing civic centre to accommodate the larger staff. Moreland worked strategically to build environmentally sustainable premises. These now also act as a showcase for responsible building design and construction. Environmental and social benefits have been achieved at no additional economic cost.

Moreland City covers much of inner-north Melbourne. It is a densely-populated, and politically outspoken area. The Kennett government reforms to local government replaced democratically elected councillors with appointed commissioners in the mid 1990s. Anticipating this, several inner City Councillors, including some from the then Brunswick City Council, established the Victorian Local Governance Association, as a new peak body that would go on to lobby on issues of democracy, as well as social and ecological responsibility. Many of these outspoken individuals were re-elected once democracy was returned to Moreland at elections held in March 1996. Moreland's proactive, and brave approach to problem-solving is exemplified by such issues and actions.

Moreland City also took environmental advantage of the amalgamations. The larger local government meant a bigger workforce. Moreland decided to house most of the staff in the existing Coburg office building. It also made the decision to develop the building into a showcase of ecological sustainability, to provide environmental leadership to the local community. For instance, they aimed to house twice as many people, while reducing energy costs. They also aimed to design within a conventional building budget, but to build with reused and recycled materials wherever practical. Other goals included reducing water use, discouraging staff and visitors from driving to work, using indigenous native plant species, and avoiding negative off-site impacts of construction work.

Moreland drew on several existing conceptual models in developing this practical environmental showcase. The principles of ecologically sustainable development were drawn on heavily, articulating them as key principles in the whole policy process. Ideas from Local Agenda 21 (LA21) were also adopted. Since most of the councillors were Labor Party members, they also utilised the Party's environmental commitment. Together, these models helped to generate a consistent cultural commitment to the environment amongst many of the councillors, managers and officers.

The redevelopment project also faced several hurdles. There was little available information on environmentally sustainable building products ad lifecycles, making it difficult to identify appropriate materials quickly. This lack of information was compounded by the need to complete the building in a tight time frame.

There were also practical problems once appropriate materials were identified. Project managers found that it was difficult to obtain the preferred materials in the small quantities that were needed. Also, although materials were saved through reuse and recycling, the labour costs involved sometimes meant that the total cost of these was similar to the more destructive virgin alternatives. Higher prices were also charged for some of the 'boutique' items selected to solve specific problems. Together, these factors meant that the final building was subject to compromises due to availability, price and practicality of implementing sustainability components, while the cost was kept in line with the alternative of using standard building processes.

Despite these challenges, the outcomes for

Moreland have been very positive overall. For instance, there has been a 35 per cent drop in the cost of energy . Energy savings are being used to purchase 'green power'. This was partly achieved by the installation of the 'solar pergola' at the entrance to the Council. This is a key element of the environmental showcase. All visitors to the council enter underneath the array of solar voltaic cells that helps power the civic centre, and feeds excess power into the electricity grid (see Figure 1). Energy efficient light fittings, and automatic sensors to turn lights off when rooms are empty are also used (see Hill and Kyle 1999).

Figure 1: Solar Pergola

Another feature of the sustainability showcase is the group of 'environmental watch ducks' that overlook the council chambers. These are a sculpture of a local, indigenous, endangered cormorant species. It is acknowledged rumoured that councillors voting on issues with environmental impacts are reminded of their environmental responsibilities after glancing up at the watch ducks (see Figure 2).

Figure 2: Environmental watch ducks overlooking the Moreland City Council Chambers

Council has also had some success with its transport initiatives. Bike racks are provided for staff (see Figure 3). Interest free loans are also made available to help staff to buy bicycles and long-term public transport tickets. These initiatives have resulted in a doubling in the number of staff members cycling to work, and more are also taking public transport.

Figure 3. Internal bicycle parking

Moreland was also successful in reducing water use. Stormwater is harnessed for watering gardens at the civic centre. The gardens also have minimal water needs, because of the use of indigenous native species.

Moreland staff involved in the civic centre redevelopment recognise that building for sustainability is only the first step in their showcase. Long term environmental performance of the centre is dependent on how it is used. Cycling to work, minimising water use, avoiding overuse of energy all still require diligence and management on the part of all council staff. The active promotion of the initiatives to the local community and beyond are also essential if the initiatives are to lead to broader changes.

References

Hill, A. and Kyle, L. 1999. *Moreland Civic Centre Redevelopment Project: Stage 1 – Coburg Offices.* Melbourne: Moreland City Council.

Information Australia. 2000. *Australian Guide to Local Government. 28th Edition, July-November 2000*. Melbourne: Information Australia.

V1: Showcasing Urban Environmental Management in Moreland City

Perspective: LG/Mixed
Role: Officer/Councillor
LG type: Capital city (rich, compact, populous).
Focus: Management

Context Issues
Moreland was recently amalgamated under the Kennett Government reforms. It is an inner-city LG with a history of outspoken Councillors.

Context continuums

Scale
<local **local** regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local **local** regional state national **international**

Goals
- House twice as many people, while reducing energy costs,
- Design and build within a conventional building budget, but reuse and recycle materials,
- Consolidate several work areas into one building following the amalgamations,
- Achieve goals for energy efficiency and air quality management from Local Agenda 21,
- Avoid negative off-site impacts of construction and operation of building (dust, stormwater),
- Address structural and behavioural environmental issues (eg encourage cycling to work),
- Use native plant species (also aiming to minimise water needs).

Drivers
- Councillors and ex-councillors with a keen interest in the project,
- Local Agenda 21 (LA21) ideas,
- Principles of Ecologically Sustainable Development (ESD), and their articulation as key principles through the whole process,
- Continuity of Australian Labor Party affiliations of most of Council, with environmental commitment,
- Cultural commitment to environmental objectives among many Managers and Officers.

Processes
- Dismantled old building and re-used the materials in the new building,
- ESD principles incorporated as primary success criteria for building (included in defining and assessing briefs, detail of contracts, reviews),
- Provided internal bicycle parking room,
- Reinforce LA 21 principles in structures (eg cycling, recycling),
- Provided interest-free loans to officials to buy bicycles, and for public transport,
- Transport impacts considered with access to bike paths.

Constraints
- Little information around on product/building materials and life-cycles,
- Time pressure to construct the new building,
- Identifying ESD-consistent materials in a timely manner,
- Expense of labour for recycling activities,
- Demolition systems hard to establish for extracting reusables,
- Difficult to specify ESD products for small lots of materials,
- High prices charged for 'boutique' items,
- Supply of specified materials constrained.

Outcomes
- 35% reduction in energy use per person achieved, and savings used to purchase green power,
- Bicycle parking rooms and showers available, with 10% more workers riding than before,
- New Council Civic Centre completed, operational,
- High level of recycled materials in new building (saved on resources, but not money),
- Energy efficient appliances, and waste avoidance (eg movement sensors in meeting rooms etc),
- Use of green power for remaining energy use,
- Water conservation through stormwater collection and reuse,
- Public displays of environmental messages (environmental watch-ducks, solar pergola).

About the Models

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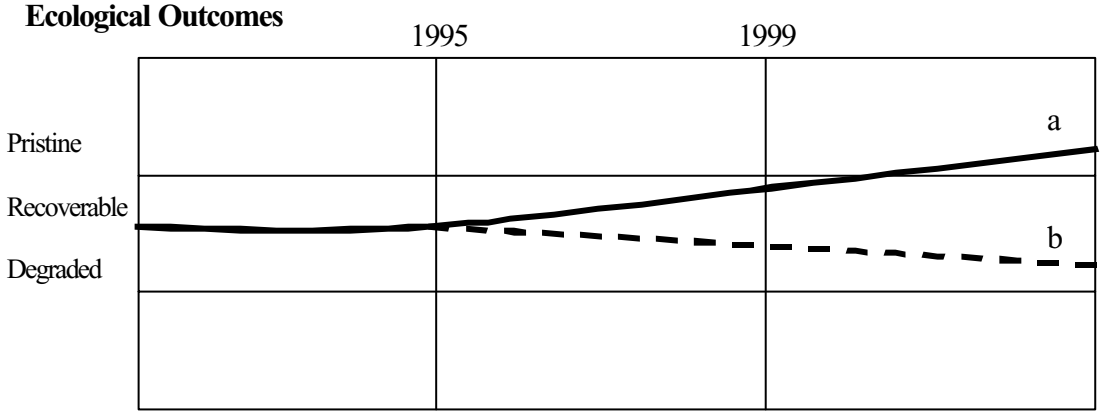
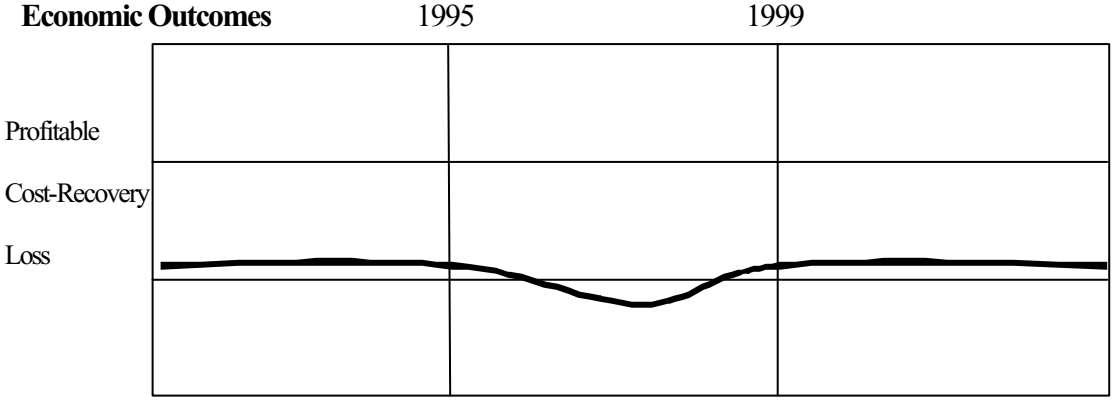
Other Notes
Moreland recognises that it has built for top environmental potential, but performance will remain dependent on how it is used.

Ecological Outcomes



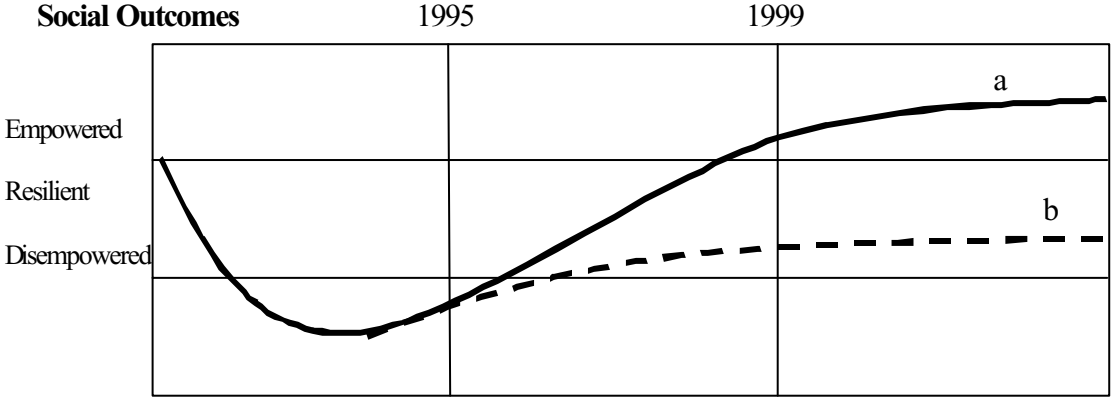
The various council buildings inherited by Moreland City were of standard environmental performance, and little effort had been made to minimise energy or water use, or achieve other environmental goals on those sites. The visionary, innovative and diligent efforts made by Moreland during site redevelopment meant that environmental improvements were made to materials, energy and water use. These gains could continue into the future if workers make good use of the environmental opportunities (a). The alternative approach of following conventional design and building options would have been more resource-intensive during construction, and more environmentally costly throughout the life of the building.

Economic Outcomes



The economic impacts of the Moreland Civic Centre redevelopment were essentially equivalent to those of conventional building options. Both approaches are costly during the building design and construction stage, and both building types have some associated running costs. The money that was saved through the reuse of building materials was off-set by the added expense of many of the environmentally sustainable materials that were also used. In the operational phase of the building, cost savings result from lower per capita energy use, but the savings are redirected into more expensive green energy. Many of the intended building materials and design features were compromised so as to meet the equivalent budget of a conventional building. Additional cost for green energy actually increases the savings arising from energy conservation. The savings reinvested into green power are a council commitment for all its contestable power, not just the Coburg offices

Social Outcomes



The period leading up to the Civic Centre redevelopment was a disempowering one for the Moreland community. Local residents strongly resented the abolition of local democracy in favour of appointed administrators. Empowerment has gradually been restored through the reintroduction of local elections, and in many of the design aspects of the new Civic Centre. For council workers, the integration of public transport, cycling, and other accessible transport options has assisted. For the general population, features such as the glass-walled council chambers, and the solar pergola are physical demonstrations both of the transparency of the new local government, and of its environmental commitments in action (a). Without these concerted efforts, simple resilience may have prevailed (b).

Port Phillip sustainable community housing project and depot redevelopment

Case Study V2: By Su Wild River. With assistance from Gary Spivak (Port Phillip City Council).

Comparative Statistics for Port Phillip

Category	Measure	Comparison
Area (Sq/Km)	20	Bottom 7%
Population	73,092	Top 12%
Pop Sq/Km	3,655	Top 2%
Total Income ($)	69,665,000	Top 8%
Rate Content ($)	37,598,700	Top 8%

Information Australia 2000.

Port Phillip City Council found innovative ways to fund a showcase of sustainability when it redeveloped an old council depot. It invested in designing the redevelopment using environmental principles. But it recovered these costs, and guaranteed 27 new public housing units during the transfer of the site to developers. The outcome provided environmental and social benefits without net costs to council or the developer.

Port Phillip is a densely populated, industrial city on Melbourne's central waterfront. Like most other Victorian local governments, it exists as a result of the forced amalgamations in the mid 1990s. And along with many other proactive Victorian councils, Port Phillip recognised and harnessed various opportunities as result of the amalgamations. A key opportunity from the consolidation of several previous local governments into fewer sites was the availability of the now disused sites for redevelopment. Rather than simply selling off these sites, Port Phillip has developed some into showcases of sustainability. Such initiatives have provided cost-neutral ways to achieve social and environmental outcomes.

An old St. Kilda council depot in the heart of St. Kilda, near the beach provided an ideal site for redevelopment. The easiest action for council to take would have been to simply sell the site to a developer, on the open market. This would have earned council a one-off profit of around $5.2 million.

However Port Phillip had other goals, beyond simple profit-making. It had an obligation to provide some new community housing to poor local residents. Several council officials also had strong environmental beliefs, and wanted the site to be a showcase of environmental sustainability in action. The *City of Port Phillip Housing Strategy* also articulates goals and objectives such as maintaining social diversity and encouraging neighbourhood villages (City of Port Phillip 1997). And both the housing and *Sustainable Development Strategy* outline goals for using solar energy, and ensuring clean, green and diverse environments (City of Port Phillip 1996).

So rather than simply selling the site, Port Phillip instead found an innovative developer, that was sensitive to difficult sites and willing to work with council to design an unusual development. Port Phillip council invested $625,000 investigating and designing a master plan for the site. This cost was ultimately reimbursed by the developer as part of the development agreement, rather than leaving them to the highest-bidding developer. This move was supported by existing council policies, including its corporate plan and housing and sustainability strategies. Some provisions in the state Planning Act also supported the approach of making voluntary agreements with developers on the contract of sale (S. 173). This provision enabled a legal mechanism to affect a partnership between the local government and developer.

Council identified several core goals for the site. One was that the site provide 28 units for community housing. This meant that the developer would be making its profit from the sale of the remaining private units, but not these ones. A second requirement was that the development achieve best environmental practices to support ecologically sustainable development in the city. The developer used computer simulations to analyse the solar and wind conditions of the site. Onsite stormwater recycling and reuse was also called for by council. This was assisted by a $260,000 government grant from the *Living Cities/Urban Stormwater* Initiative. This was very much supported and extended by the developer.

In addition, council wanted the site to be friendly for the community. Cars were to be kept out of sight, with green spaces available to the community while integrating art into living

spaces. This was achieved by designing an underground car park, with gardens, lawns and ventilation integrated art featured, and with natural light and trees growing through the podium.. Finally, council required that the developer use recycled materials, cross ventilation, and a range of other environmental measures where practical in the building. Again, the selected developers were happy to oblige where possible. Figure 1 shows some of the resulting design features.

Figure 1: Redevelopment design sketch.

Another feature of the site was that some useable structures remained from the original depot. In particular, a 'destructor' building located in the centre of the block, provided a distinctive landmark, with early 20th century architectural value (see Figure 2). Council encouraged the developers to make use of this structure in their design and construction, and to integrate it into the new buildings. The use of the existing structure did not save any money, since significant refurbishing was required. But it did provide a good starting point for architectural diversity across the site and integrating the overall development into the local area.

Several features of the site were also important constraints to the development. For instance, the site is sometimes subject to flooding, and required very effective means for water management. This constraint was used creatively as an opportunity, and the developers worked hard to find ways to use and dispose of water on site. It also reinforced the benefits of a wetland as a secondary treatment element of the grey water recycling primary treatment of stormwater recycling. The final design included less extensive roof gardens, and greater water recycling than in the original plan, since this was finally considered to be more important.

Finally, council decision making about the details of the redevelopment was also problematic. Some elected councillors considered that Port Phillip City would benefit most from a traditional approach to such a site. The direct financial gain from the land sale would have been a significant addition to the council budget, and could have been another way to fund the community housing units that council was obliged to build. However the project proceeded ultimately with council support on the recommendations of officers.

Council also had other costs from the redevelopment to deal with. For instance, the site was contaminated because of its previous use as a depot. Decontaminating the site was an expensive and risky process, in addition to the costs of planning the new development on the site. This was resolved by council taking the risk by remediating the site and the developer paying the estimated cost of the settlement at the contract of sale. Figure 2 shows the 'tent' structure that was set up to during site decontamination, to ensure that the surrounding area was not polluted during the redevelopment.

Figure 2. Decontamination 'tent' and old 'destructor building'.

Despite these challenges, the environmental showcase has been built, and many of the innovative goals have been achieved. There have been many positive outcomes from the project. As well as fulfilling local community housing needs, the educational benefits of the project, as a showcase of sustainability will continue well into the future.

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V2: Port Phillip sustainable community housing project and depot redevelopment

Perspective: Local Government
Role: Officer
LG type: Capital (rich, compact, populous)
Focus: Planning

Context Issues
-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Provide an optimal amount of community housing without paying the construction costs,
- Set benchmark for sustainability in housing, by demonstrating good urban form,
- Use a broad range of ecologically sustainable building techniques and features,
- Provide bicycle and pedestrian access,
- Integrate art into living spaces.

Drivers
- LG lead by example,
- LG amalgamation Vic,
- LG housing and sustainability strategies and corporate plan suggested take on development risk, rather than sell land,
- Developer with sensitivity to difficult sites – innovative and prepared to take risks,
- Computer simulations based on plans allowed analysis of solar, wind,
- Grant for stormwater reuse,
- Quality and value of site attractive to developers,
- Innovative ideas about land-for-units swap,
- Existing building used during community consultation to help set height benchmark,
- ESD as a marketable design

Processes
- Site worth $5.2m plus $1.7m for remediation exchanged for 28 units to be provided by developer,
- Community homes plus private dwellings, will make site worth $7.5m,
- Section 173 (Planning Act) agreement with developer on Contract of Sale means an effective partnership,
- $625,000 spent preparing council's master plan,
- Existing historic buildings used to help community,
- elements of LG master plan uneconomic to developer, but compromise acceptable to both LG and developer.

Constraints
- Pressure for selling the site rather than the demonstration project overcome by ability to achieve objectives,
- Floodplain and other site constraints creatively used as opportunities for waste water recycling,
- Unavailability of environmentally sound materials at an acceptable price and guaranteed quality to developer,
- Unavailability of acceptable technologies (eg photovoltaics),
- Risk to LG of large expenditure on

Outcomes
- Developer goal to average 4 star energy rate, other environmental and marketing benefits,
- Effective partnership between LG and developer, and developer now marketing envt benefits,
- Contract of sale to provide legal protection to LG, and minimise risk. Financially sound project,
- Commercially viable project that also meets councils objectives, and energy systems designed so that photovoltaics can be installed at a later stage without any major alterations.
- Open public pedestrian areas, cars underground, 66% north-east and west facing units,
- Many goals of the master plan achieved, including stormwater reuse, passive solar, bike access.

About the Models

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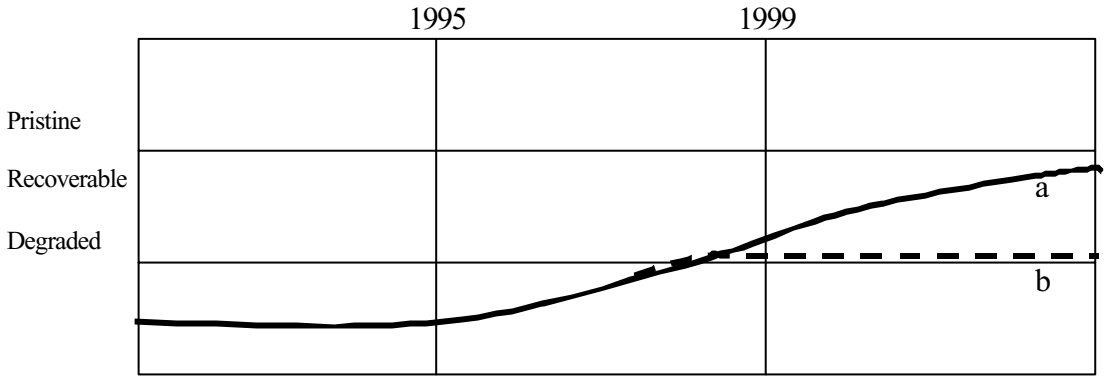
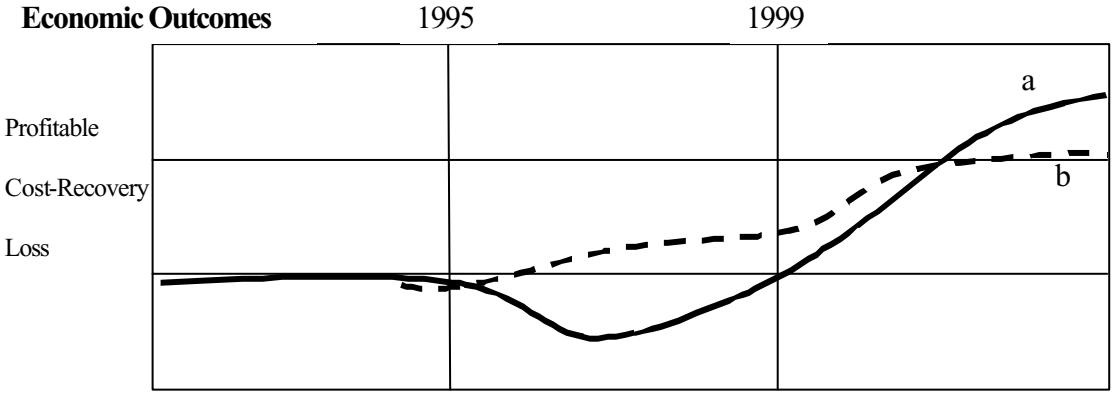
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environment Studies, Australian National University.

Ecological Outcomes



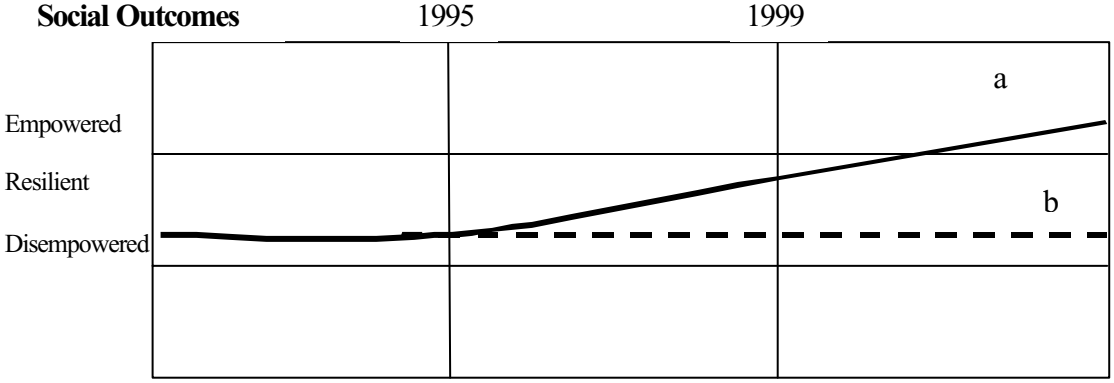
Prior to the new development proposal, the old depot was a highly degraded site, situated on contaminated land. Preparing for sale and redevelopment of the site has required intensive site rehabilitation work, which has improved the environmental quality of the land, even before development. The final development will be a showcase of best practice in urban sustainability, including stormwater reuse, passive solar energy use, and other features (a). The outcome is certainly of higher environmental value than if simply sold without conditions (b).

Economic Outcomes



Council took an economic risk by developing this site as an environmental showcase. The decision to do so meant extra costs in the short term, due to the $625,000 needed to design the project master plan. The 'safest' economic decision in the short term, would have been to do the minimal required decontamination of the site, and sell it off to a developer with standard building conditions. This would have minimised costs to the LG, and resulted in a sound profit (b). The extra costs in the start of the project however, look like being offset by additional economic benefits, and the up-front costs were reimbursed through the $650,000 sale of two housing units. . The environmentally-sensitive, architecturally-designed units with solar features will sell at a higher price on the private market than units in a standard development would have. Port Phillip Council also saves an opportunity cost, since it meets some of its obligations to provide community housing through this project (a).

Social Outcomes



This project brings substantial social benefits to the local area. The community were actively consulted on the intention to redevelop the land. Issues such as the emphasis on environmental initiatives, and the inclusion of some community housing units were discussed with local residents during the formulation of the Master Plan. Further benefits will occur in the future, once tenants are located into the community housing units, and other residents buy the remaining dwellings (a). The alternative option, where land was simply sold to a developer with few restrictions, would have had few or none of these social benefits.

Waste Minimisation in Darebin City

Case Study V3. By Su Wild River, with Libby Hynes (Darebin City Council Waste Officer)

Comparative Statistics for Darebin

Category	Measure	Comparison
Area (Sq/Km)	55	Bottom 13%
Population	125,484	Top 6%
Pop Sq/Km	2,282	Top 5%
Total Income ($)	73,138,614	Top 7%
Rate Content ($)	38,823,729	Top 7%
Expenditure ($)	75,339,528	Top 8%

Information Australia, 2000

Council initiatives for waste minimisation have been a feature in Darebin City for years. They predate Darebin itself, since the predecessor councils were involved in waste minimisation before Darebin formed in 1994. The initiatives also predate state government-imposed waste reduction targets. This proactive approach has imposed distinctive constraints on initiatives. Achieving environmental goals has required highly strategic, and sometimes counterintuitive action.

Darebin City is in inner-North Melbourne, and is a densely populated, culturally diverse local area. The Council was formed through the amalgamation of Northcote and Preston City Councils. Such amalgamations were imposed on all but one Victorian local government during the Kennet government reforms in 1994. As in most of Victoria, local governments and communities responded to this removal of local democracy with anger and resentment. Similarly, the ensuing compulsory competitive tendering of most council services, initially dismayed those responsible for its implementation. However, like many other proactive councils, Darebin has been able to adapt to the changes. Improved service delivery has sometimes resulted.

Some of Darebin City's waste initiatives were driven by local community interest in the environment. For instance, one of Darebin's boundaries is on Merry Creek. The highly active 'Merry Creek Management Committee' has worked with, and lobbied local governments in the catchment to reduce pollution and other impacts on the creek. In response, council installed litter traps to help keep the creek and surrounds cleaner. The initiative has been demonstrably successful. Platypus have recently returned to the Darebin section of the creek, despite its inner-city location. Figure 1 shows a part of Merry Creek, bordering Darebin City on the left.

Figure 1: Merry Creek.

Before their amalgamation, Northcote and Preston Cities were already attempting to reduce local waste to landfill. This initiative sprung partly from the local governments' recognition that landfill space was becoming an increasingly scarce and valuable resource.

Local government research showed that a high proportion of the waste going to landfill was green waste. This is a relatively easy waste to divert to other purposes, and it became an early focus of the council's internally-driven waste reduction strategies. Council established various collection, mulching and other services to deal with the green waste problem.

In December 1996, Victoria passed the Environment Protection Amendment Act. This extended an existing metropolitan landfill levy to country Victoria. The government also brought in waste reduction targets, and established a new agency called 'Ecorecycle' to assist local governments to reach these targets. Ecorecycle coordinates regional waste management groups and research efforts to identify and solve waste problems. It also makes a range of grants available to local governments and assists them in other practical ways.

Ironically, these state government initiatives disadvantaged some of the more proactive local governments. For instance, although Ecorecycle was issuing grants for just the type of strategies that were already being implemented in Darebin, they were not available to that local government. This was because they were targeted towards new initiatives, and could not be used to help implement existing programs. And the funding that was available to help with existing programs did not target green wastes. So Darebin received little assistance, and was often short of funding for its initiatives.

There were also some apparently fundamental problems with the emerging waste system. A key element of most of Victoria's reforms to public institutions was the new compulsory competitive tendering requirement. Under this, local governments were forced to identify all of the services they provided, to clarify the goals and processes of the services, and where practical, to commercialise their operations. These reforms were in line with Australia's National Competition Policy, and aimed to increase the efficiency, accountability and transparency of public service delivery.

Another issue is that the full environmental costs of 'new' products are *not* accounted for when the products are sold in Australian markets. But recycling usually involves hard work, and often uses expensive equipment. The costs of these *are* included in the cost of the recycled products. This gives 'new' products a market advantage, compared to the recycled goods. It follows that recycled goods will rarely compete effectively with new products under a system of competitive tendering.

Darebin also found it difficult to engage the community in debate about key issues of waste service delivery. This was partly because the community became disillusioned about local democratic and participatory processes after the elected council was sacked in the 1994 reforms. It was also because waste is not a 'sexy' issue. It is rarely one that inspires positive community action and support.

Yet at the same time, Darebin received strong criticism for some of its waste management strategies. Many residents for instance, complained that the bins were the wrong size, while volumes decreased to promote reduction of waste to landfill (see Figure 2). They also complained when recycling bins were inconsistent throughout the city. The greater standardisation of waste in Darebin results partly from this, as well as from the amalgamation of the previous cities. Figures 3 and 4 show different recycling and other waste systems operating in Darebin.

Community demand for recycling is also one of the key reasons that the practice has remained in Darebin. As in most of Australia, recycling is not cost effective for local governments. But, although communities rarely engage in debates about broader waste issues, ratepayers are quick to complain if recycling programs are removed.

Figure 2:

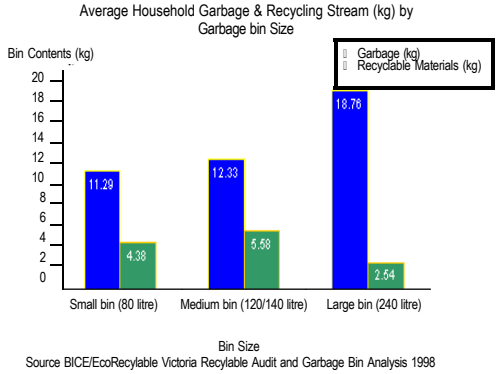


Figure 3: waste cardboard, plastic and pavers outside Darebin house.

Figure 4. Recycling and waste bins outside flats in Darebin.

References

BIEC/Ecorecycle Victoria Recycling Audit and Garbage Bin Analysis 1998. Source:

http://www.ecorecycle.vic.gov.au

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Information Australia. 2000. *Australian Local Guide to Government.* Melbourne: Information Australia.

V3: Waste Minimisation in Darebin City

Perspective: Local Government
Role: Officer
LG type: Capital (rich, compact, populous)
Focus: Protection

Context Issues
Darebin was formed through the amalgamation of Northcote and Preston City Councils during the 1994 Victorian Local Government reforms.

Context continuums

Scale
<local **local** **regional** state national international

Flexibility of Process
Full **mostly** **equal** **partial** none

Origins of initiative
<local **local** **regional** **state** national international

Goals
- Achieve waste minimisation targets set by the State-Government
- Achieve council's own green-waste targets, that were established before State Government requirements,
- Clean up the city by reducing litter, and other problem waste.

Drivers
- Recognition of lack of landfill space, and the need to reduce local waste,
- State government legislation, with statutory goals to reduce waste to landfill by 50%,
- Waste management regional groups,
- Eco-recycle, with models, policies and staff to advise and assist,
- Local environmental features and initiatives (eg Merry Creek and its active management committee).

Processes
- Establish measures to reduce green waste to landfill (preceded State Government requirements),
- Gradually change over waste systems to minimise costs of the transition,
- Establish litter traps as part of associated efforts to clean up the city.

Constraints
- SG funding sometimes not available in line with Darebin's priorities (eg green waste),
- Existing programs not funded by SG, so needed to be more strategic,
- Failure to learn from past mistakes,
- Problem with corporatising these services is that minimising a resource is not a marketable service (so there were no good tenders for waste minimisation, and Darebin found it couldn't rely on market mechanisms for this),
- Lack of democratic representation during strategy development, since the commissioners were in charge of them,
- Low community interest in key issues (petty issues like size of bin mattered),
- Hard to cover all variables, and determine why waste was increasing or decreasing.

Outcomes
- Green waste collection services established, operational and succeeding in reducing waste to landfill,
- Greater standardisation of waste in the City.

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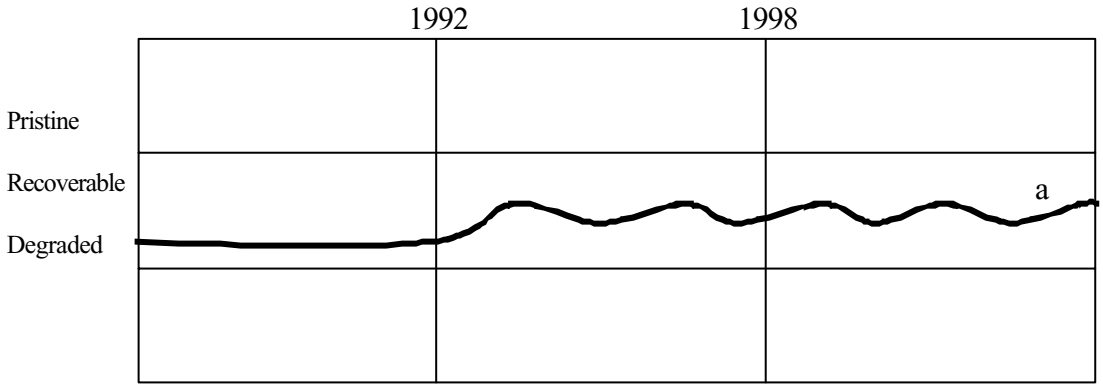
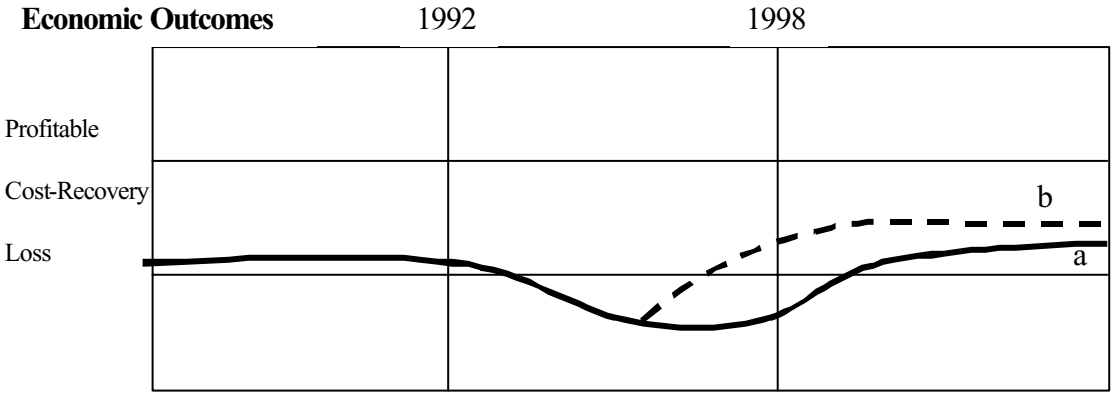
Ecological Outcomes



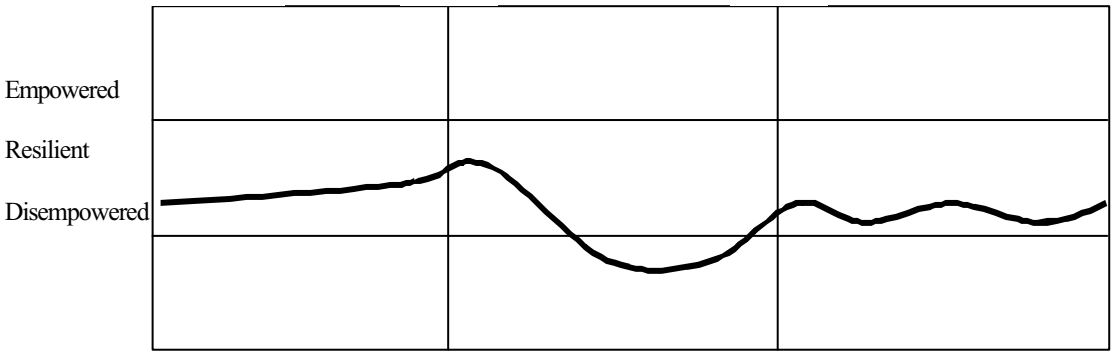
Waste avoidance and minimisation were not key priorities for Darebin until the initial, Council-initiated green waste strategy in 199?). Since then, green waste to landfill has reduced, and sustainable reuse of green waste has increased. However the amounts of various waste streams directed to landfill continues to vary, and it is not clear why.

Economic Outcomes



Research into green waste avoidance options, and the establishment of programs was a costly exercise for Council. However, the strong interest in waste minimisation issues by various agencies has assisted in providing information and support needed to reduce those costs in the long run. Other local governments within the inner-city region, and central agencies such as Ecorecycle have been important players in this research and action (a). However Darebin's costs could have been further reduced if State Government funds had been made available to support pre-existing programs that were consistent with State goals (b).

Social Outcomes



Early, council-driven efforts at waste minimisation in Darebin were slightly empowering for local residents, as these gave them better options and information for dealing with their green wastes. The forced Council amalgamations were disempowering for communities, who lost access to local democratic representation for a time. Darebin's further efforts to provide green waste and other waste minimisation strategies have received mixed responses. There is some conflict between local areas about the size of bins, and the detail of the waste services provided. Although these issues have little impact on waste services actually provided, they do cause community concerns over time.

The 'Buy-Recycled' Initiative at Yarra City

Case Study V4. By Su Wild River, with Meryl Triggs, (Waste Management Project Officer) and Libby Chaplin (Arcadian Solutions).

Comparative Statistics for Yarra City Council

Category	Measure	Comparison
Area (Sq/Km)	19	Bottom 7%
Population	65,000	Top 13%
Pop Sq/Km	3,421	Top 2%
Total Income ($)	66,109,000	Top 9%
Rate Content ($)	35,438,000	Top 9%
Expenditure ($)	62,606,000	Top 11%

Information Australia, 2000

The Buy Recycled initiative was part of the Waste Management Strategy introduced by Yarra City Council. It encouraged and showcased innovative ways to reduce local waste problems. The initiative stimulated local businesses to help avoid waste by reusing and recycling materials in their products. Council also adopted policies to provide leadership for waste reduction by buying recycled goods wherever possible. Recycling in the City increased as a result of the Waste Management Strategy, but the total volume of waste produced in the city was not reduced.

Yarra City is a densely populated, inner city area of Melbourne. It has significant shopping and restaurant precincts and a decidedly inner urban environment. It has high ethnic diversity, a high proportion of people aged between 18 and 34, and a highly mobile population. Yarra City was formed through the amalgamation of Richmond, Fitzroy, Collingwood and part of Northcote and Melbourne cities, during the Victorian local government reforms of 1994 (City of Yarra, 1997. p.2). These same reforms also brought in compulsory competitive tendering (CCT) of most council services.

Waste services were some of the first council activities to be affected by CCT requirements. Prior to this, local governments usually operated the landfills that received wastes, and hired local contractors for residential waste collection and transfer to the landfills. The first stage in the transition to CCT for waste collection, transfer and disposal required local governments to rethink their entire waste services, and to consider why and how they undertook each component task.

Broader government initiatives focusing on waste minimisation also affected Yarra City's own policies. The National Waste Minimisation Strategy (Commonwealth Environmental Protection Agency 1992) and the National Kerbside Recycling Strategy (Australia New Zealand Environment Council, 1992) had recently helped to define Australia's national framework for waste minimisation. In addition, the Victorian Government committed the state to achieve a 50 per cent reduction in waste to landfill by 2000, based on 1990 waste quantities. It also legislated landfill levies for all Victorian wastes (City of Yarra 1997, p.2). The waste levy helped to fund the establishment of *EcoRecycle.* This statutory authority provides research, information, practical support and other assistance to local governments, on waste issues.

Yarra City's *buy-recycled* activities were developed partly as a result of a waste audit of Council offices, which identified opportunities for waste reduction including the purchase of recycled products. It was also assisted by some council processes like the need to update and renew contracts for various suppliers of council products. New contracts afforded an opportunity to build environmental goals into a range of council activities which had not previously prioritised them. There were also several enthusiastic potential buy-recycled clients. These included a local supplier of recycled printer toner cartridges and a local company making office chairs from recycled plastics.

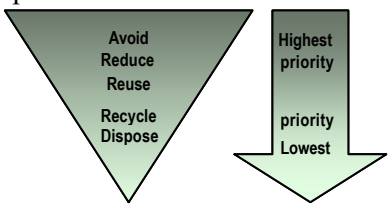


Figure 1: Waste Hierarchy

The principle that underpins the Buy Recycled program is that of the 'waste hierarchy' as shown in Figure 1. The hierarchy encapsulates the observation that the greatest gains in waste minimisation are achieved through work at the top of the hierarchy. So waste avoidance efforts result in greater waste reduction than do recycling, which give greater benefits than reuse and so on. Fewest real environmental gains are made when efforts focus on the waste disposal section of the hierarchy. *Buy recycled* initiatives are distinctive in their focus on developing markets for recycled products, rather than on the processes of recycling themselves.

Some important technical issues needed to be addressed in the buy-recycled initiative. For

instance, when a recycled product competes with a standard alternative, there is a need to demonstrate that it meets all of the performance requirements of the product it replaces. The challenge of ensuring that design specifications and costs are adequate was larger than the council initiative, and Yarra City worked with EcoRecycle to address these issues.

Acting on a recommendation of the Local Government Buy Recycle Reference Group, EcoRecycle Victoria produced the publication: *Products Made from Recycled Materials* (EcoRecycle 1999) and the Buy-Recycled Resource Kit for Local Government. This kit (prepared by consultants *Arcadian Solutions*) gives information on recycled products, materials being recycled and used to make the product, a description and supplier for the product. Importantly, the description specifies product standard, in relation to recognised criteria. This level of detail ensures that local governments and other purchasers can readily purchase the recycled products without needing to shop around each time to find and test them. The success of these initiatives led to the establishment of the Local Government Buy Recycle Alliance at the Municipal Association of Victoria. Over 30 councils in Victoria have now signed onto the program.

Figure 2: Recycled concrete, bluestone*

Buy Recycled initiatives undertaken by Yarra include:

- construction of roads and footpath using recycled asphalt and concrete (Figure 2),
- use of reusable plastic kerbing,
- blue stone reuse in kerb reconstruction,
- purchasing 50% recycled office paper,
- refunding 50% of cost to traders if they purchased recycled packaging for the Yarra Community Day,
- the successful tender for 33,000 Mobile Garbage Bins and 27,000 recycling crates made from recycled plastic,
- worm farms and compost bins for sale to the public are made from recycled plastic,
- recycled paper hand towels, toilet paper,
- synthetic soft fall made from recycled tyres (Figure 3),
- cornstarch pens,
- tub chair from recycled toner cartridges,
- subsidising reusable cloth shopping bags for residents.

Figure 3: Recycled tyres for soft fall*

* photographs by Yarra City Council.

Yarra City's experiences also highlight the significance of the criteria that are used to measure success in delivering environmental outcomes. For example, concil waste initiatives were successful in increasing recycling. But waste to landfill was maintained at existing levels, because of the combination of increased recycling, and increased waste production. In this sense, implementing the policy has helped to identify criteria for assessing the success of waste management initiatives. But it has not addressed the related question of why waste production from households has increased recently in Yarra City.

References

Australia New Zealand Environment Council. 1992. *National Kerbside Recycling Strategy*. ANZECC.

City of Yarra. 1997. *Waste Management Strategy July 1997*. Melbourne: City of Yarra.

Commonwealth Environmental Protection Agency. 1992. *National Waste Minimisation Strategy*. Canberra: AGPS.

EcoRecycle Victoria. 1999. *Products made from recycled materials: a guide for purchasing officers in government and industry*. Melbourne: EcoRecycle Victoria.

EcoRecycle Victoria. 2000. *Buy Recycled Resource Kit for Local Government* Melbourne: EcoRecycle Victoria.

Information Australia. 2000. *Australian Local Guide to Government 28th Edition: July-November 2000.* Melbourne: Information Australia.

Local Government Buy Recycled Alliance website: http://www.mav.asn.au/buyrecycled/

V4: Introducing the 'Buy Recycled' Policy for Yarra City

Perspective: Local Government/ Mixed
Role: Officer
LG type: Capital (rich, compact, populous)
Focus: Protection

Context Issues
Following the Victorian LG amalgamations, the State Government set up 'Ecorecycle' to support LGs in meeting waste reduction targets.

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Apply innovative strategies to increase the local market share of recycled products,
- Show leadership to local industry and residents, in buying and promoting recycled products,
- Achieve the opportunity to reduce waste through effective recycling,
- Target waste minimisation, rather than just recycling, in broad waste reduction strategies.

Drivers
- Consultant report and process which helped people to know what buy-recycled and related initiatives were in progress elsewhere,
- Stimulus to action when contractors contracts come up for tender,
- Enthusiastic clients (supplier of recycled toner cartridges),
- Enthusiastic group within LG, 25 staff volunteered to be in working party,
- LG traditional and inherent roles as waste managers, financial interest in reducing waste to landfill,
- Compulsory Competitive Tendering provided opportunity to learn value of contracts,
- LA 21 had model for some environmental policies, attracts State, Federal support.

Processes
- Council carried out internal waste audit January '98,
- Consultant developed options for recycling/ reducing waste,
- Working party within LG achieved various targets,
- LG was developing an environment strategy, but may call it LA21 because of broader government support for those initiatives,
- Encouraged staff to buy recycled goods, by using recycled products in Council.

Constraints
- Inflexibility of contracts set up several years ago without waste reduction requirements,
- Opposition within LG to using some recycled products (eg recycled paper and cartridges in printers),
- Low interest in waste initiatives across LG, probably because the issues cross boundaries, staff sabotage trials,
- Staff turnover in supportive peak bodies, eg. Municipal Association of Victoria, Ecorecycle.

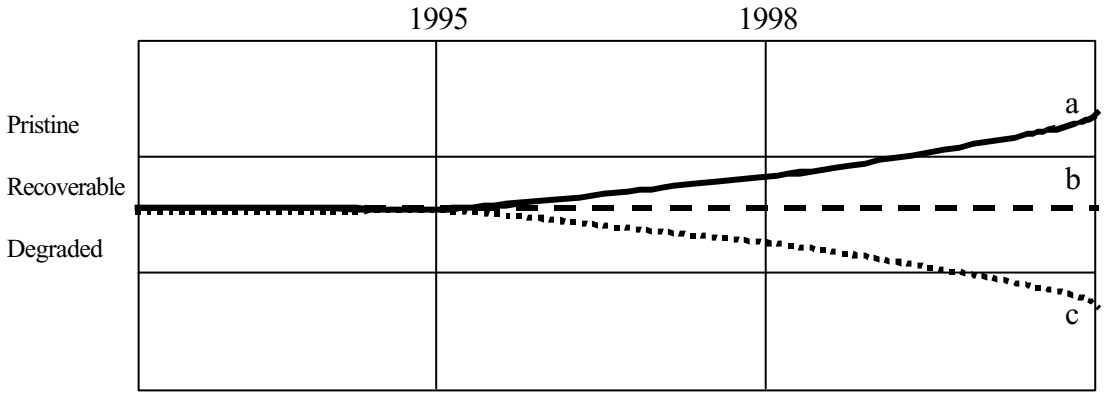
Outcomes
- Achieved internal change, through increased use of recycled products by LG,
- Encouraged local businesses to develop recycled products, eg chair made from reycled toner cartridges,
- Buy-recycled policy nearly completed,
- Ecorecycle reference group and alliance to be set up.

About the Models

The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the ecological, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

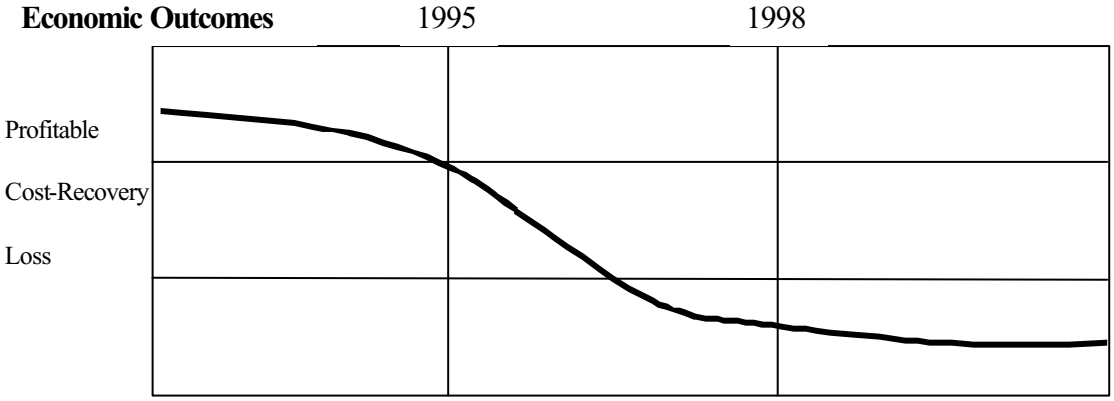
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through the Centre for Resource and Environmental Studies, Australian National University.

Ecological Outcomes



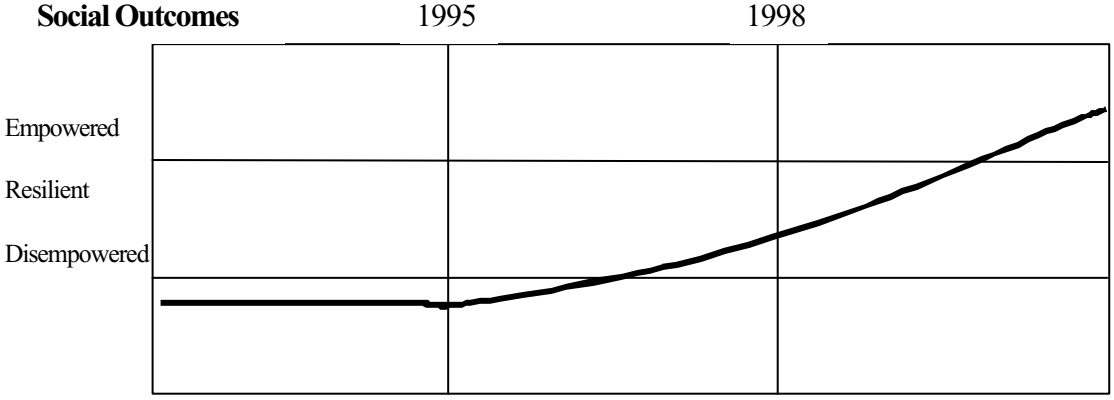
The environmental outcomes here are stated in terms of three possible measures for waste management policies. The top line (a) indicates the increased use of recycling systems and recycled products in Yarra City, as a result of the buy-recycled, and related initiatives. The middle line (b) shows the amount of waste going to landfill, which has remained unchanged, despite increased recycling. The bottom line (c) shows the overall increase in resources being directed from households to waste systems. This example demonstrates the importance of carefully defining the measures used to determine the success of environmental policies.

Economic Outcomes



Waste management programs at Yarra City were operating at a profit, in that Council's budget for running its landfill was sufficient. In addition, some money could be recouped from recycling some materials, such as aluminium. Increased environmental controls on landfills, and recycling systems have added significantly to the costs of running Council's waste systems. 30% of the waste stream is now recycled, and the total cost to Council of its waste services is $1.5million. To date, recycling has proven more expensive than landfill as a waste management strategy.

Social Outcomes



The Victorian local government amalgamations before were disempowering for the Yarra City community, since they lost local democratic representation. As democracy has been reinstated, and various waste management strategies have been put in place, empowerment has increased. Council is now in the difficult position, where many of the recycling services are not cost effective, yet the community continues to demand that they are maintained. This is a case where the community is so empowered as to constrain the Council from making cost-effective decisions about some waste management options.

Bushland Management in Mullum Mullum Creek, Manningham City

Case Study V5: by Su Wild River with Jane Pammer (Bushland Management Officer, Manningham City)

Comparative Statistics for Manningham

Category	Measure	Comparison
Area (Sq/Km)	114	Bottom 18%
Population	112,503	Top 10%
Pop Sq/Km	987	Top 13%
Rate Content ($)	32,551,000	Top 10%
Expenditure ($)	66,651,000	Top 9%

Information Australia, 2000

Environmental values in Mullum Mullum Creek have been substantially improved by intensive efforts by the Manningham City bushcrew. Workers on the project have found that the native vegetation is quickly returning due to their efforts in ongoing hand-weeding, spot-spraying, and other land management tasks. But these are ongoing and meticulous processes that have required work every 10-12 weeks throughout the year, for over seven years.

Manningham City Council is a wealthy residential area of Melbourne with a large population. The city has densely populated areas, balanced by large areas of native bushland, and rural residential areas. Many of these are along creeks and include significant patches of remnant native vegetation. The city council places a high value on its environment, and has developed a reputation for environmental work through a number of its innovative programs and projects. These include the bush regeneration work at Mullum Mullum Creek.

Mullum Mullum Creek provides a green-belt between urbanised sections of Manningham City. Council has made concerted efforts over recent years to enhance native riparian vegetation to the catchment. It is also working to increase the Creek's values for recreation, and as a cycle and walk way through the Shire.

In 1993, Manningham City hired Jane Pammer as a gardener, supervising a team of unemployed people, who worked mostly on weed management. Jane has continued working as a gardener at Mullum Mullum Creek and other local sites since then. Other contractors have also been working on bushland management in the shire, initially on fairly short contracts, and now on a more permanent or ongoing basis. These initiatives have led to substantial improvements in vegetation values along the creek. But it has not been a quick or easy task.

Initial work on the project involved large-scale direct planting of local native species. While some of them survived, many did not, partly because of pressure to plant at the wrong time of the year. This approach also turned out to be wasteful of resources, since the site contained a significant amount of remnant vegetation, from which natural regeneration could occur if the site was managed in such a way to facilitate this.

This observation has led to a detailed focus on the weed problem. The teams now work their way through the rehabilitation area, using systematic methods to thoroughly remove all of the target weeds. One method involves placing bags as markers, and moving them once all weeds have been removed from an area. In higher quality sites where the weeds are very dense, ropes are laid out in two metre wide strips, and weeds are removed between them before one rope is shifted to mark the next section. Figure 1 shows this technique being used over a grassy slope. This two-metre by 20 metre strip would take between one and three hours to hand-weed.

Figure 1: Tapes marking sections for weeding.

This meticulous process is also governed by environmental conditions. One issue is that Manningham's section of the creek lies downstream from other weed-infested areas. Because of this, the creek carries weed seeds down to the rehabilitated section of the creek-.

flats each year. Because of this, the flats are weeded approximately four times each year, while the top of the slope is checked only once a year. Timing is also critical to optimising the weed management. The teams focus on areas where weed seeds are about to drop.

Larger 'woody weeds' are also being removed, but again this is a gradual process. The rehabilitation teams chose not to remove all of the weed trees since these provide habitat for native animals.

Figure 2: Riffle in Mullum Mullum Creek

The bushcrew also liaise with other agencies doing related work in Mullum Mullum Creek. For instance, specialist contractors for Melbourne Water manage the bed and banks for all Melbourne waterways. They work to moderate the flow of creeks such as Mullum Mullum since the houses, roads and other built structures all reduce the infiltration of water into soil. This means that more stormwater flows directly into the creek when it rains. That can increase erosion within and around the creek bed. In response. One approach to accommodating the increased peak flows is by slowing the creek. This is achieved by lining the outside edges of some of the creek's bends to reduce scouring of the soil there. Pools have been built in some places to slow the water even further. Rock 'riffles' have also been put in place, to form non-erosive areas when the water flows down a drop. Figure 2 shows one of these structures in place.

The rehabilitation team's efforts have already transformed a very degraded, and weedy area into a showcase of remnant vegetation management. Bikeways also now run along the creek, and it has become a major recreation and transport corridor for walkers and cyclists. The initiatives have clearly delivered major ecological and social benefits.

The Manningham City Council bushcrew is also a good local employer. The crew includes a mix of permanent, casual and contract labour, who mostly live locally. 75% of the casual contractors have been on the crew for over 4 years, with the permanent staff having been involved for even longer.

The state government considers weeds to be mostly a state issue, although there is one local government weed program. This is a called 'local government waging a war on weeds'. It involves $12million over 4 years. Manningham has not been one of the recipient councils, despite its intensive, ongoing work (Victoria's Weeds Initiative. 1999). This state government-funded program also only tackles about 20 identified 'environmental weeds'. By comparison, the Manningham initiative deals with around 200 locally-significant weed species.

References

Information Australia. 2000. *Australian Local Government Guide. 28th Edition, July-November 2000.* Melbourne: information Australia.

Victoria's Weeds Initiative. 1999. *Local government waging a war on weeds: innovations in weed management.* Melbourne: Victorian Department of Natural Resources and Environment.

V5: Bushland Management in Mullum Mullum Creek, Manningham City

Perspective: Local Government
Role: Manager
LG type: Capital Fringe (rich, compact, populous)
Focus: Management

Context Issues
-

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Care for all native remnants in the Mullum Mullum Creek Catchment, with particular emphasis on the ground-storey,
- Protect habitat for native animals, through either indigenous or weed species (ie, resist the urge to manicure the site),
- Spot plant trees and shrubs into the weedscapes

Drivers
- Officer available with perpetual funding,
- Same officer in position long-term, allowing learning, flexibility,
- Flexible funding arrangements so that savings in one area can be redirected to others,
- The bush's capacity to resist weed invasion if healthy and to regenerate,
- Perpetual funding for each site,
- Ability and willingness of workers prioritise weed management efforts,
- Some community education.

Processes
- Arrange perpetual funding for workers to define goals relative to bush needs,
- Tackle erosion using rock riffles, so that sediment collects in creek bed,
- Strategic revegetation effort and weed removal from Mullum Mullum Creek side. Has increased native vegetation,
- Plant indigenous trees and shrubs into weedscapes, then leave them while they establish,
- Not much planting needed since weed removal allows remnants to recolonise,
- Strip weeding techniques to achieve thoroughness.

Constraints
- Resources were used ineffectively in the first phase of the project, since too much was taken on too quickly, and with not enough knowledge. (eg planting done before weed removal),
- The project involves very hard physical work over years. Some weeds in particular are very hard to remove,
- Community knowledge of issues and processes lacking,
- Weed seeds still arrive from upstream, wind etc

Outcomes
- Groundstory vegetation now effectively managed, although regular work is still needed,
- Some serious weeds removed from large areas (eg blackberry),
- 25-30% of the understory was indigenous at project start. Now nearly 100%,
- Knowledge gained about effective ways to clear weeds and regenerate natives,
- Improvement in natural vegetation in all sites along the creek.

About the Models

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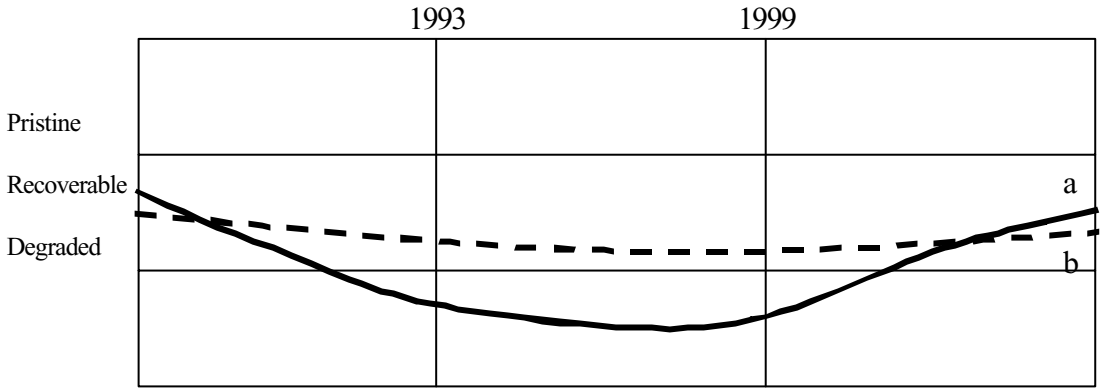
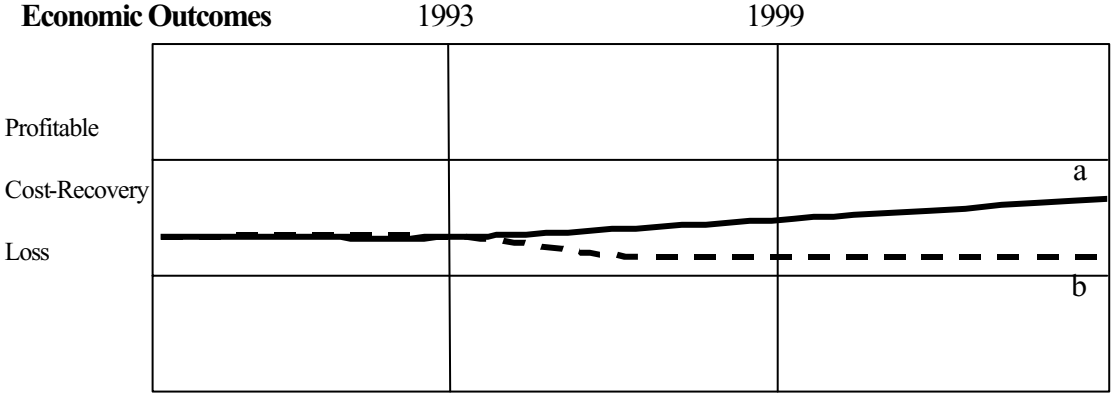
Ecological Outcomes



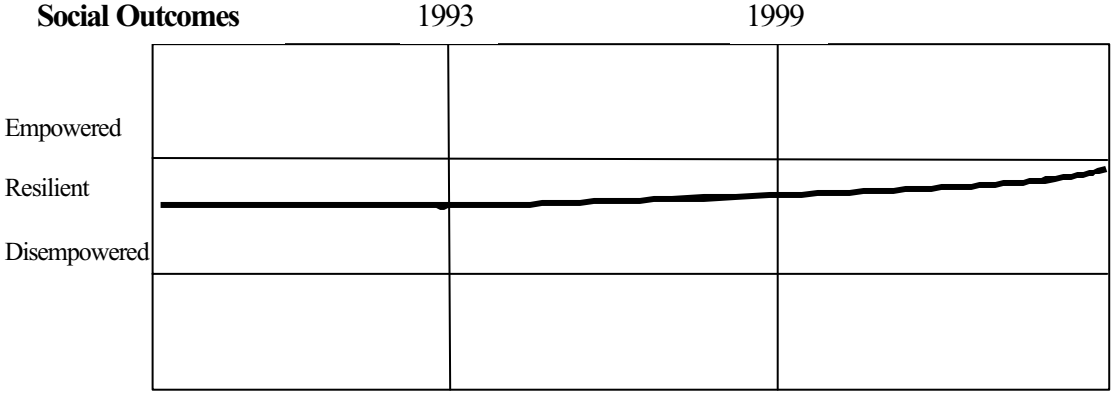
Prior to this project on Mullum Mullum Creek, the environmental values were continuously decreasing. A range of weeds were steadily and aggressively taking over most of the creek edge, increased runoff from sealed surfaces in the catchment were placing an extra load on the creek during rain episodes. Strategic, flexible approaches to weeding and replanting have led to significant environmental improvements at all work sites along Mullum Mullum Creek (a). However, the impact for the City as a whole is relatively low (b). This is partly because the Creek is only a small part of the City, and partly because efforts at revegetating public space have a relatively small impact, because most of the open-space in the City is privately-owned.

Economic Outcomes



The project has had public costs, and private benefits within the City. Manningham City Council has paid the wages of staff who have performed the weeding, planting and creek management work for the 7 years of the project (b). There have been some public benefits associated with these costs, and they include increased public access and enjoyment of the creek environment. There have also been private benefits, since residential blocks near the creek will have increased in value as a result of the greater environmental values on the creek now (a).

Social Outcomes



The project has been beneficial to social values since it has improved the aesthetic, recreation and transport value of the creek. The bushcrew also talk to a lot of 'walkers' and other creek users, who are mostly very positive about the work. The initiative is also directly empowering for the bushcrew members, many of whom live locally, and enjoy the chance to enhance their own local environment.

Improving Vegetation Management on Private Land in Manningham City

Case Study V6: by Su Wild River, with Samantha Bradly (Manningham City Council).

Comparative Statistics for Manningham

Category	Measure	Comparison
Area (Sq/Km)	114	Bottom 18%
Population	112,503	Top 10%
Pop Sq/Km	987	Top 13%
Rate Content ($)	32,551,000	Top 10%
Expenditure ($)	66,651,000	Top 9%

Information Australia, 2000

Manningham City's Local Environmental Assistance Fund has helped to improve land management in the local area. Rural residents have developed farm management plans, built rabbit-proof fences, and formed communities of informed and cooperative neighbours.

Manningham City Council is a wealthy residential area of Melbourne with a large population. The city has densely populated areas, balanced by large areas of native bushland, and rural residential areas. Many of these are along steep creeks and include significant patches of remnant native vegetation. The city council places a high value on its environment, and has developed a reputation for environmental work through a number of its innovative programs and projects.

Most of the significant areas of native vegetation within Manningham City are on private land. These are under threat of clearing, grazing and weed invasion. It is administratively easy (although costly) for Manningham to manage vegetation on council-owned land. It is more challenging to encourage private land-owners to protect ecological values on their properties. Manningham City's Local Environmental Assistant Fund (LEAF) and associated programs have been effective and innovative in this important area.

Manningham started making concerted efforts to protect native vegetation on private land in 1995, with the subdivision of the 'Green Wedge'. Council approved the subdivision on this steep area along a creek, where native vegetation was already facing weed infestation. Because of the special environmental values of the area, Council committed itself to provide education and support to retain some of its natural values. Several strategies have been used to meet these commitments, including financial support, training and community development.

One program provided each landowner with $800 towards rabbit-proof fencing, providing this funding was matched with equal funding from the landholder. This encouraged many landholders to put rabbit-proof fences in place. The initiative involved neighbours working together, so that the fences form a consistent barrier around groups of properties. This is more cost effective than if each farmer tried to rabbit proof their own property individually, on every boundary. Figure 1 shows a rabbit proof fence, built with the aid of the LEAF program, and

Figure 1. Rabbit proof fence.

In another initiative, Council staff went on to properties to identify native flora and fauna with ecological significance. The goal was to improve landholder knowledge and responsibility for native vegetation management. But this proved a relatively costly and time consuming approach.

Manningham replaced that initiative with a Property Management Training Course. When the course was initially held, Council staff would develop property management plans for participants. This again had limited success because of a lack of 'ownership' of the plans by participant landowners.

That approach was later replaced by a course costing $50 per session, for 7 sessions, during which participants developed their own plans. The plans include fire management strategies,

with mosaic burning plans, weed and feral animal controls, and identification of native grasses and other plants. Figure 2 shows kangaroo grass protected on one property as a result of these initiatives.

At the time of writing, Manningham has held 5 training courses, that have been completed by 51 landholders. Each of these landholders now increased their knowledge of land capability and economically efficient land management practices, as well as ecological sustainability issues.

Figure 2. Kangaroo grass identified and protected by private land owner.

An unanticipated benefit of these courses was the relationships that have been developed between neighboring landowners. Often, these neighbors would meet for the first time during the course, and would realise the benefits of working together on some issues. As a result of these meetings, farmers now often work together on vegetation management initiatives beyond the rabbit-proof fencing. Many also rotate stock between properties, to reduce the ongoing impact on each small block. Council also notes that people completing the course often become advocates of the environmental management issues they cover in it.

Interestingly, Manningham City Council staff argue that some of these initiatives have been benefited by the forced amalgamations of Victorian Local Governments. They argue that the greater size and budgets of the amalgamated Local Governments gives opportunities such as a greater funding base for initiatives such as these.

References

Information Australia. 2000. *Australian Guide to Local Government. 28th Edition, July-November 2000.* Melbourne.

V6: Improving Vegetation Management on Private land in Manningham		**Context Issues**	**Context continuums**
Perspective:	LG	-	**Scale**
Role:	Manager		<u><local</u> local regional state national international
LG type	Capital fringe (rich, compact, populous)		**Flexibility of Process**
Focus:	Management		<u>Full</u> mostly equal partial none
			Origins of initiative
			<local <u>local</u> regional state national international

Goals

- Improve environmental management on private land,
- Encourage informed, cooperative, practical, open land management with rigorous controls,
- Optimise the costs to Council and the public and private benefits, by making initiatives self-managing and simple.

Drivers

- 1995 panel meeting on a proposal to subdivide the 'Green Wedge' saw that community education would be needed to preserve and manage ecological values on the subdivided land,
- Council agreement to provide education and training of land owners,
- Establishment of community networks during training courses,
- Learning and teaching by community members about local environmental issues,
- Funds to assist with fencing, training etc (including rate rebates for course attendance).

Processes

- Several consecutive attempts to improve the management of private land. These included the following,
- Council identification of significant flora and fauna on properties,
- Training course supported by Council-written land management plans,
- Training courses where participants wrote their land management plans,

Rate rebates for those who attend training courses.

Constraints

- Lack of success in obtaining outside grants,
- Budget constraints,

Real estate agents not helpful in informing potential landowners land values, threats and responsibilities.

Outcomes

- 60-70 properties in the 'rabbit action group', putting rabbit-proof fences on grouped properties,
- Local environmentally significant properties in private ownership more sensitively managed,
- Community network involving rotating of grazing animals (eg horses, cattle),
- Fencing and replanting of gully and other key areas,
- 5 courses run, and 51 landowners have completed courses subsidised by Council,
- Course covers land capability and economically efficient land management practices. It involves developing a 3-5 year action plan with zones, how to achieve goals, contact people for help, a weed map, fire plan, pest animal plan and revegetation plan,
- People completing the course become advocates for environmental management.

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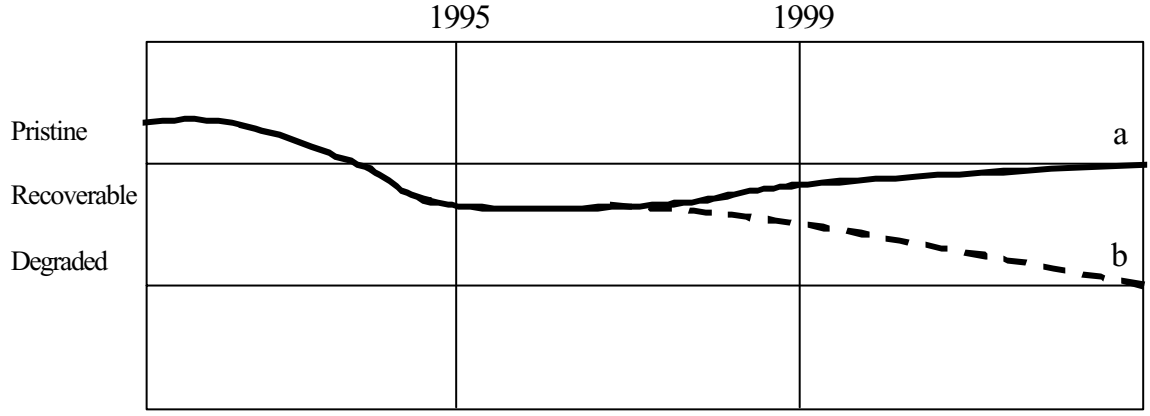
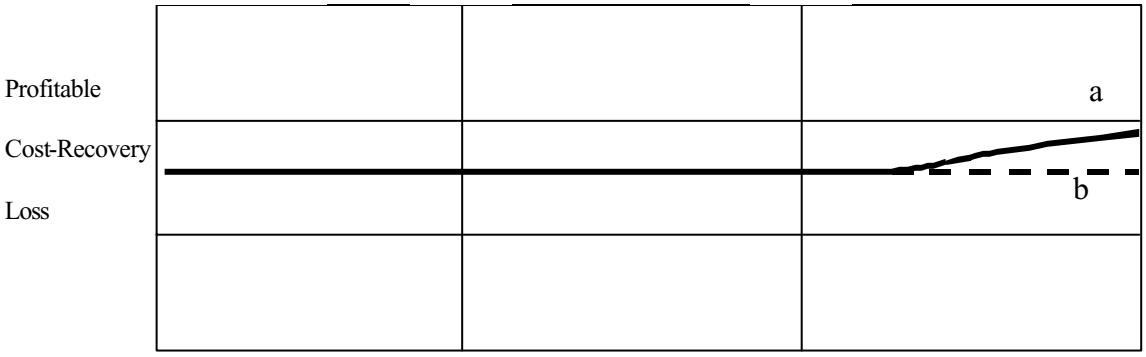
Ecological Outcomes



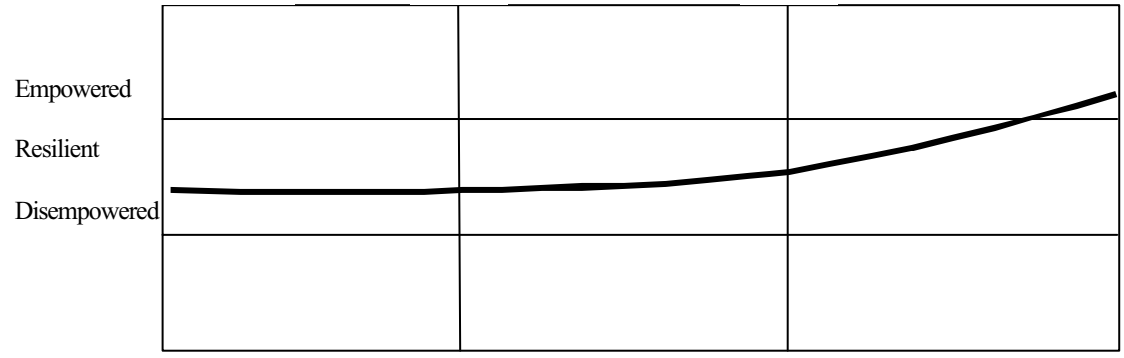
Before these initiatives, land in the 'Green Wedge' was already deteriorating with invasion by rabbits and weeds. Environmental values were further threatened by the proposed subdivision and sale of small blocks of land. Each block could legally be cleared. The various training and support programs initiated by Council helped not only to retain the environmental values despite the subdivision, but have also led to some improvements to rabbit and weed control (a). Without the initiatives, environmental quality would have continued to degrade.

Economic Outcomes



The economic impact of these efforts at improved land management are not yet fully clear. Since external funding was not available for the initiatives, Council sought to develop cost-effective programs, with some success. The subdivided land brings more rates to Council than before the subdivision, so the rate reductions, traded against practical environmental improvements is fairly cost-neutral. It is possible that the improvements to land management practices will raise property values over time (a). However while this is not yet certainl it is at least clear that land values have not been reduced through these initiatives.

Social Outcomes



There have been clear social benefits as a result of these initiatives. These have been most pronounced when neighboring landowners have attended the same courses, while developing their land management plans. In these cases, they have usually formed friendly, informal alliances, that have led to practical land management partnerships. Opportunities to shift grazing animals between properties, and to coordinate the rabbit-proof fencing are important practical outcomes from this community empowerment.

Environmental Strategies for the City of Greater Dandenong

Case Study V7: By Su Wild River. With assistance from Lorraine Nelson (previous Manager Environmental Systems, City of Greater Dandenong)

Comparative Statistics for the City of Greater Dandenong

Category	Measure	Comparison
Area (Sq/Km)	130	Bottom 20%
Population	132,000	Top 5%
Pop Sq/Km	1,015	Top 12%
Total Income ($)	56,265,000	Top 12%
Rate Content ($)	33,210,000	Top 10%

Information Australia, 2000

Following Council amalgamations in 1994, the City of Greater Dandenong commenced processes to strategically plan, and implement holistic environmental goals. Key sections of the local government helped to articulate these goals, and committed resources to achieving them.

Greater Dandenong is an industrial and residential City. It is located on Melbourne's eastern suburbs, at the foot of the Dandenong Ranges. As with almost all Victorian local governments, it formed as a result of the forced amalgamation of previous local governments, under the local government reforms of 1994. The amalgamations had both advantages and disadvantages for environmental efforts in Greater Dandenong.

Several significant environmental initiatives had preceded the amalgamation. In particular, previous state governments had encouraged local governments to develop local conservation strategies. The Cities that would later make up Greater Dandenong had approached this challenge with enthusiasm, and had undertaken extensive community consultation in developing their strategies. Many community members became highly active, and gained a high sense of ownership of the resulting strategies.

The amalgamation of previous local governments to form the City of Greater Dandenong in 1994 had both advantages and disadvantages for environmental initiatives. Local government officials at all levels were aware that new strategic planning frameworks would be needed for the new city. Support for environmental initiatives was provided by managers and councillors throughout the new city. There was also better resourcing of environmental initiatives, following the amalgamation. In addition, the Chief Executive Officer, and many other officers in key positions had a keen environmental interest.

The new local government also gained some useful environmental information. Soon after the amalgamation, it hired a risk management consultant. The resulting study highlighted some important environmental issues facing the city, providing the stimulus to take action on them.

New council processes also had environmental benefits. Compulsory competitive tendering of most council services was required of the new Victorian local governments. This process required a re-evaluation of the purpose, nature, and operation of the services, along with consideration of other possible ways of delivering them. This process provided an opportunity to formalise environmental requirements through the delivery of a range of Council activities. Greater Dandenong made a concerted effort to achieve environmental goals by way of contract specifications.

The City of Greater Dandenong appointed a 'Manager Environmental Systems' in 1997, and this officer was well placed to scrutinise the environmental implications of proposed tenders, and to enhance the environmental outcomes that would result from these. Some bidders in the tender process also independently saw the environment as a marketing opportunity. So efforts to realise environmental opportunities from competitive tendering came from both the public and private sectors.

But there were also some important environmental disadvantages resulting from the amalgamation. The relationship between the local government and the community suffered drastically for several years. The community felt disempowered as a result of losing their democratically elected council. Elected councillors were replaced by government-appointed administrators during the amalgamation process. This led to some public opposition to the new council, which many considered to be undemocratic. Efforts by

officials to update the conservation strategies so that they addressed issues on the new city-wide scale also received minimal community support. Even those community members who were typically very active, and had been highly involved in developing the previous conservation strategies, took little interest in working on the new strategies. They found it difficult to believe the new plan was building on the previous one, instead feeling that all of their previous efforts had been wasted.

In this light, the amalgamation was a period of high stress for the local government and community. It was difficult to maintain momentum, and hard to prioritise the environment among all of the other new challenges. Despite this, there is widespread views amongst council officials that the new local government is better placed to address environmental issues, than the previous cities were. Compulsory competitive tendering was also seen as a mechanism by which environmental outcomes could be achieved in the City of Greater Dandenong.

References

Environs Australia. 1996 *Accounting for the Environment: A Manual for Contract Specifications.* Melbourne: Environs Australia.

Information Australia. 2000. *The Australian Local Guide to Government.* Melbourne: Information Australia.

V7: Environmental Strategies for the City of Greater Dandenong

Perspective: LG
Role: Mixed
LG type: Capital (rich, compact, populous)
Focus: Management

Context Issues
Amalgamations and other changes have meant that recent environmental strategies have had to be replaced. New strategies have different boundaries and terms of reference.

Context continuums

Scale
<local | local | regional | state | national | international

Flexibility of Process
Full | mostly | equal | partial | none

Origins of initiative
<local | local | regional | state | national | international

Goals
- Develop a distinctive environmental strategy for the new City of Greater Dandenong
- Address long-term issues holistically,
- Involve Council and the community in deciding and implementing initiatives.

Drivers
- Recognition that new initiatives, and new strategic planning frameworks would be needed for the new City Council,
- Support from high level Managers and Councillors,
- Resourcing of strategic initiatives better after amalgamations,
- Committed Officers and Chief Executive Officer,
- Risk management consultant's findings,
- Compulsory competitive tendering processes, with some bidders seeing envt as a marketing opportunity.

Processes
- Community consultation across the City, and across cultures,
- Community participation was less than in the previous strategies, developed by Councils, now amalgamated.
- Many drafts of strategy out for public comment,
- Education and promotional efforts to inform and invite comment.

Constraints
- Lack of local democracy discouraged participation, and some opposition to the new amalgamated Council,
- Many typically active community members felt overloaded by the consecutive strategies. Didn't see this as 'building' on past initiatives, but as throwing out old work,
- Amalgamations a period of high stress and change for LG. Hard for officials to cope with own jobs, and to prioritise environment for all,
- Hard to maintain momentum of new initiatives.

Outcomes
- Progress towards articulation and achievement of identified, strategic goals,
- Key sections of LG have committed to environmental goals and are meeting commitments,
- New 'Environmental Management Systems Officer' position established to improve operations,
- Kerbside recycling strategy and systems inplace, and tenders for recycling and green waste reduction in place.

About the Models

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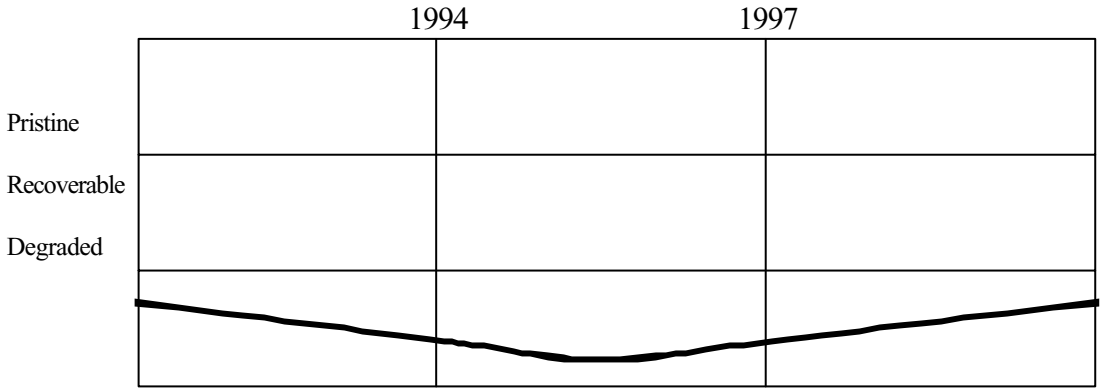
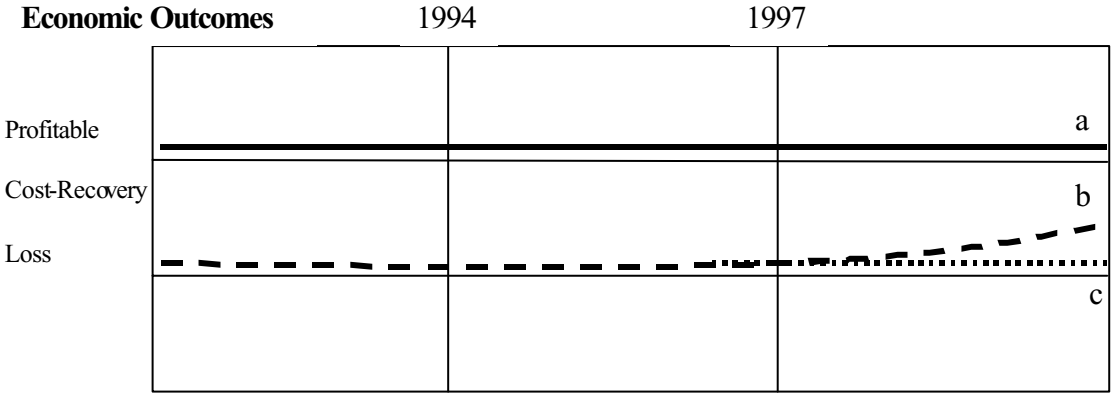
Note: This case study is one of 34 produced for Su Wild River's PhD research, undertaken through The Centre for Resource and Environmental Studies, Australian National Un University.

Ecological Outcomes



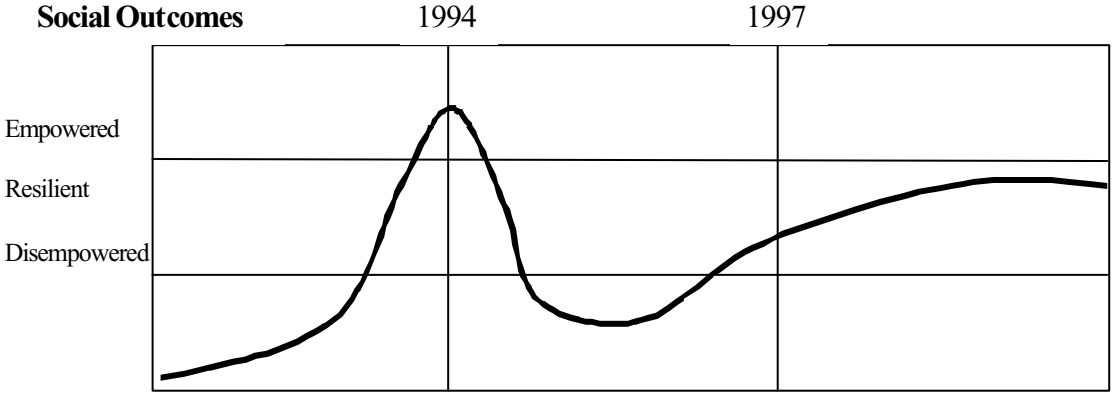
The City of Greater Dandenong is a highly industrialised area of Melbourne. Few natural environmental values remain in the local area, and some of those that do are under continued development pressure. The environmental strategy puts some limits on, and structure these developments. It also encourages consideration of environmental issues in all Council decisions. In this way, it has the potential to gradually enhance environmental values over time.

Economic Outcomes



Council and local economies and profitability have remained fairly stable through recent years. The City of Greater Dandenong enjoys a fairly strong and stable financial base (a). This is despite the low socioeconomic area of the City overall (c). A minority of local businesses have profited slightly from Cleaner Production initiatives (c).

Social Outcomes



Community empowerment throughout the City peaked before the forced amalgamations, when the previous Local Governments worked closely with local communities to develop conservation plans. Many agencies and enthusiastic individuals were brought together during this process, and worked effectively together to identify priorities, and design strategies to achieve them. Disempowerment and frustration followed the amalgamations, along with a strong sense that the local communities had little say in the makeup or policies of their Local Government. The consultative process undertaken for the new Environmental Strategy is gradually rebuilding community trust in the Council.

Regional Environmental Strategy for the Yarra Ranges

Case Study V8: By Su Wild River, with Di Moore (Councillor, Yarra Ranges Shire Council)

Comparative Statistics for Yarra Ranges

Information Australia, 2000

Category	Measure	Comparison
Area (Sq/Km)	2,471.60	Top 47%
Population	141,170	Top 4%
Pop Sq/Km	56	Top 29%
Rate Content ($)	43,700,000	Top 6%

Yarra Ranges Shire Council has managed to retain and build on previous environmental strategies, since its formation through amalgamation in 1994. The new environmental strategy has wider powers to protect trees in develope d areas, and to avoid forest loss to agriculture.

Yarra Ranges Shire is by far the largest outer-metropolitan local government bordering Melbourne. It takes in most of the Dandenong Ranges, that are a dominant, 'green' environmental feature to the East of Melbourne and the upper Yarra Valley. Yarra Ranges Shire was formed by amalgamation (during the Victorian local government reforms of 1994). At this time, as with nearly all Victorian local governments, the elected council was replaced by appointed commissioners for transition to the new Shire.

Before amalgamation, the four Councils that now make up Yarra Ranges had spent 20 years developing and working within a regional environmental plan. The State Government's *Upper Yarra and Dandenong Ranges Authority Act, 1986* formalised the regional initiatives, and provided the statutory basis for ongoing dynamic regional planning and action in the ranges. The Act established the Upper Yarra and Dandenong Ranges Authority (UYDRA) with two councilor representatives from each of the four local governments and seven community members.

The Authority developed and managed a regional strategy that reflected the planning requirements at the State, regional and local levels. The strategy gave councillors and the community the ability to reject development proposals that did not conform to strategic environmental goals for the region.

Strategic environmental planning in the Yarra Ranges had been important, because of the high development pressure that has been experienced there over recent decades.

The Shire contains some of the most environmentally significant areas of the State and serves as the major water supply catchment for Melbourne. Historically many tracts of land have been developed for agricultural purposes, mainly viticulture, horticulture, floriculture and grazing. As a result the Shire contains some of the most productive rural land in the State. Figure 1 shows part of the shire, including many natural and agricultural areas.

Figure 1: Yarra Ranges*

* photo courtesy of Yarra Ranges Shire.

The region, until the enactment of the UYDRA Act, had been designated as an urban growth corridor. The urban encroachment, particularly in the Dandenong Ranges, has impacted significantly on both indigenous ecological values, rural productivity and in some areas the stability of the land. The latter issue was confirmed by a landslip study, which showed a high amount of slip potential in much of the steeper regions of the Shire.

Council and community members who attained a regional perspective could clearly see that the significant environmental values in the region - now the Shire of Yarra Ranges, would soon be lost if uncontrolled development and land clearing continued.

The regional strategic planning work that preceded the formation of Yarra Ranges Shire provided a good basis for the environmental planning that would follow. However the transition was not entirely smooth. Upon amalgamation the Authority (UYDRA) ceased to exist. A review of the Strategy Plan occurred, under the direction of the then State Minister for Planning and Environment, and as

a result had its strength reduced. This reviewed Plan was incorporated into the Shire's Planning Scheme by means of over 400 overlays. This has resulted in the Shire having one of the most complex planning schemes in the State.

Planning in the Shire has remained difficult and complex. Particularly in the years following the amalgamation, where enormous effort was required to integrate four disparate planning schemes. These problems have been compounded by a statewide shortage of skilled planning staff.

As well as changing the local government structures for planning in the region, the amalgamations also immediately changed many of the statutory planning tools. Statutory obligations placed on local government require the production of a Municipal Strategic Statement and statewide changes to local planning schemes.

These factors, together with the organisational and structural issues associated with amalgamation, have resulted in poor planning performance by the Shire.

A recent study confirmed this problem, placing Yarra Ranges in the lowest 25% of planning performance.

In recent times Council has allocated significant resources into its Planning department. It has recruited more staff and is focusing on improving its compliance and educational capacity.

While improving the outputs of the Planning department has been a key focus it is important that the success of the department is also measured by their outcomes. Particularly in terms of in terms of social, economic and environmental value.

When democracy was reinstated in March 1997, six of the nine people elected had been councillors in the previous local governments. Each of the six had knowledge about issues and processes that had underpinned the previous regional environmental strategy.

This high level of background knowledge of regional environmental issues helped the new councillors to steer Yarra Ranges Shire towards a strong and holistic new plan. The new council started to review the social, environmental and economic issues impacting on the Shire. This led to the development of a strategic community plan, named the 'Vision 2020', which picked up on and strengthened the previous environmental values of the region.

Through Vision 2020 and its Planning Schemes the Shire of Yarra Ranges seeks to strengthen the environmental, social and economic sustainability of the Region.

The Planning Scheme for instance, includes strong vegetation protection measures. Land-owners must obtain approval from council before removing any indigenous vegetation from their land.

Council employs trained arborists, has a strong roadside management plan and policies to educate its contractors. Also, a sub-committee of Council officers form the "Tree Task Force" to oversee the removal, or not, of indigenous vegetation on Council land.

The development of Viticulture and other guidelines support the Planning Scheme by encouraging would be farmers to buy already suitably zoned and cleared land for their purposes and discourages large-scale land clearing for development.

Council's Environment department was established in February 2000 to support environmental initiatives across Council,

Some problems with environmental planning in the shire however, remain in place. For instance, in Victoria, appeals against Council's development approval decisions can bypass the formal appeal process and be forwarded directly to the Planning Minister. In the first years after the amalgamation, the Minister often ignored the environmental and social advice of the council when deciding on development applications.

At the time of writing, it is not yet clear how effective the new plan will be.

References

Information Australia. 2000. *Australian Guide to Local Government. 28th Edition, July-November 2000.* Melbourne: Information Australia.

Yarra Ranges Shire Council. 2000. *Vision 2020: Yarra Ranges.* Melbourne: Yarra Ranges Shire Council.

V8: Regional Environmental Strategy for the Yarra Ranges

Perspective:	LG
Role:	Councillor
LG type:	Capital fringe (extensive populous)
Focus:	Management

Context Issues

Amalgamations and other changes have meant that regional strategies have had to be re-done in recent times, with slightly different boundaries and terms of reference.

Context continuums

Scale

<local | local | regional | state | national | international

Flexibility of Process

Full | mostly | equal | partial | none

Origins of initiative

<local | local | regional | state | national | international

Goals

- Protect environmental values in the Yarra Valley and Dandenong Ranges,
- Implement vision of the Shire of Yarra Ranges as having great environmental values, with its communities sustained by a strong economic base,
- Look after the Shire in terms of tree removal, biodiversity loss, and other problems. Address issues associated with having Victoria's highest rate of planning applications.

Drivers

- Realisation that if subdivisions continue at historic rates, all environmental values will quickly be lost,
- Landslip study showed high amount of slip potential in Shire,
- Upper Yarra and Dandenong Ranges Act of Parliament 1986 (which established UY&DR Authority with 2 reps of each of the 4 Councils),
- Elections following the amalgamations brought back 6 of 9 Councillors, with knowledge of previous visions,
- Many Councillors elected on strong environmental agendas, balanced with economic and social goals.

Processes

- Strategic environmental planning commenced 20 years ago. In'94, the Regional Strategic Plan was kept, but the Authority was lost,
- The Authority had allowed Councils and community to reject proposals, that didn't conform to the strategy,
- The UY&DR Strategy was technically replaced by a (similar) Municipal Strategic Statement during the time of Commissioners. It has been followed by "Vision 2020" covering environmental, social and economic issues and a revised Planning Scheme.

Constraints

- Difficult and diverse area to manage. This is reflected in the complexity of the Planning Scheme.
- Environmentally sensitive area which also exhibits high economic and social value.
- State-wide shortages of skilled planning staff and the demands placed on existing resources makes acquisition and retention of trained staff difficult.
- 'Success' in the industry is currently measured in terms of 'outputs' and not 'outcomes'.

Outcomes

- On the whole, the strategic plan has stayed, including environmental and social aspects,
- The plan that has been produced focuses on natural rather than built environments,
- The new Planning Scheme is has been approved by Government,
- The new Scheme includes strong tree protection - Council check before removal of any tree,
- Guidelines include for example, land not to be cleared for vineyards, but cleared land sought.

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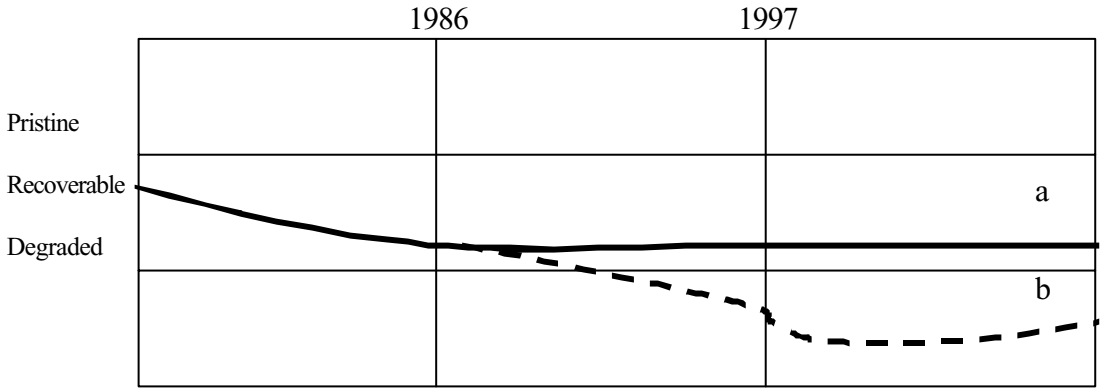
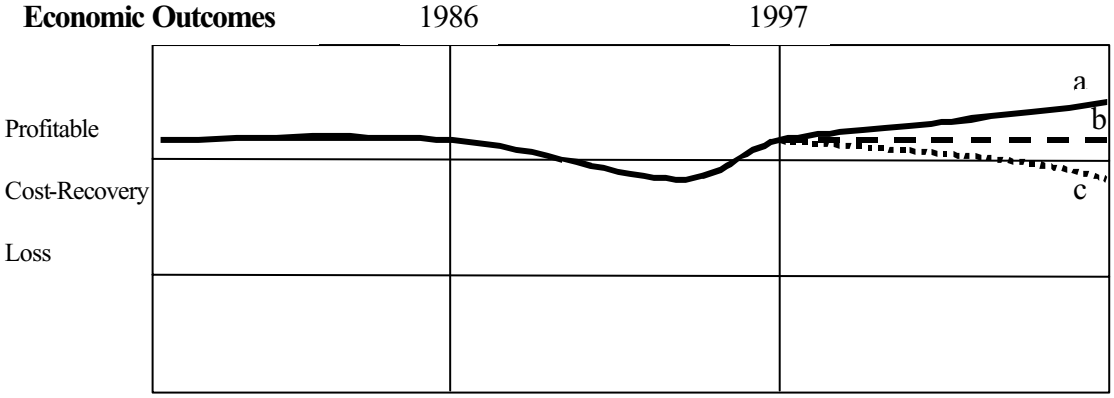
Note: This case study is one of 34 produced for Su Wild River's PhD research , undertaken through the Centre for Resource and Environmental Studies, Australian National University

Ecological Outcomes



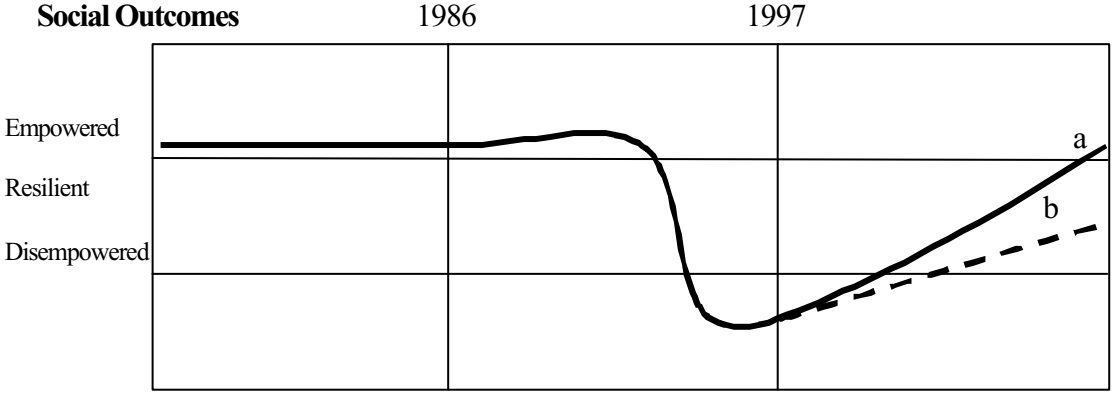
Over the past 20 years, yarra Ranges have experienced gradual, continuous environmental degradation, due to the ongoing 'development' (and clearing) of bushland. Old planning schemes restricted the number of houses allowed on blocks, which encouraged more land clearing per new household. Increased, higher density residential development from the late 80's meant less degradation per residential household (a), but agricultural land sales still involved significant clearing (b).

Economic Outcomes



Increasing residential development in smaller, urban areas, rather than continuing to clear large blocks would have been cost-neutral between 1986 and 1997. However the uncertainty associated with the changed status of the existing strategic plan, along with the continuation of the UY&D Act, would have caused a dip in economic activity associated with development. The new regional plan, and *Vision 2020* plan addresses environmental, social and economic issues. This plan, and controls on vegetation clearing may enhance the Shire's economic base, through broadly sustainable practices (a). Some activities will remain at previous cost levels, including vineyard activities where cleared land is found for grapes, rather than clearing forests (b). Some land owners may experience losses if their land use plans differ greatly from the strategic plans (c).

Social Outcomes



The Kennett Government reforms, that removed local democracy, were disempowering for this community. One impact was that the necessity of replacing existing strategic plans and structures, with new ones, meant that community involvement had to be repeated, and this frustrated those who had been involved in earlier processes. The new planning processes have involved successful community consultation, and the current draft plan reflects dominant local views (a). However sections of the community would disagree with sections of the plan, and it is also possible that the Government will reject popular aspects of the new plans (b).

South Sydney City Community Gardens

Case Study N1: By Su Wild River, with Janet Broady (Waste Education Officer), Rhonda Hunt (Waste Project Officer).

Comparative Statistics for South Sydney

Category	Measure	Comparison
Area (Sq/Km)	17.8	Bottom 6%
Population	82,960	Top 10%
Pop Sq/Km	4,661	Top 1%
Total Income ($)	99,754,663	Top 5%
Rate Content ($)	46,321,284	Top 5%
Expenditure ($)	105,773,501	Top 4%

Information Australia, 2000

South Sydney City Council is a densely populated inner area of Sydney. Landmarks such as King's Cross, Sydney University, Oxford Street and King Street are within the City. It is one of the richest, and most densely populated Local Governments in Australia.

Many residents live in highrise buildings in the City. There is limited urban space for gardening. Many residents originally come from overseas or Australian regions with better access to green areas. These residents often miss the chance to make their own gardens for flowers or foods.

Figure 1: Sharing knowledge

25% of the population are from non-English speaking backgrounds and the average stay for half of the entire population is one year. Over the past 10 years, a total of nine community gardens have been established in Redfern, Newtown, Woolloomoolloo and Waterloo.

South Sydney City Council has increased its level of support since 1993 for these community gardens, and now actively encourages and assists them. Council's Food Policy sets goals for providing food security and Council's Local Waste Plan emphasizes food and garden organic recycling priorities for the community.

The community gardens provide some strong coherence for residents and reflect the nature of the groups that work in them. For instance, an organic permaculture garden has plant species that have several practical and related values. Another garden has almost exclusively Russian gardeners and comprises mostly food plants, with one gardener bragging that she hasn't bought any greens for a year. Figure 1 shows some city gardeners sharing their knowledge.

Most of the gardens have individual plots where a particular family or other small group has a garden within a broader area, also gardened by others. All have communal composting or vermicomposting systems that use food and garden organics mixed with NSW police stable straw and manure in their composting process. The straw is delivered for free by the local Police, and this community service is great way to reduce waste, transport and costs.

Some community gardeners have proven to be competent composters, and can sometimes dispose of their own food, and that of other neighbors as well. Several composting systems have been used in the 9 gardens and successful production of compost is linked to: energy, enthusiasm, skill base and knowledge of the gardeners as well as provision of materials and assistance with mantenance and training.

Figure 2: Compost bays

The environmental benefits of the gardens are very important. All Councils in the region are trying to reduce waste to landfill. One major way of doing this is to increase the amount of organic waste that is recycled. This is a high priority since organic waste makes up to 50% of the average Sydney's householder's waste (Community Gardens Network. p.2). Figure 2 shows compost bays at one of the gardens.

Council has supported the gardens with:

- infrastructure,
- education,
- workshops for composting, seed saving,

healthy soil, organic pest management,

- bus trips to other gardens,
- administration and resourcing for committees,
- promotion, and
- an officer as a point of contact in South Sydney City Council.

Council approval is not required for a community garden to start up. If a garden is on Council land then a process of consultation and incorporation into the *Open Space Plan of Management* would be required. A Community Gardens Policy is in draft form.

Neither gardeners nor Council always own or lease the land gardens are built on. Landholders include Department of Education, Department of Housing and various Churches.

Figure 3: Raised garde n beds

Following a report on Community Gardens written in 1998. It is assumed that all of the gardens are on contaminated sites until proven otherwise. All of the soil and compost at the working gardens have now been tested. Recommendations from the Sydney Soil Laboratory included the use of protective factors such as raised garden beds and a diversity of crop planting. The results did not indicate that gardening should cease on any sites, as it showed that the risk to the gardeners from eating the food grown in South Sydney is low. Figure 3 shows some raised garden beds that produce healthy food.

Based on popularity with residents, community development and waste minimisation potential, community gardens have attracted other government and NGO's including NSW Housing, Royal Botanic Gardens, Waste Boards, Ethnic Communities Council, NSW University and Aids Council of NSW Street Jungle Project.

A new role, previously unforeseen by Council, is to network, liaise, advocate and manage these sometimes competing stakeholders in such a way that the gardeners can be properly resourced and enjoy the benefits these stakeholders have to offer.

Community gardening, growing food, fruit and flowers, enjoying urban biodiversity, and getting to know their neighbours are some of the benefits for these gardeners.

It can't be emphasized strongly enough how much time, effort and love is required for these projects to get off the ground. A dedicated council officer as a point of contact and resource is an essential ingredient to the success or failure as well as an enthusiastic group of gardeners and a parcel of land.

Future plans for community gardens in South Sydney include: a Council Community Garden Policy; planting small community orchards on suitable land; a new community garden in Zetland; a demonstration site and possible city farm and education centre in Sydney Park; further development of the community garden network; and a seminar or conference on community gardening for both gardeners and stakeholders.

References

Community Gardens Network. 1998. *Community Gardens in South Sydney*. Sydney: South Sydney City Council.

Information Australia. 2000. *Australian Guide to Local Government. 28th Edition, July-November 2000.* Melbourne: Information Australia.

N: South Sydney City Gardens

Perspective Mixed
Role: Officer
LG type: Capital

Context Issues

-

Context continuums

Scale

<local local regional state national international

Flexibility of Process

Full mostly equal partial none

Origins of initiative

<local local regional state national international

Goals

- Community goal to have open space to grow plants,
- Community goal to have social space for community-building and networking,
- The gardens are consistent with many Council policies, including its Local Waste Plan - encouraging composting, its Food Policy, encouraging people to grow their own food, and an Open Space policy that identifies potential for orchards and gardens.

Drivers

- Councillor recognition and support of these gardens,
- Waste Project Officer role in community gardens,
- Waste Education Officer with an interest in communal composting, and budget available for training and resources,
- Initiative from residents,
- Good Community development project to engage residents on non-english speaking backgrounds,
- Availability of land,
- EPA Waste minimisation grant 1998 $60,000 CG report and appointment of 2 officers for 6 months,
- Southern Sydney Waste Board Green Gardens Project 1999-2000 - $20,000.

Processes

- Cooperation between the Local Government and gardeners has developed,
- Promotion, launches, tours, by Council outsiders to inspect the gardens,
- Multitude of communities involved including Russian, Vietnamese, HIV positive, permaculturists, Australian City Farms Network,
- Most gardens are single plots in shared gardens, but some groups work together on a whole lot,
- Longest garden has been running 9 years,
- Land selection has developed through new Open Space Policy

Constraints

- Lack of Council ownership of the land,
- CG report focused on risk issues, rather than opportunities and positive issues,
- Role in council could sit in Parks, Community Services or Waste,
- Funds presently from waste education and landscaping budget,
- Community stakeholders from govt and NGO's,
- No forum provided to discuss issues, successes, failures,
- Communal composting systems require ample resoucing,
- Compost education for people of non-english speaking backgroundsis costly and difficult.

Outcomes

- Seeding program for more gardens, 6 established gardens, 3 new and 2 more proposed,
- Community-building has fostered links between people of varied backgrounds,
- Decreased garden and food organics to landfill,
- Biodiversity in the urban environment,
- Cold empty open spaces look cared for and are used well - demonstration sites,
- Stakeholders working together which has spin-offs for other projects.

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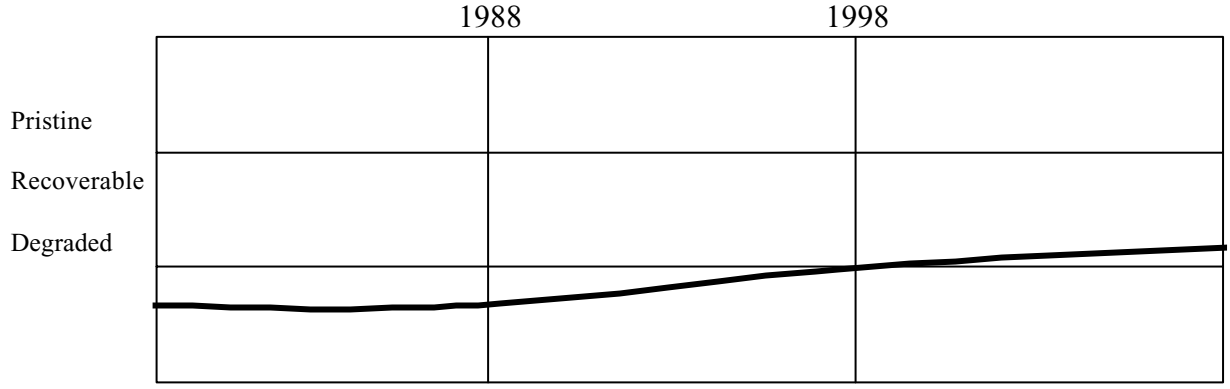
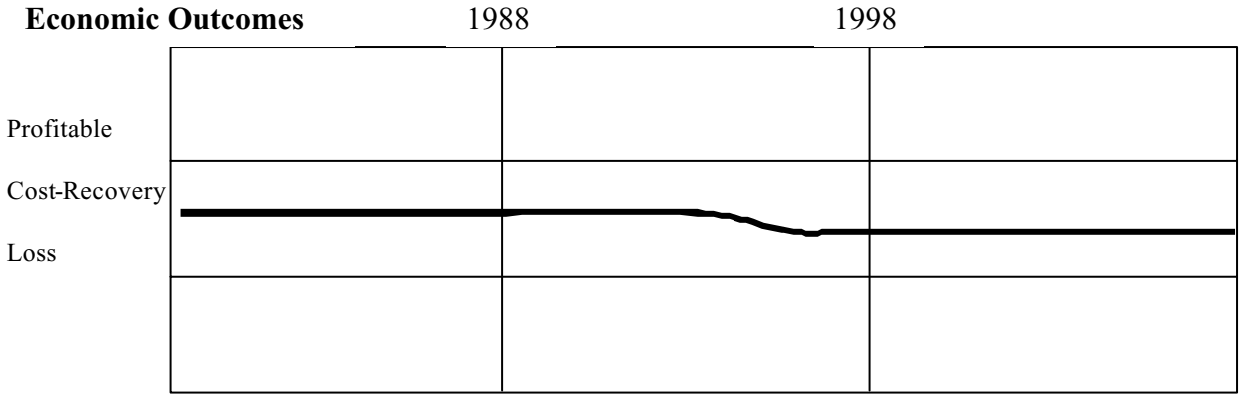


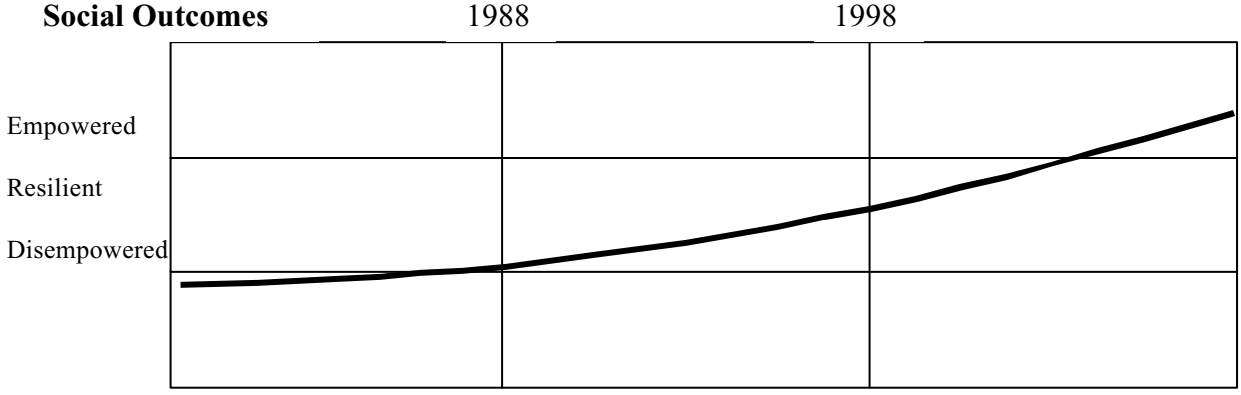
Most of the city gardens were in highly degraded sites. Clearing of rubbbish, building rubble and other waste materials was required before gardening could take place. The areas are now productive, green spaces, with far more ecological values than in the past. Few however, boast native plants, or any diversity of native animals, contamination has been investigated and alleviated.

Economic Outcomes



The city gardens are not a costly initiative. The main costs to Council have been building of infrastructure of new gardens, compost maintenance, translation, publications, equipment. . Other than that, the contact that Council has had with the Community Gardens has been through the normal operation of its other programs, such as waste minimisation. In these cases, the gardens provide a saving to Council, since they provide opportunities for Council to discuss issues, or provide training to many people at one time.

Social Outcomes



The community gardens have been empowering features of South Sydney City Council over the last decade. They have directly enabled many people to make productive gardens, despite not owning land. They have also provided a strong sense of community to many people with common backgrounds and interests. They have also cleaned up several messy, and dangerous-feeling areas, instead converting them to productive, friendly places to meet and work together. Finally, they have improved relations between the South Sydney City Council, and many residents from a range of backgrounds as well as other stakeholders from Government and NGO's.

Cultural Greening at Kogarah Council

Case Study N2. by Su Wild River, with Bruce Taper and Mike Mouritz,(Kogarah Council).

Comparative Statistics for Kogarah

Category	Measure	Comparison
Area (Sq/Km)	19	Bottom 7%
Population	50,000	Top 17%
Pop Sq/Km	2,632	Top 4%
Total Income ($)	20,991,680	Top 30%
Rate Content ($)	11,946,270	Top 27%
Expenditure ($)	22,687,823	Top 32%

Information Australia, 2000

Kogarah Council has run several successful environmental initiatives in recent years. Each has delivered its own environmental outcomes. But more importantly, this combination of initiatives has helped to inform council and the community of environmental problems, and have shifted local thinking towards sustainability.

Kogarah Council is on the shores of the Georges River in Sydney's South and just inland from Botany Bay. It is a densely populated area that still manages to retain some special environmental values. Its proximity to Botany Bay affords cool sea breezes to most of Kogarah. Several small creeks flow through Kogarah, which is bounded by the Georges River. There are large areas of river foreshore that remain as public open space, despite the dense population (see Figure 1).

Figure 1: Aerial View of Kogarah Municipality

Kogarah has a distinct Town Centre, boasting several major work places. These include the St George Private and Public Hospitals, head office of St. George Bank, and a large college of Technical and Further Education. Kogarah also has excellent public transport features. A suburban Sydney railway line runs through the Town Centre. The station is in close proximity to the St George Hospital, St George Bank Head office, the TAFE, and hundreds of other smaller employers (see Figure 2). Kogarah is also only a few kilometres from Sydney's controversial East - West runway. However Kogarah does not lie under any flight paths, and avoids associated noise pollution almost completely.

In 1998 Kogarah had the chance to redevelop an old

Figure 2: Aerial View of Kogarah Town Centre

petrol station site, situated on land purchased by Council in the suburb of Allawah. The conventional approach to redevelopment would be first to ensure that no contamination remained from the previous land use. Council would then rezone the land for (in this case medium density residential) development, and sell it off to a developer. The financial costs of this approach would be minimal, the returns high, however Council would have little control over the form of the new development.

Instead, Kogarah decided to take the project through to its design stage, so that it could ensure that the final development was of broader benefit to the Municipality. Kogarah Council hired a firm of leading, environmentally-aware architects to design control guidelines for the site. The architects wrote design specifications that would maximise the benefits from the sea breezes, and other microclimatic conditions. Stormwater reuse systems, and solar energy generating facilities were incorporated into the roof of the design to minimise environmental impact. These considerations were included when council then went to tender with the design specifications, and the site was sold to developers who undertook to meet the required design standards.

Unfortunately, the developers did not meet the sustainability obligations for this site. They did not provide for stormwater reuse or solar photovoltaic energy. The use of passive solar designs, was also less effective than in the original design. This was disappointing but not devastating to Kogarah Council. It showed that the developers were not ready for the sustainability initiative, and that cultural learning was needed amongst the development community.

The Moore Reserve Wetland project at Oatley Bay followed soon after. This initiative stemmed from the need to improve the management of stormwater from developments in Kogarah, which ultimately enter local creeks, and through them into the Georges River and ultimately Botany Bay. A system had to be designed that could cope with the increased peak flows due to urbanisation, which reduces water infiltration to soil, since most areas become covered with buildings, roads and other hard

pollutants and contaminants. Kogarah proposed to build an artificial wetland near the creek mouth at Oatley Bay, to address both goals (Figure 3).

Figure 3: Moore Reserve with artificial wetland

Kogarah approached the project with community education in mind. Intensive consultation was undertaken with residents of the suburbs surrounding the proposed wetland. This was a time-consuming process that ensured that local residents were aware of the issues, before construction commenced. The result was that most people supported the wetland construction, and also learned about local environmental and pollution issues at the same time.

A third initiative was the Kid's Earth Fund representing Kogarah's involvement in World Environment Day 1999, through an art exhibition and other initiatives. The exhibition had traveled around the world, and when Kogarah learned that it was coming to Sydney, they wrote to organisers, successfully requesting that it be located at the TAFE in Kogarah. In conjunction with the exhibition, Council arranged for TAFE students to run art workshops for local children. Promotions for the day cost just $5,000 and attracted over a thousand local children to the workshops. These also provided a chance for the children to have their questions about environmental issues answered by local experts. Several of the paintings done by the Kogarah children later traveled the world with the rest of the exhibition.

A fourth initiative involved the redevelopment of a large carpark space in the central business district at Kogarah. This provided council with the opportunity to build upon previous experience and provide a showcase of sustainable urban living. In 1995 the original plan for a 13-15 storey complex was rejected by the local community, which wanted a more appealing structure.

Council's response was to re-use the concepts that were developed for the initial redevelopment site. Again, Council was aiming for stormwater reuse, and passive solar design to maximise the light, heat and breeze for all units in the development. Once again, Council hopes that this might become a showcase of environmental sustainability that could inspire sustainable building within and beyond the Municipality. The building will also be able to house a new Library, a Town Square public space with a water feature, a public carpark, 193 residential units, 4500m^2 of retail space and a proposed Centre for Contemporary Culture centre (Figure 4).

Figure 4: Artists impression of the Kogarah Town Square redevelopment. All images supplied by Kogarah City Council.

Each of these initiatives provided social and ecological benefits to Kogarah. These benefits are significant when compared with the outcomes that would have been delivered without these concerted environmental efforts. Each initiative was also done for little or no additional cost, beyond what would have been spent by addressing the issues in 'traditional' ways, with most of these costs deferred to others later. And importantly, officials in Kogarah Council and the local community are now more aware of environmental issues, committed to their solution, and knowledgeable about ways to tackle them effectively.

References

Information Australia. 2000. ***Australian Local Government Guide. 28th Edition, July-November 2000.***

N2: Cultural greening of Kogarah Municipality

Perspective: Local government
Role: Officer/Manager
LG type: Capital (populous, compact, rich)
Focus: Management

Context Issues

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Achieve sustainability in Kogarah Municipality.

Drivers
- Key core group of environmental strategists employed at Kogarah,
- General Manager with strong environmental commitments, good ideas,
- Tangible outcomes from ongoing initiatives have inspired further actions,
- Community support for initiatives followed careful, respectful consultation,
- Capacity to reuse the development control ideas from the first to the fifth project,
- Approx. $2 million in State & Federal government funding to support the new, sustainable approach to urban design in Kogarah Town Square Redevelopment.

Processes
Initiatives include:
- Development controls established for Allawah petrol station redevelopment site. Aimed to maximise solar energy, reuse stormwater, and provide liveability.
- Extensive consultation and research before building artificial wetlands for stormwater management,
- World environment day with international 'Kid's Earth Fund' art exhibition at Kogarah. Over a thousand local children participating,
- Redevelopment of Kogarah Town Square using design features from Allawah project. Passive solar, stormwater reuse and other features.

Constraints
- Usually expressed as financial issues. But this is often a perception not a reality. Creative solutions can be used to find innovative ways to fund environmental initiatives.
- Developers and others bring their old assumptions to the planning and building processes,
- Need to continually inform local residents of environmental issues, and knowledge is built slowly.

Outcomes (associated with each of the process steps above)
1. Disappointingly low achievement of design innovations. Less solar, stormwater use than planned,
2. Local community now more aware of stormwater issues. Wetlands built to state of the art level,
3. Over a thousand local children participated in the exhibition. Some resulting artwork now travelling with the exhibition,
4. Redevelopment showcase well underway. Potential to achieve and exceed goals of first project.

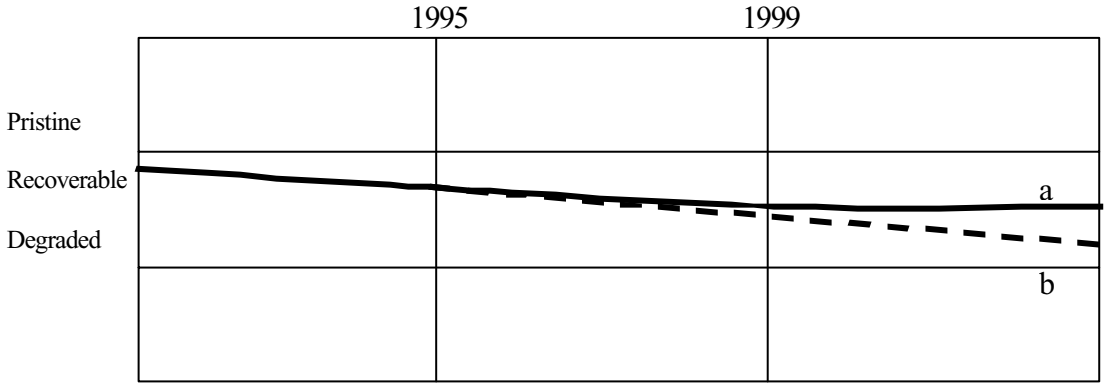
About the Models

The Comparative Case Study Model records an attempt to deliver environmental outcomes in a simple, general format enabling comparative analysis of issues. Key elements of attempts, and their contexts are recorded. The graphs across the page show the ecological, economic and social values before, during and after the attempt, and how these changed as a result of initiatives. The graphs are often 'split', indicating different outcomes for different sectors simultaneously, or different possible outcomes.

Other Notes

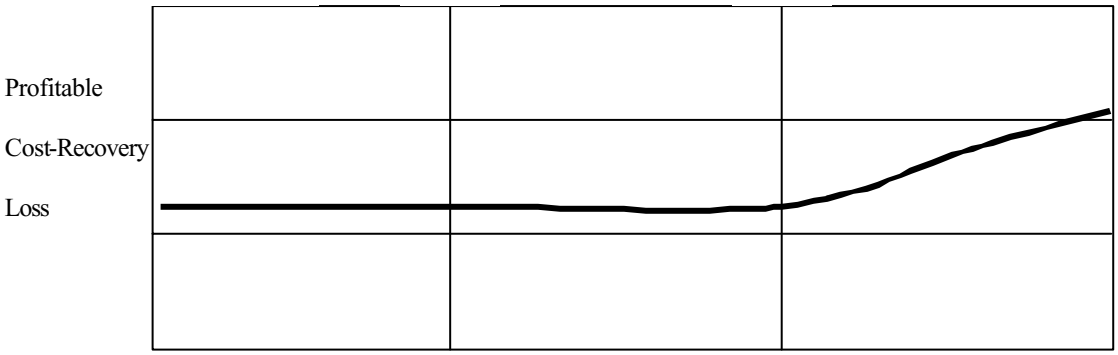
-

Ecological Outcomes



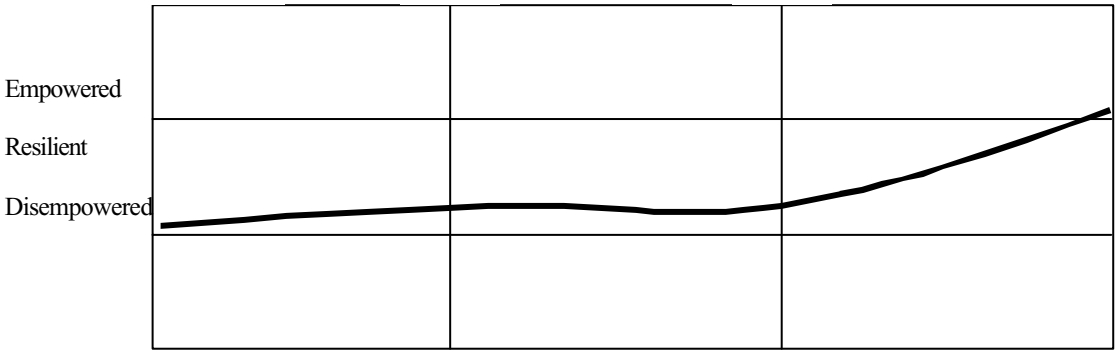
Ecological values at Kogarah Council have been degrading for hundreds of years, in the face of continued development and population pressures. However recent initiatives have helped to slow the rate of degradation. The sustainable building specifications will ensure that some ecological resources are being used at a slower rate than would otherwise be the case. The artificial wetland is also minimising damage to waterways, and pollution to the bay and beyond.

Economic Outcomes



The environmental initiatives in Kogarah have been cost-neutral, or financially beneficial to Council. For the redevelopments, Council invested some of the money that would have been made available from the sale of the land, into the design specifications. This provided the budget for the projects at no additional cost. Very minor marketing costs for the art exhibition were balanced by the contributions of the crowds that attended the shows. Funding has now been provided by both state and federal governments to help progress Kogarah's environmental initiatives, thus injecting money into the local area.

Social Outcomes



Kogarah's environmental initiatives have been increasingly empowering for local residents. The public education and consultation campaign for the artificial wetland helped locals to understand environmental issues and recognise the benefits of the proposed solution. The participation of children and others in the World Environment Day art exhibition also provided a great opportunity for local residents to learn about local environmental issues. The Kogarah Town Square Redevelopment's solar energy generation and stormwater recycling features have further potential to increase knowledge of environmental problems and their solutions for both local residents, professionals and academics.

Case Study A1. ANU Environment Management Planning

Interviewee Bart Meehan, Executive Officer, Facilities and Services, Australian National University.

In recent years, the Australian National University (ANU) has extended and formalised its long-term commitment to environmental goals. ANU recognises an obligation to lead in environmental initiatives, and has traditionally conducted ground-breaking environmental research, and maintained sound environmental management practices on campus. In seeking to further improve site management, it has established an Environmental Management Planning Committee (EMPC) with broad, and senior representation from core areas of the University to advise management on key environmental issues. It has developed a comprehensive Environmental Plan aiming to move the ANU towards world's best practice in environmental management. The Plan is promoted on the 'ANUGreen' Website, which was launched in 2000 by the ANU's Vice Chancellor, along with the Federal Environment Minister. Some of the many associated initiatives are discussed below.

ANU's environmental policy commits it to:

> "promote environmental awareness and responsibility among all members of the University community;
>
> promote the principles and practices of environmental responsibility by sharing knowledge and experience with our stakeholders;
>
> identify, monitor and report on its community, legal and ethical environmental obligations;
>
> strive for environmental best practice, and as befits an international educational and research institution, lead the way in defining best practice;
>
> continue the ANU's high level of research and teaching in environmental areas with particular reference to ecologically sustainable development;
>
> recognise its obligations, both locally and globally, to present and succeeding generations.
>
> develop a balanced approach designed to meet the needs of the organisation, while allowing it to fulfil its environmental obligations." (anugreen website, 2000)

The EMP Committee was established in mid 1998, by the Vice Chancellor, Professor Deane Terrell, with a brief to implement the principles of the University Environmental Management policy. The committee membership consists of representatives of various groups, including University management, general and academic staff and students.

The ANUgreen program was formally launched by the Vice-Chancellor, Professor Terrell and Senator Robert Hill, Minister for the Environment and Heritage on 16 March 2000. The launch, which was attended by a number of invited guests from the University community and public and private sectors, received both electronic and print media coverage and proved to be a successful mechanism for promoting environmental issues within the University community.

Other community awareness initiatives implemented during the past 12 months include:

The establishment of an Environmental Excellence Award to be presented to staff and students who have undertaken projects to improve environmental performance on campus.

Development and launch of an ANUgreen website (www.anu.edu.au/facilities/anugreen)

Publication of a brochure titled "Energy Management", which is designed to encourage individuals to be better energy managers.

Sponsorship of the ANU Green Guide, produced by the Student Association's Environment Collective

Sponsorship of the production of calico bags for distribution to students during "Orientation Week". The ANUgreen logo and website details were printed on the bags.

Various advertisements, publicising the ANUgreen program and the website details, placed in the Student Diary and Woroni.

The Committee also commissioned an environmental risk audit of the Acton and Mt Stromlo campuses using the Comparative Environmental Risk Assessment Method developed by Su Wild River.

As part of the launch of the ANUgreen Program, the Vice-Chancellor signed an

agreement committing the ANU to becoming a participant in the Commonwealth's Greenhouse Challenge Program. The primary aim of this program is to encourage various organisations from the public and private sectors to reduce their overall greenhouse gas emissions. The University has committed to reduce its emissions by a minimum of 5% by 31 December 2002. As part of achieving that commitment it recently agreed to purchase 2% of its total energy requirements from renewable sources (ie. hydro, biomass and photovoltaic).

Other initiatives undertaken by the University in the past three years include:

> Water audits completed of all University buildings. These audits identified a number of savings and problems, including a major leak in a pipe under the foundations of HC Coombs Building. The leak was repaired saving approximately 12 million litres of water per year.
>
> Improved water use infrastructure in many areas, including dual flush toilets, water recycling to cool scientific equipment, water reuse systems in two locations to process sewage and waste water, stormwater reuse systems, tap aerators fitted as taps are replaced, energy/water efficient shower heads on all showers, identifying and replacing inefficient hot water systems, auto sprinkler systems and a reverse-osmosis filtered water system installed to reduce water use by 700% in one building.
>
> The replacement of all existing lighting systems with "low loss ballast" systems in many areas. The new lighting systems are more energy efficient, in that they use 33% less energy to start up and reduce total energy usage by up to 50%. Also lasting longer than the fittings they replaced.
>
> Replacement of large mechanical plant (such as air conditioning units and cool rooms which use CFCs as a refrigerant) with more energy efficient equipment in many areas.
>
> Installation of lighting motion sensors in one Library, all lecture theatres and tutorial rooms.
>
> Installation of skylights to promote use of natural light in the many areas.
>
> Installation of solar efficient (reflective) coating on the roofs of the many buildings, to reduce cooling loss (reduces temperature in the roof space by up to 15 degrees).
>
> Upgrading of BAS28000 Building Management System. The new version now allows for better control of energy use in buildings (i.e. allows system start/stop times to be defined to the minute).
>
> Thermal insulation installed in roof replacement programs.
>
> Redrafting of "Design Guidelines for Consultants", with an increased emphasis on ESD principles being included in design submissions. While budget often limits the extent to which these principles can be incorporated into the final design there has been some significant successes in recent building projects. There are now examples which have improved air circulation use more natural light, have double glazed windows, greater thermal mass. (anugreen website. 2000)

Waste management initiatives include establishment of a campus wide system to recycle paper products, metals plastics, grease and glass. Since 1996, the amount of material recycled has grown from an estimated 90K kgs per year to 400K kgs per year. However, there is still 700K kg per year of waste being sent to landfill and consequently, the environmental strategy has several objectives aimed at reducing the overall amount of waste produced and wherever practical, recycling the remainder. An organic waste recycling system is planned, and waste audits and initiatives continue.

In the next year, the main focus of the EMP will be to promote community awareness. Current initiatives, such as an environmental art exhibition, demonstrate the potential for this leading university to combine science, art, management and local enthusiasm to deliver sustainable environmental outcomes.

Figure 1. Poster describing the waste water disposal system on ANU land at Mount Stromlo.

References

Anugreen website. 2000.

www//anu.edu.au/facilities/anugreen

A1: Australian National University Environment Management Planning

Perspective: Other
Role: Manager
LG type: Capital (compact, rich, populous)
Focus: Management

Context Issues
ANU is the authority closest to the environment (therefore a Local Government) within the Australian Capital Territory. ACT is both a local and State level

Context continuums

Scale
<local local regional state national international

Flexibility of Process
Full mostly equal partial none

Origins of initiative
<local local regional state national international

Goals
- Achieve best practice environmental management for ANU.
- Fully comply with all relevant environmental legislation.
- Avoid any possible environmental enforcement action against ANU,
- Encourage community knowledge, ownership and participation in all efforts.

Drivers
- Perception that universities, and especially ANU, need to lead the adoption of new standards in areas that are well supported by research.
- Environmental Management Planning Committee, high level of trust and, long-term, membership by key people,
- Management responsibility to achieve environmental outcomes,
- ANU senior management support for environmental improvements,
- Related government initiatives, including greenfleet, greenhouse challenge, green energy,
- Expertise and interest amongst many in university community,
- Environmentally appealing campus, Sullivan's creek, old trees, and other local values.

Processes
- ANUGreen Website and
- Environmental Plan (using International Standards Organisation 14000 models and others where relevant)
- Greenfleet, greenhouse challenge, composting and other recycling initiatives,
- Cooperation between different campus experts - energy researchers, workplace health and safety officers, site management, others.
- Innovative actions, including green office inspections, art display, climate music,

Constraints
- Cost of initiatives - organic recycling, other recycling, green energy, tree planting.
- Challenge to communicate plans, policies and actions to the entire community,
- ANU managers have very little control over actions by most of the community

Outcomes
- Senior management launch of ANU Environmental Management Plan,
- ANU Green advertised widely to students and
- Innovative, practical, appealing actions, such as art displays, climate music, environment award
- Ongoing work towards organic recycling (composting), car-pooling, energy savings.

About the Models

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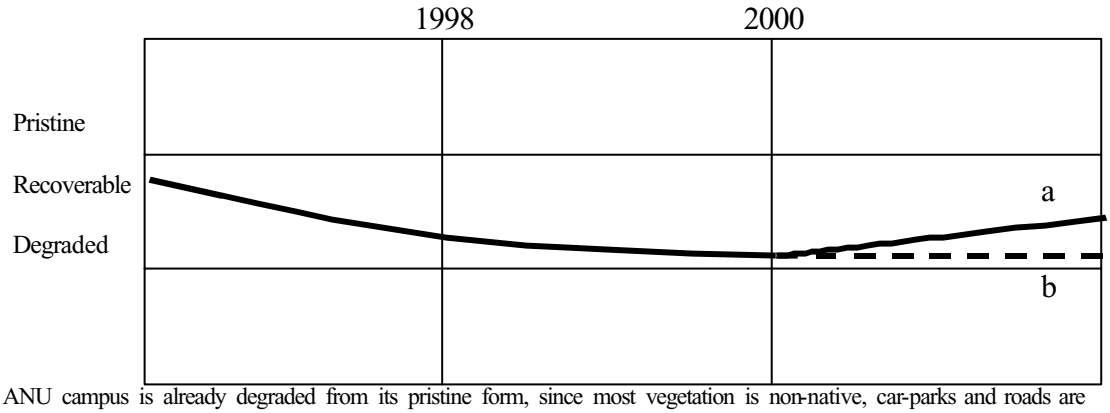
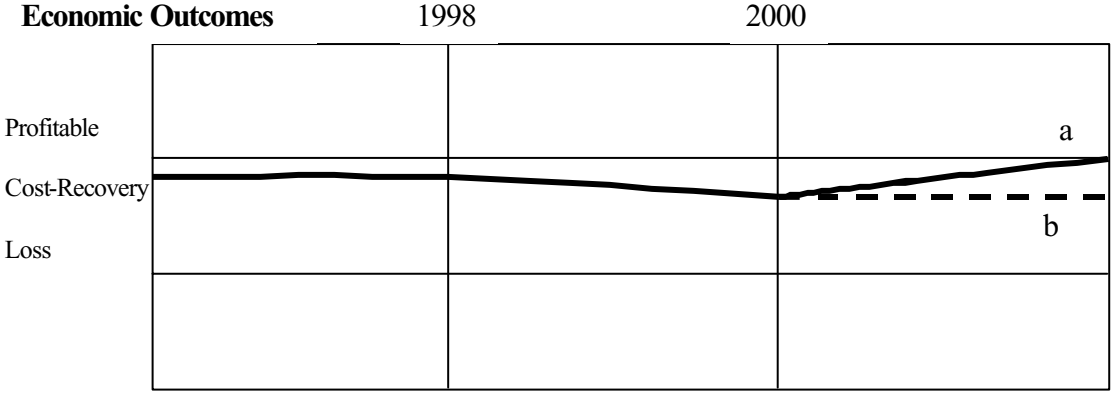
Other Notes
See further discussion in Chapter 4 of the Thesis.

Ecological Outcomes



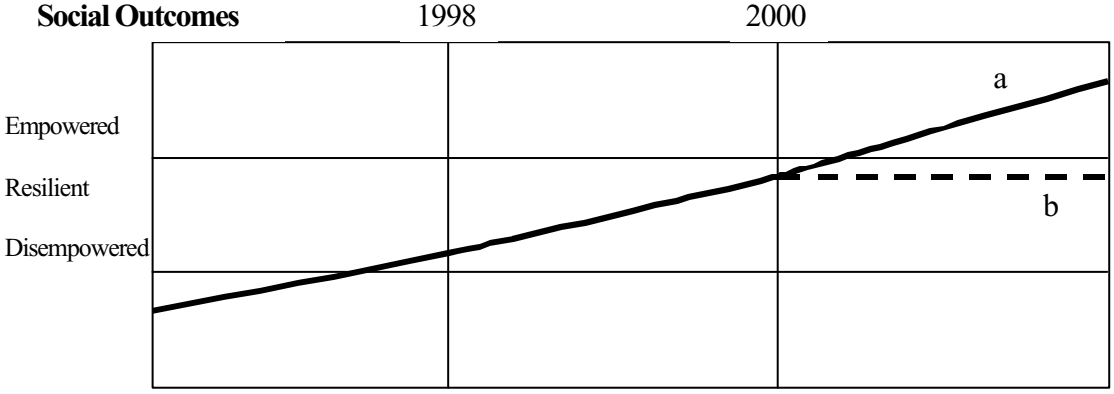
ANU campus is already degraded from its pristine form, since most vegetation is non-native, car-parks and roads are ubiquitous, and potential pollutants are used for various activities. However, the Environmental Management Plan and other environmental initiatives have already made an impact. Tree planting, and energy, water and risk audits have delivered environmental outcomes that have reduced environmental degradation from the ANU. There is a good chance of further improvements that may deliver clear environmental benefits. Composting, tree planting and green energy could provide these (a). Continuing existing programs could stabilise degradation in the long term (b).

Economic Outcomes



ANU is not strictly in the business of making profits, but certainly needs to cover its own costs. The true cost of pollution and resource use are excluded from current economic systems, meaning that environmental improvements register as net costs. Such false costs include the use of 'green' energy, tree planting for carbon credits and organic recycling (composting). However these initiatives have the capacity to improve the public image of ANU as an environmental leader, which could balance the financial outlays (b). As a leader in economic modelling and policy commentary, ANU may also have the potential to shift thinking and recording of environmental costs, and thereby register these costs as the social, and true economic benefits that they truly are (a).

Social Outcomes



ANU has historically suffered from disjointed efforts to address environmental problems. The longevity of the Environmental Management Planning Committee, its student involvement, and the commitment of many on campus to environmental improvements are shifting this pattern. Commitments by the most senior managers to improved environmental performance, and organised undergraduate initiatives show changes at both ends of the university power structure, with cooperative efforts in between. There is the potential for greater community involvement and empowerment in achieving environmental outcomes (a). There is also the chance that cooperation between parties could remain at current levels, or that inherent turnover of community members through natural attrition will constrain advances (b).