Part 2:
Case Studies in Victoria, New South Wales and Queensland
Contents

CONTENTS ......................................................................................................................... 3

1 STUDY TWO: THE CASE STUDIES ............................................................................... 7
  1.1 INTRODUCTION ................................................................................................. 7
  1.2 BACKGROUND ............................................................................................... 7
  1.2.1 Managing the environment within rural communities ............................... 9
  1.2.2 Conflict resolution at the local community level .................................... 9
  1.2.3 Defining environmental crime ................................................................. 10
  1.3 STUDY OBJECTIVES .................................................................................... 11
  1.4 METHOD ...................................................................................................... 12
  1.4.1 Interviews ............................................................................................... 12
  1.4.2 Sample selection .................................................................................... 12
  1.4.3 Focus groups .......................................................................................... 13
  1.4.4 Questionnaire ......................................................................................... 13
  1.5 REPORT STRUCTURE .................................................................................. 14

2 THE MOIRA SHIRE .................................................................................................... 15
  2.1 INTRODUCTION ............................................................................................ 15
  2.2 POPULATION AND SETTLEMENT ............................................................... 16
  2.3 AGRICULTURE IN THE REGION ................................................................. 16
  2.4 CLIMATE ..................................................................................................... 17
  2.5 ECOLOGY ...................................................................................................... 18
  2.6 ENVIRONMENTAL ISSUES FOR THE MOIRA SHIRE .................................. 21
  2.6.1 Participants’ views of environmental issues ............................................ 21
  2.7 FARM MANAGEMENT: ENVIRONMENTAL CONSERVATION AND INNOVATION ........................................................................................................ 25
  2.7.1 Farm innovation and conservation: community initiatives ................. 28
  2.8 PRESSURE ON FARMERS TO DO MORE FOR THE ENVIRONMENT ........ 29
  2.8.1 Pressures related to water ................................................................. 29
  2.9 ORDER WITHOUT LAW: MANAGING PROBLEMS IN THE COMMUNITY .... 30
  2.10 ENVIRONMENTAL CRIME: PARTICIPANT’S PERCEPTIONS .................... 36
  2.11 ATTITUDES TO ENVIRONMENTAL LAWS ............................................... 38
  2.11.1 Good laws identified by participants ...................................................... 39
  2.11.2 Bad laws identified by participants ......................................................... 39
  2.11.3 Costs identified by participants ............................................................. 42
  2.11.4 Other good activities by government identified by participants .......... 43
  2.12 PARTICIPANT’S SUGGESTIONS FOR IMPROVING ENVIRONMENTAL LAWS .............................................................. 43
  2.13 ENVIRONMENTAL MANAGEMENT: LOCAL CO-REGULATION .................. 46
Order with and without the law

3 THE WALGETT SHIRE

3.1 INTRODUCTION .................................................................................................................. 55
3.2 POPULATION AND SETTLEMENT ...................................................................................... 56
3.3 AGRICULTURE IN THE REGION .......................................................................................... 56
  3.3.1 Western land leases ........................................................................................................ 58
  3.3.2 Catchment management areas ......................................................................................... 58
3.4 CLIMATE ............................................................................................................................... 61
3.5 ECOLOGY ............................................................................................................................... 61
3.6 ENVIRONMENTAL ISSUES FOR THE WALGETT SHIRE ..................................................... 63
  3.6.1 Participants’ views of environmental issues ...................................................................... 65
3.7 FARM MANAGEMENT: ENVIRONMENTAL CONSERVATION AND INNOVATION ............. 67
  3.7.1 Farm innovation and conservation: individual initiatives ................................................. 68
  3.7.2 Farm innovation and conservation: community initiatives ............................................ 71
3.8 PRESSURES TO IMPROVE FARM MANAGEMENT ............................................................... 71
3.9 ORDER WITHOUT LAW: MANAGING PROBLEMS WITHIN THE COMMUNITY ............. 72
  3.9.1 Damage to the commons and neighbourhood watch ..................................................... 75
3.10 ENVIRONMENTAL CRIME: PARTICIPANTS’ PERCEPTIONS ............................................. 76
3.11 ATTITUDES TO ENVIRONMENTAL LAWS ........................................................................ 79
  3.11.1 Good laws identified by participants ............................................................................. 79
  3.11.2 Bad laws identified by participants ............................................................................... 80
  3.11.3 Costs identified by participants .................................................................................... 84
  3.11.4 Other good activities by government identified by participants .................................... 86
3.12 PARTICIPANTS’ SUGGESTIONS FOR IMPROVING ENVIRONMENTAL LAWS .................. 89
3.13 ENVIRONMENTAL MANAGEMENT: LOCAL CO-REGULATION ....................................... 92
3.14 TALKING POINT: LAND CLEARANCE LEGISLATION ..................................................... 93
  3.14.1 Widening gap between formal and informal order ....................................................... 96
  3.14.2 Narrowing of the gap between the formal and informal order ..................................... 103
3.15 THE INFORMAL ORDER IN WALGETT SHIRE: PERCEPTION IS NINE-TENTHS OF THE LAW ... 104
3.16 SUMMARY AND CONCLUSIONS ....................................................................................... 107

4 THE WHITSUNDAY SHIRE

4.1 INTRODUCTION .................................................................................................................... 109
4.2 POPULATION AND SETTLEMENT ....................................................................................... 111
4.3 AGRICULTURE IN THE REGION ......................................................................................... 111
4.4 CLIMATE .............................................................................................................................. 114
4.5 ECOLOGY ............................................................................................................................. 114
4.6 ENVIRONMENTAL ISSUES FOR THE WHITSUNDAY SHIRE ........................................... 115
  4.6.1 Participants’ views of environmental issues .................................................................... 117
4.7 FARM MANAGEMENT: ENVIRONMENTAL CONSERVATION AND INNOVATION .......... 120
  4.7.1 Conservation on farms: community initiatives ............................................................... 124
4.8 PRESSURES TO IMPROVE FARM MANAGEMENT ............................................................. 125
4.9 ORDER WITHOUT LAW: MANAGING PROBLEMS WITHIN THE COMMUNITY ............. 127
4.10 ENVIRONMENTAL CRIME: PARTICIPANTS’ PERCEPTIONS .......................................... 132
  4.10.1 Defining crime ............................................................................................................... 133
4.11 ATTITUDES TO ENVIRONMENTAL LAWS ....................................................................... 134
  4.11.1 Good laws identified by participants ............................................................................ 135
  4.11.2 Bad laws identified by participants .............................................................................. 136
Figures

Figure 2.1 Moira Shire Map indicating townships of Cobram and Yarrawonga (Source: State of Victoria, 2009) .......................................................... 15
Figure 2.2 The shores of Lake Mulwala at right and land release sign at left (Photo: May 2009) ............................................................... 16
Figure 2.3 Agricultural land use in Moira Shire (Moira Shire 2009) .......................................................... 17
Figure 2.4 Barmah-Millewa Forest (Source: MDBC, und.) .......................................................... 18
Figure 2.5 Superb Parrot Polytelis swainsonii .......................................................... 19
Figure 2.6 Broken Creek (Photo: May 2009) .......................................................... 19
Figure 2.7 Lake Mulwala (Photo: May 2009) .......................................................... 20
Figure 2.8 Bioregions in northern part of Goulburn-Broken Catchment Management Area, including the case study area (Source: GBCMA Strategy, 2003) .......................................................... 20
Figure 2.9 Lake Mulwala drained of water (Photo: July 2009) .......................................................... 24
Figure 2.10 Oldman Saltbush Atriplex nummularia (Photo: July 2009) .......................................................... 27
Figure 2.11 River Red Gum Eucalyptus camaldelensis (Photo: May 2009) .......................................................... 40
Figure 2.12 Murray-Darling basin and area of Northern Region of Victoria in blue .......................................................... 50
Figure 2.13 Northern Victoria Irrigation Region areas of 4% exemption (Source: Goulburn Murray Water) .......................................................... 51
Figure 3.1: Settlements within Walgett Shire (Source: after Walgett Shire Council, 2008: Map 1.2) .......................................................... 55
Figure 3.2: Land use within Walgett Shire (Source: after Walgett Shire Council, 2008: Map 2.9) .......................................................... 57
Figure 3.3: Size of landholdings in Walgett Shire (Source: after Walgett Shire Council, 2008: Map 2.10) .......................................................... 57
Figure 3.4 Cropping country (Photo: November 2009) .......................................................... 58
Figure 3.5 Catchment Management Areas within the boundaries of Walgett Shire (Source: after Walgett Shire Council, 2008: Map 3.2) .......................................................... 59
Figure 3.6: Extent of Native Vegetation in 2006 as a percentage of total area in Border Rivers-Gwydir, Central West and Namoi CMAs. Figures in map legend are the state averages.  
(Source: after Ecological Australia, 2009: figure 21).  

Figure 3.7 Native vegetation cover in the Walgett Shire (Source: after Walgett Shire Council, 2008: Map 2.4).  

Figure 3.8: The Barwon River (Photo: November 2009).  

Figure 3.9 Caesalpinia ferrea or Leopard Tree (Photo: November 2009).  

Figure 3.10 Sclero Lena muricata or Roly Poly (Photo: November 2009).  

Figure 3.11 Mitchell grass Astrebla spp (Photo: November 2009).  

Figure 3.12 Permitted clearance 1998-2008 (Source: DECCW, 2009a: Figure 1).  

Figure 3.13 Rates of woody cover change 1988-2008 (Source: DECCW, 2009a: Figure 3).  

Figure 4.1: Whitsunday Regional Council area (Source WRC 2009).  

Figure 4.2: Catchments under new Reef Protection Plan, including the study area (circled in red) (Reefwise Farming 2009).  

Figure 4.3: Orchard and small crop production near Bowen (Photo: May 2009).  

Figure 4.4: Don River Catchment and land use (Source GBRMPA 2009).  

Figure 4.5: Sugar production near Proserpine (Photo: May 2009).  

Figure 4.6: Proserpine River Catchment and land use (Source GBRMPA 2009).  

Figure 4.7: Beef production near Proserpine (Photo: May 2009).  

Figure 4.8: Don River near Bowen during the dry season (Photo: May 2009).  

Figure 4.9: Goorgana Wetlands (MWNRM 2009).  

Figure 4.10: Plastic Mulch used in small crop production (Photo: May 2009).  

Figure 4.11: Land clearing in catchments adjacent to the Reef (above and below right), including the study area (circled in red) (Source SLATS 2009).  

Tables  
Table 3.1: Timeline of state-wide regulation in NSW to limit land clearance  
Table 3.2: Penalties imposed for illegal land clearance in the NSW Land and Environment Court  
Table 4.1: Chief conclusions of the Scientific Consensus Statement on Water Quality in the Great Barrier Reef (State of Queensland, 2008)  
Table 4.2: Major Instruments in Queensland to protect the Great Barrier Reef  
Table 4.3: Pollutant targets for the Proserpine River (Drewry et al, 2008)
1 Study Two: The case studies

1.1 Introduction

In part one of this research, it was revealed that land use changes can lead to conflict between neighbours. The way communities manage these situations was a primary focus of this second stage of the project. The field work enabled an in-depth investigation of the extent and nature of self-governance of natural resource management (NRM) within farming communities and of the community attitudes, social norms and sanctions regarding NRM, environmental crime, and environmental laws and regulations.

The research approach was entirely qualitative. It comprised case studies of three communities; the Whitsunday Regional Shire in Queensland, the Moira Shire in Victoria and the Walgett Shire in western New South Wales. This introductory chapter discusses the focus of the study and details the research approach.

1.2 Background

Change is a constant for rural communities. Over the past decade, persistent drought, water restrictions, low commodity prices and the global financial downturn have had a negative impact upon Australia’s agricultural industries. As a consequence, many farm families have left the land. Properties have been bought up by neighbours or corporate farmers, which mean many communities, are declining in population size. In other places, smaller holdings have been bought up by tree-changers or lifestyle farmers. These areas are experiencing rapid social change with growing urban and rural communities of people with differing values and expectations regarding land use and natural resource management. This can lead to land use conflicts and social disintegration within communities that can have environmental consequences (Learmonth et al., 2007). Lisansky et al (1998) in a literature review found that communities experiencing transition through growth and development experience more land use conflicts than communities that are specifically rural or urban.
Land use conflicts may arise between neighbouring farmers, between farmers and neighbouring national parks or state forests, or between farmers and residents of nearby urban settlements (Learmonth et al., 2007). Lack of knowledge or rights and responsibilities concerning land management or associated laws and regulations can also create social conflict. Traditional farming practices that have persisted without intervention in the past may become subject to social pressure to change in the future. Dust, noise, odour straying stock and weeds are primary causes of disputes (Learmonth et al., 2007). Other issues (many of which were identified in the mail survey of farmers) include:

- **Absentee landlords** In the absence of a manager on a property, neighbours may have to manage problems such as straying stock, bushfires, and maintenance of fences, and trespassers.

- **Chemicals, pesticides and fertilisers** May lead to chemical spray drift, odour, pollution water ways, poisoning/destruction of trees/plants, and perceived health care risks.

- **Fire** Lack of knowledge of bush fire prevention; increasing fire risk.

- **Land clearing** Neighbours may object to the clearing of trees: with or without approval.

- **Access to private rural lands** Trespass and unauthorised hunting; entering private rural lands without agreement from the landowner.

- **Pest management** Lack of weed or pest animal control on neighbouring land.

- **Urban encroachment** Residential dwellings built close to farming operations which limit routine land management practices.

- **Water** Competition for scarce resources, compliance with regulations, building of dams, changes to flows, stock access, and riparian zone management.

- **Noise** Noise generated by farming operations; machinery, scare guns, frost fans, livestock weaning, irrigation pumps, etc.

- **Odour** Feedlots, piggeries, dairies, chemical sprays, fertiliser, silage etc.

- **Dust** Generated by farm activities: cultivation, livestock yards, fertiliser spreading

- **Rubbish** Dumping or wind-blown rubbish on farm land causing injury or poisoning of livestock, pollution of waterways.

**Source:** Learmonth et al (2007)

As well as the possible environmental degradation arising from these land use conflicts, there can be social and economic impacts such as individual stress, breakdown in community cohesiveness, legal, financial and time costs associated with resolving disputes, costs for farming operations and lost productivity, demands on government and community services and reduced confidence in the regulatory systems in place to safeguard the environment (Learmonth et al., 2007).
1.2.1 Managing the environment within rural communities

However, well functioning communities are a necessary condition for effective environmental management (Gross 2007). Governments in many parts of the world have acknowledged their limitations in their ability to enforce rules and regulations implemented to protect natural resource degradation (Marshall 2004). The traditional ‘top down’ model of centralised natural resource management that relies on governments for planning and implementation is being replaced with processes that rely on participation by citizens at the local community level (Lane 2006).

Since the mid 1980’s, community-based NRM has evolved from its origins with small landholder groups to the current model of regional bodies each responsible for a particular geographical area with local residents are directly engaged in policy developments and implementation. This move is based upon an assumption that rules devised and administered locally will be easier to enforce than those imposed by outside institutions (Marshall 2004). Ideally, this model is seen as more democratic, transparent and accountable, providing greater local understanding and more immediate and effective solutions (Lane 2006; Marshall 2008).

However, as these institutions operate within a social environment, no two groups or communities are the same. A ‘region’ overlooks the social characteristics that can divide a community. Management committees may become parochial in their priorities or may lack the capacity, skills or resources to manage effectively (Lane 2006). Yet Lockwood et al., (2007) in a review of the effectiveness of regional NRM bodies in Tasmania, Victoria and New South Wales, concluded that the regional model is sound and there is a high level of commitment to the evolution of the concept. Nevertheless, some problems were identified such as the variance between groups in levels of knowledge, management capacity, and adaptability and the degree of integration of the NRM system across national, state and regional levels. In particular, NRM bodies walk a tightrope between the legitimacy conferred on them by governments and the perceived need to be seen as independent of government to ensure acceptance within their local communities (Lockwood et al., 2007).

Disenchantment with formal institutions can lead to greater reliance on informal groups within communities seeking to manage their local environment. In chapter five, respondents reported a number of types of informal institutions formed within their local community for natural resource management. These issues were further explored with participants within the case study communities.

1.2.2 Conflict resolution at the local community level

When disputes between residents of small farming communities arise over land use changes or environmental transgressions (or crimes), the decision to invoke the law to resolve the issue is not taken lightly. Donald Black (1984) argues that law is more likely to be utilised where interaction, intimacy, and integration are scarce. Strangers use law to resolve disputes, whereas those who have close ties to each other, interact on a regular basis and are keen for that relationship to continue will elect to use more informal means of dispute resolution. Black (1976:46) suggests that a community’s size is predictive of its rate of litigation. Thus, in small rural communities where the relational distance between residents is low, people will be more inclined to employ informal means of social control or alternatively choose to ignore the problem.

Resorting to the law is seen as unnecessary and costly. Formal law is seen as more adversarial and punitive and disrupts close ties, brings private troubles to public attention, lead to retaliation by the offender and will alert the public to the details of a private matter (Gartner & Macmillan, 1995). Disputes between intimates rarely reach legal attention because they are not considered by those involved, or their networks, as either serious enough or appropriate for legal intervention (Gartner &
Macmillan, 1995). Nor do they invoke the same degree of moral outrage as offences committed by strangers. As Black (1976) claims, offences by strangers are perceived by the general public as more serious than offences by known offenders.

Ultimately, an individual’s decision to report an environmental “crime” will be strongly influenced by the seriousness of the offences and the anticipated outcome of an action. Farmers who know offenders within a small community must weigh up the costs of reporting an incident to authorities (Barclay, 2003).

However, a study of property crime on farms in Australia (Barclay et al, 2004) found that within the confines of highly cohesive farming communities, some types of crime (e.g. livestock theft) were allowed to persist and the reporting of such crimes to police was proscribed. The authors concluded that the very characteristics that define and contribute to the strength, unity, and survival of small rural communities may in fact facilitate some types of crime. Individuals, groups and communities may share common values while differing from other individuals, groups and communities in the importance they assign to such values (Feather, 1994). Consequently, there may be differential levels of tolerance towards certain offences and towards who is to blame, both between and within communities. Therefore, it was important for the present enquiry to explore how farming communities view various activities (legal or illegal) that have negative environmental outcomes.

1.2.3 Defining environmental crime

Many of the actions that result in negative environmental outcomes or land use conflicts are legally defined as criminal, for example, trespass or unauthorised hunting. Other actions such as chemical spray drift and weed control are regulated but are not legally criminal unless there is significant environmental damage associated with wilful intent (Blindell 2006).

Public perceptions of what constitutes a crime vary over time. What is defined as criminal reflects public opinion, values and the views of those who hold social and political power. Certain actions are made criminal by the law when they are deemed socially harmful or dangerous (Siegal 2002). In the past, environmental problems caused by industrial activities were considered a public welfare or social issue (Gumley 2003). Many of the actions that result in negative environmental outcomes or land use conflicts have been legally defined as criminal, for example, trespass or unauthorised hunting. More recently actions such as land clearance have been criminalised and chemical spray drift and weed control regulated.

Many environmental offences are strict liability offences (i.e. intention is irrelevant) compared to other criminal offences which require both an *actus reus* (an act in contravention of the law) and a *mens rea* (the requisite criminal mental state, for e.g. intention). For many environmental offences too, actual environmental harm need not be proven to have occurred and the offence may simply constitute acting without a license or contravening the conditions of a permit. The traditional, direct approach to regulation of environmental harms has been mainly prescriptive. That is, a law would specify and prescribe how it would work, on what subject and would clearly spell out penalties for failure to obey its prescriptions.

These types of regulations are generally imposed in areas where the behaviour is not considered so morally repugnant that it is banned outright, but is instead controlled, often so as not to hamper an otherwise legal, and often beneficial, enterprise. A former Chair of the South Australian Native Vegetation Authority, an authority which regulated land clearing on private land by farmers, has observed that where a problem is of “excessive ‘normal’ use” rather than being a pure, unadulterated “bad”, it is dealt with not “on a zero-tolerance basis but in terms of containment to an acceptable degree”. It is in this way that pollution is largely regulated, and the permit-based land clearance control system is also similar to the licensing approach that has
been used to regulate pollution. The lack of moral repugnance for factory outputs and inappropriate agricultural development has (historically) prevented the harms caused being categorised as ‘traditionally’ criminal. The stigma of criminality has not applied, even when, technically, crimes have been committed, and penalties afforded have been low. However with the rise of public concern about environmental degradation and anthropological climate change many environmental offences are becoming akin to more traditional criminal offences, in both community regard and legally, for example in increasingly high maximum statutory penalties. In pollution control the latter are usually graded, with intentional actions that cause documented environmental harm attracting the highest fines and sometimes also prison terms.

Ambiguities remain however, reflecting the somewhat uncomfortable “retro-fit” of criminal law to address environmental problems. Maximum statutory penalties may be high but penalties meted in court remain low, as has been the case for land clearance (Bartel, 2003). In pollution, which has a longer history and therefore greater opportunity for the system to adapt to the situation, there are still uncertainties. For example in Victoria, ‘aggravated pollution’ is the most serious pollution offence, one where a person intentionally, recklessly or negligently pollutes the environment, or causes or permits an environmental hazard which results in serious damage to the environment, or a serious threat to public health, or a substantial risk of these outcomes. Implicit within this regulation is the criteria that the person polluted ‘intentionally, recklessly or negligently’. However it is not entirely clear whether such a state of mind extends to the consequential serious damage aspect of the legislation (Gumley 2003).

In the first study, the infestation of weeds and pest animals due to mismanagement on neighbouring properties was described by respondents as ‘crime’ because the time and financial cost of pest management is significant. However, this implies negligence rather than intent or mens rea. For some crimes, negligence is still regarded as criminal. Farmers’ perceptions of what actions should be regarded as criminal were further examined within this second study.

Regulated communities are complex and non-uniform creatures and it is vital to elucidate the range of perceptions and behaviours to discover underlying reasons and organizing principles. There is a need to understand the informal order in the design and implementation of policy responses to improve regulatory (including self-governance) responses and outcomes. The informal and formal do not operate in isolation of course: they interact. It is imperative therefore to investigate the significant trade-offs that may be made between possibly competing self-interests, and the perceived “community” and the broader “public” interest. The present study sought an understanding of the prevailing social norms and attitudes towards various types of environmental transgressions within rural communities.

1.3 Study Objectives

The specific objectives of this second phase of this research were to:

- identify the social norms pertaining to natural resource management within rural communities
- explore the concept of “environmental crime” as a reality for landholders
- identify mechanisms that allow community members to maintain social cohesiveness while sanctioning or reporting environmental transgressions
- identify farmer attitudes towards environmental laws and regulations identify the extent and effectiveness of self-governance in NRM undertaken by farmers and communities
- identify innovative institutional arrangements for NRM at the local level, and
- develop recommendations for decision makers (within both government and community) for bolstering a particular community’s capacity for self-governance of a given NRM issue.
1.4 Method

Fieldwork was conducted in two communities in each of the three case study regions: the towns of Cobram and Yarrawonga in the Moira Shire in Victoria, Walgett and Carinda in the Walgett Shire in western New South Wales, and Bowen and Proserpine in the Whitsunday Regional Shire in Queensland. The communities were selected based on their variability in size, social structure, industry type (irrigation and broadacre farming) environmental conditions, geographical location and therefore regulatory history.

1.4.1 Interviews

The research approach employed a semi-structured interview to permit a variety of community perspectives to be understood. In each case study region, face to face interviews were conducted with a random sample of farmers, associated industry personnel, government agency staff, community leaders and residents, and other key informants to ascertain the extent and nature of self-governance of NRM within small communities and identify community attitudes, social norms and sanctions regarding environmental transgressions. All tapes of the semi-structured interviews were transcribed and analysed. A total of 58 community interviews were conducted: 15 in Moira with 13 males and 5 females (ages ranged between 35 and 70); 13 in Walgett (8 males and 7 females -ages ranged between 28 and 68); and 31 in Whitsunday (23 males and 12 females aged between 20 and 70).

1.4.2 Sample selection

Government agencies, environmental organisations and farmers in each community were initially contacted by telephone or email and invited to participate in an interview. Contact details were identified in Telstra’s Yellow Pages, community lists of local businesses and farmers, and by snowball sampling. Snowball sampling employs local knowledge to identify possible participants. Key informants were asked if there were other people within the community who would be important to interview. In addition several cold call interviews were conducted. In each community, a core group of key informants were targeted. These included:

- **Rural Financial Counsellors**
  Counsellors provided their insights into the way farmers cooperate with each other in managing the environment as well as the impact of financial stress on landholder’s ability to implement conservation practices.

- **Departments of Primary Industry or Natural Resources**
  Extension officers were an invaluable source of information on environmental problems in the region, farmers’ participation in conservation practices on farm and in the district and the.

- **Agronomists**
  Private agronomists provided similar information to extension officers.

- **NRM Regional bodies**
  Provided information on local community initiatives in NRM.

- **Town Councils**
  The Economic Development Officer or the environmental officer was able to provide information on Council/community NRM projects.
• **Agricultural Businesses** Businesses supporting local agriculture provided local knowledge, reference to local farmers who could be possible participants as well as significant observations on farming practices in the district. Businesses surveyed included rural traders such as Elders, Landmark or CRT.

• **Industry representatives** Local and state grower associations provided their views on NRM practices amongst their members as well as information on initiatives implemented by their industry.

In addition, various state government staff involved in compliance or natural resource management were interviewed by telephone to gather background information for the field work.

### 1.4.3 Focus groups

Five participants attended the workshop in Cobram. There were 3 females and 2 males. There ages ranged between 50 and 70 years. In Walgett, there were six men in attendance. To address the gender imbalance, farm women were targeted in the interviews. There was no focus group conducted in Bowen because the field work coincided with an early harvest in the horticultural industry. To address this inequity in the data collection additional interviews were conducted.

Attendance at the workshop was taken as participants’ consent to be a part of the study. Each participant was provided with a statement, which outlined the purpose of the study and advised participants that they were under no obligation to participate in the workshop, or contribute to the discussion, and that they were free to leave at any time. Participants were also assured of confidentiality. These assurances were reiterated at the commencement of the workshop discussion.

The workshop and interviews were recorded. Participants were advised that the tapes would be destroyed once the investigator had completed the final report. None of the participants objected to being recorded. The transcripts of the tapes were transcribed and the information summarised and analysed according to key themes addressed in the survey instrument.

### 1.4.4 Questionnaire

The semi-structured questionnaires for farmers, service providers and community members followed a similar format to that of the mail questionnaire. Participants were asked about the main environmental concerns in the area, what types of conservation management they were conducting on their land and in their community and whether they believed farmers were pressured to undertake more environmentally sustainable practices. Opinions were sought on who should take the lead in natural resource management in rural communities.

Participants were asked if there was anyone in the district undertaking radically differently environmental conservation practices on their land and what the community thought of these practices. Conversely, questions explored the way communities responded to situations where someone in the district was not doing the right thing, such as neglecting weeds. The concept of ‘environmental crime’ in relation to activities such as rubbish dumping or spray drift on farms was explored. Participants were asked whether or not these types of offences should be regarded as crimes. The study examined the ways communities managed these problems and maintain a cohesive community.

Other questions explored attitudes to environmental regulations: whether they were necessary, on the mark, and fair and if they had an economic cost for farm operations. Examples of good and bad
laws were identified and suggestions on ways to improve laws and regulations and compliance were sought.

The research approach and questionnaires were approved by the University of New England’s Human Research Ethics Committee. Confidentiality was fundamental to this research and participants were assured that discretion would guard all information gathered.

### 1.5 Report Structure

The following three chapters detail the findings of the case studies conducted in Victoria, New South Wales and Queensland. The findings are presented according to the themes that formed the structure of the questionnaires. The final conclusion and discussion of the main findings of the three studies are presented in Chapter five.
2 The Moira Shire

2.1 Introduction

The Moira shire is located in north-east Victoria approximately 260kms north of Melbourne. The Shire encompasses 4,057 square kilometres and is bounded by the Murray, Goulburn and Ovens Rivers. There are four major towns (Cobram, Nathalia, Numurkah and Yarrawonga) and 18 smaller communities. For the purposes of this study, field work centred on the communities of Yarrawonga, located in the east of the Shire, and Cobram in the west (Figure 2.1).
This district was selected for the Victorian case study because it hosts the Barmah State Forest and wetlands (Barmah Park in Figure 2.1) which are significant ecological sites. The area is representative of Victoria’s irrigation districts but also has dryland farming. It is a long established farming area but recently has become a popular tree change destination. Like much of Victoria at the time of the study, Moira Shire has been subject to ongoing drought and water restrictions. All of these factors can influence natural resource management in the area. This chapter presents the findings of the interviews and focus group conducted with farmers and other residents of this district which examined these issues.

2.2 Population and Settlement

The Moira Shire is one of the fastest growing municipalities in north-east Victoria. The town of Cobram is situated on the Victorian side of the Murray River, opposite its smaller New South Wales ‘twin-town’ of Barooga. The population of the Cobram urban locality at the time of the 2006 Census was 5,063, while the population of the Moira West SLA of which Cobram is a part was 18,322. Barooga had a population of 1,455 (ABS 2006).

Yarrawonga lies on the Murray River 37 km upstream to the east of Cobram. It is situated by Lake Mulwala which was created through the construction of the Yarrawonga weir in 1939. Yarrawonga is linked with the town of Mulwala on the New South Wales side of the river. Yarrawonga’s population in 2006 was 5,727, while the population of the Moira East SLA of which it is a part was 8,761. The population of neighbouring Mulwala was 1,624 (ABS 2006).

Retirees and new residents seeking a tree change are moving into the Moira shire, particularly around Yarrawonga’s picturesque Lake Mulwala (see Figure 2.2). The lake also supports a vibrant tourist industry. In the opinion of town residents, Lake Mulwala is now more important to Yarrawonga-Mulwala for its amenity and tourism value than for its role in irrigated agriculture.

2.3 Agriculture in the region

Under the Closer Settlement scheme, this district was intensively settled for irrigation. Agriculture remains the predominant industry, utilizing approximately 66% of the land, and contributing 47% of the gross economic output and providing 20.5% of employment in the shire. Gross value of agricultural production in the Shire is approximately $431 million per annum. Dairying is the most
significant industry, generating $177 million per annum (40% of total production), while horticulture generates $101 million (Parsons Brinckerhoff, 2008).

All of the three main types of agricultural production in the Moira Shire (dairying, horticulture, and annual crop or fodder production), are dependent upon irrigation, primarily from the Murray Valley irrigation district. There is also a significant number of dryland farming operations, mostly mixed farming producing livestock (wool, fat lambs, or beef) and cereals, primarily wheat, oats and barley (Figure 2.3). Like most farming communities in Australia, farm businesses are predominantly single or multi family, or corporate, owned businesses producing a single commodity or a variety of commodities, some of which have on-farm processing (Parsons Brinckerhoff, 2008).

Around Cobram, production is mainly dairying and fruit growing. The 2006 Census data reveals that over 24 per cent of the workforce in the Moira West SLA work in agriculture, and this has dropped from approximately 32 per cent as recorded in the 1996 Census. Cobram’s economic dependence on primary production and secondary processing of agricultural produce means the district is particularly vulnerable to economic and environmental changes. Many orchardists and other irrigators in the region have been forced to abandon production in recent years, due to low water availability (low allocations), high water charges and ongoing dry conditions, as well as falls in commodity prices, particularly milk prices. (At the time of interview the milk price had fallen to around 26 cents per litre, down from about 40 cents in 2008). It is expected that many more farmers will leave the dairy industry. Locally, the timber industry is also important, however jobs in this industry may be affected by Federal Government plans to reduce logging activities in the Murray river red gum forests (ABS 2006).

Around Yarrawonga, agriculture includes a mixture of irrigation and dryland farming producing dairy, wool, lamb, beef, pork, wheat, barley, canola, oats, prime hay, soya beans, rice, oranges, peaches, pears and grapes and vegetables. The proportion of the district (Yarrawonga SLA) workforce employed in agriculture declined from approximately 20 per cent in 1996 to 13 per cent in 2006 (ABS 2006).

2.4 Climate

Hot dry summers with an average daily temperature of 30°C and winters of 14°C provide a suitable environment for fruit growing. The average rainfall is 450 mm and mainly falls in winter. However
rainfall is highly variable and drought and water restrictions have severely limited agricultural production, particularly in dairy and grain industries (Parsons Brinckerhoff, 2008).

According to CSIRO climate change models, the area is forecast to experience warmer climate in the future, with varying predictions for rainfall (CSIRO, 2007).

2.5 Ecology

The ecological features of Moira Shire include river systems, wetlands, plains, woodlands and grasslands. The Shire is bound in the north by the Murray River and the RAMSAR listed Barmah-Millewa Forest. The Barmah State Park and State Forest are located on the Victorian side of the Murray River floodplain (see Figure 2.4). It includes the largest river red gum forest in Victoria and consists of a system of permanent and temporary wetlands that depends on regular river flooding.

![Figure 2.4 Barmah-Millewa Forest (Source: MDBC, und.)](image)

The Barmah Forest plays an important role in Murray River flow regimes and includes:

- Around 182 Aboriginal cultural sites.
- A drought refuge and important feeding, nesting and breeding area for many water birds, including the rare Freckled Duck (*Stictonetta naevosa*), and Latham’s Snipe (*Gallinago hardwickii*).
- More than 553 native plant and 273 native animal species. It has the largest areas of Moira Grass plains (*Pseudoraphis spinescens*), in Victoria, and is home to the endangered Superb Parrot (*Polytelis swainsonii*) (Figure 2.5).

The area has been losing critical river red gum habitat as a result of logging. During February-June 2005, accidental logging in the Barmah Forest destroyed 60 per cent of the nesting colonies of the Superb Parrot (Minchin, 2005). In November 2009 the Victorian Government announced the creation of new national parks for 91,000 hectares of river red gum forest in northern Victoria, much of this involving the conversion of Barmah State Park and State Forest into a new Barmah National Park. The Barmah forest is mirrored on the northern side of the river by Millewa State Forest in New South Wales (see Figure 2.4). In December 2009 former New South Wales Premier Nathan Rees announced that areas previously open to logging would be protected within a new Millewa National park that would preserve the river red gums. In early 2010 this decision was modified by the new Premier, Kristina Keneally, to reallow some logging activities.
Another area of significant environmental importance is the Kinnairds Wetland, which is located north of Broken Creek, near Numurkah. This is an area of nearly 100 hectares of natural and constructed wetlands and part of a scheme designed to provide major regional drainage benefits for land in the Muckatah Catchment. The wetland is fed by flows from the Muckatah Surface Water Management Scheme, which has a 600 square kilometre catchment, beginning in Yarrawonga. The natural and constructed areas of the wetland act as a retarding basin which aids in filtering sediments and nutrients, and minimises the rate of flows entering the Broken Creek to the south, which eventually flows into the Murray River in the Barmah Forest (see Figure 2.6).

Lake Mulwala has a storage capacity of about 130,000 Megalitres and it is an important breeding ground for Murray Cod and other fish and birds (see Figure 2.7). This artificial lake is designed to manage irrigation water levels. Water is gravity fed into the Mulwala Canal for New South Wales and the Yarrawonga main irrigation channel for Victoria. The lake level only needs to be one metre below full capacity to prevent water feeding into the three irrigation channels on either side of the Murray River.
Moira Shire falls within the Goulburn Broken Catchment Management Area and the area which formed the case study focus is the Murray Fans bioregion (Figure 2.8). Twenty-two of the ecological vegetation classes in this bioregion are listed as endangered (GBCMA, 2003, Table 5.6).
2.6 Environmental issues for the Moira shire

The main environmental concerns for the Moira shire are:

- **Drought and low water availability and allocations:**
  Water scarcity is a primary concern for the shire as drought and reduced water allocations has taken a toll on local irrigation industries. There are also social and economic impacts for the wider community and environmental consequences are also of concern.

- **Soil health:**
  Farmland has been impacted by poor land management in the past, which has created problems with salinity, compaction, water logging and sodicity. These problems are addressed through best practice cultivation and grazing management, drainage management and protection of vegetation. Salinity is a sleeper issue during times of drought but irrigation and land clearance has caused immense issues due to mobilisation of latent salts in the soil profile (the area was once an inland sea bed).

- **Flooding:**
  In normal years, a significant portion of the region is subject to flooding, which is essential for the environmental health of the river system. Flooding is managed by localised floodplain management plans and planning controls which limit development in the floodplain area (Parsons Brinckerhoff, 2008).

- **Climate change:**
  It is expected that climate change will affect the amount of water available to agriculture. Climate change forecasts suggest that south-eastern and south-western Australia will be the regions most impacted, with forecasts of higher temperatures and lower rainfall. As these regions are traditionally some of the most productive for agriculture there are concerns for not only the future viability of primary production, but of rural communities and national export income.

- **Native vegetation:**
  Over the past century much of Moira Shire was cleared of vegetation for settlement and agriculture and as a consequence major vegetation types across the Shire are severely depleted. Some species have disappeared entirely. Significant remnant vegetation has been preserved along roadsides and riverbanks, on public land as well as in small patches on private land. These remnant stands are often disconnected and vulnerable to inappropriate land-use, insect attack, water-logging, drought and a range of other environmental hazards. The local shire council has introduced policies and projects to assist their survival and replenishment (Moira Shire 2009; Parsons Brinckerhoff, 2008). There is also state and national legislation to protect vegetation from land clearance and endangered species and communities.

2.6.1 Participants’ views of environmental issues

Participants in the study were asked what they thought were the main environmental concerns in the area. Water and the health of the Murray River were foremost in the minds of the people of Moira Shire. Other issues were topical, such as bushfire, as well as enduring issues such as weed management and soil degradation.

- **Water, the Murray, and drought**
  Both lack of water and policies in response to the lack of water were identified by participants as environmental issues. At the time of interview there were proposals being discussed for the removal
of the 4% cap in water trade imposed by the Victorian Government in order to protect local irrigators, as well as increasing Federal intervention into this sphere of regulation, particularly to buy-back water for environmental flows. Ongoing drought and reduced water allocations for irrigation, in concert with a heightened demand for water for environmental flows, have created competing demands for this scarce resource. One of the consequences of water trade has been that farmers are electing to sell their water entitlements to enable them to reduce debt or leave farming. There are environmental consequences when water is sold and properties are abandoned, which can include problems with weeds, pests, frost, disease and potential fire hazards. The Federal Small Block Irrigators Exit Grant which is designed to assist drought-affected landholders to leave the industry, but remain in their houses on their land, proscribes all irrigation activity on that land for five years which can exacerbate environmental problems. One participant maintained that Government agencies have been more reactive than proactive to these potential problems. He recommended that programs to address pests, weeds and fire hazards would benefit the environment and assist those farmers who may not have the resources to manage these problems on their own.

As surface water has declined, pressure on ground water has increased. However the ground water resource has also become depleted. A fruit grower said:

There is not a lot of water available and that water can often be salty. This year we had a deep and a shallow bore on this location and we have pumped a lot of salty water in the last two years and the trees have been affected. I am not looking forward to another year of doing the same.

Normally this water (which may be naturally salty) can be diluted with surface water. The lack of surface water has compromised many farm operations, including those designed to raise water efficiency and improve soil health:

The problem is arising because we don’t have enough of the other water. As a consequence we have had to put a lot of lime and gypsum around – looking for those leaching rains that haven’t happened. We have put a recycled system in one particular spot but haven’t pumped any water yet as there is no water to recycle. No run off or capture.

Changes in the river system due to drought and the movement of irrigation water have had environmental impacts which have affected Indigenous people. Indigenous groups have raised concerns about erosion, reduced access to certain sites and damage to native fish stocks and important sites, such as beaches. A spokesperson for Indigenous interests explained that cultural flows, analogous to environmental flows, should be considered in future water plans. This would ensure that cultural needs would be met and cultural heritage maintained, as well as environmental health:

The aim of the water reforms was to get environment flows back into the river but Indigenous people are saying there should also be cultural flows – legal entitlement of water held by traditional owners who manage water for cultural purposes. So water is delivered to sites identified as significant by Indigenous people. The water resources in the Murray Darling Basin are finite and we have to be aware of that and recognise cultural flows will probably have to be a part of environment allocations. Environment flows don’t necessarily have a cultural outcome. Cultural flows have both a cultural and an ecological outcome. What we want the water for is for the restoration of country.

- **Soil degradation: acidity and salinity**

Soil acidity and salinity were each identified as significant issues that had been dormant during the drought. A local agronomist said acidity was the main environmental concern, as well as salinity linked to deforestation. Drought, however, had temporarily alleviated the hazards:

Soil acidity would be the main one in agriculture, particularly in the higher rainfall areas. Historically we have had real issues with salinity and rising water tables in the irrigated areas but
that is not an issue at the moment! It is totally rainfall affected. I wouldn’t think we have had new saline areas in the last three years and anything that has existed has retreated. If it was to get wet again it is going to come back. The salt hasn’t disappeared – the practice of bringing it to the surface has disappeared.

The other environmental issue is deforestation. De-treeing of the area and that has caused the imbalance that led to some of those salinity issues. Deforestation and salinity I would put together.

Asked if farmers were addressing these issues he responded that money was a barrier:

It makes economic sense to do something about it but if you are financially challenged it’s a problem. If you are not spreading lime you probably have a problem with PH and your production will slowly go down over time. The more progressive farmers are certainly doing it.

A farmer agreed that drought had been a temporary cure for salinity and maintained that improved irrigation infrastructure would reduce future exposure to this risk:

Ten years ago we had water tables that you couldn’t put a post in the ground. You’d dig a post hole and you’d hit water. In the paper every week there was a map of the red salinity areas and just about everything was red, or going be red - but the drought has solved that. Now the water table is down and with the irrigation modernisation, we can reduce seepage and fix the salinity problem.

Much of the improvements to reduce seepage had been government funded.

- **Weeds**

Weeds were a common complaint for farmers. One stated:

*Since the drought started I think we have been inundated with weeds; weeds that we haven’t seen for since time I got here. There are a lot more woody weeds and we have Bridle Creeper which is just strangling the trees and we are spraying a lot for weeds.*

Herbicide resistance is an associated issue. Rye grass is the main offender. An agronomist explained:

*North east Victoria is the home of herbicide resistance. There are lots of people waiting for Roundup-ready crops because they have resistance to group A and B chemistry. There is nothing they can spray to kill rye grass in wheat and barley once the crop is out of the ground. Most of our bigger farmers who have been continuous cropping for a long time have got issues with herbicide resistance. For about 12 years we have been talking about people’s needs to rotate the herbicides around and not concentrate on the same groupings. Maybe the agri-business people didn’t take that on board as strongly as they could have. Now we cut those crops for hay. We get rid of the seed to dairy farmers and the cows eat it. Weeds can also be spread in the hay transport process.*

There is a real risk with the advent of GM technology and particularly the first generation stuff which is Roundup ready that will create the Roundup weeds. I don’t think we have any resistant weeds to Roundup in this area. The real risk I see is the push to no- till technology while it is fantastic for soil structure, stubble conservation, moisture conservation and it arguably gives you better crops in drier seasons but it relies on chemical weed control. It’s not an issue now but it will be in the future.

An organic farmer was concerned about the widespread use of chemicals in the environment:

*There are chemical sprays we don’t want to use. We have fruit fly in this area and they are forcing us to use Dimethoate which I believe had been banned overseas and it is creating health issues. People in packing sheds have been overcome by the smell of chemicals on the fruit they are packing. There is very high instance of cancer in this area; I believe it is due to all of the sprays that are put over the fruit trees.*

Aquatic weeds are also an issue. The level of water in Lake Mulwala is regularly lowered in order to control the South American weed *Egeria densa* or dense waterweed (also known as leafy elodea),
The weed affects recreational and tourism activities, the normal operation of the power station and fishway at Yarrawonga Weir, as well as town water supplies. This century the lake has been lowered more frequently than previously, most recently in 2009 and before that in 2008 and 2002. The drawdowns take place in the off-season earlier in the year to allow for refilling prior to the beginning of the irrigation season in August (see Figure 2.9). The loss of water however still has a significant impact upon tourism and the local economy, further highlighting the dependency of the community upon the lake.

Figure 2.9 Lake Mulwala drained of water (Photo: July 2009)

Low river and dam water levels, combined with warm weather and high nutrient loads, can support toxic blooms of cyanobacteria, commonly known as blue-green algae. On 13 March 2009 a Red Alert was issued for Lake Mulwala and later that month a regional red alert was issued for a 400 km stretch of the river and toxic levels were detected at Cobram (NSW Office of Water, 2009). The bloom persisted for eight weeks. In February 2010 a red alert was issued for a 680 km stretch of the river, including Cobram and Yarrawonga (Kerr, 2010). This issue is again flow-level dependant and curable with adequate rainfall. During outbreaks people are warned not to come in contact with, or ingest, affected water unless treated.

- **Pest animals**

A local agronomist identified pest animals, namely foxes, rabbits, cockatoos and galahs as an environmental problem on farms. A farmer added kangaroos:

*We've got 200 kangaroos on our property and they are a pest - they wreck the trees.*

One farmer admitted:

*We have a problem with native animals, probably classified as protected but you deal with them on the quiet.*

- **Bushfire risk**

The risk of bushfire was of prime concern amongst participants as the Victorian Black Saturday bushfires of 7 February 2009 were a recent event at the time of interview. These fires were one of
the worst in the state’s history and certainly the deadliest, with 173 people losing their lives in settlements across the state.

Proposals to increase the area of land conserved in the public estate has heightened concern about fire, due to perceptions of poor land management in reserves. Locally, the conversion of Barmah State forest to national park is feeding concern:

This is the first year where there’s been fear of a bushfire in the irrigation districts. It is at the front of everyone’s mind but it’s also been impacted by the making of the National Park. It is also something you hear townies talking about.

One farmer maintained that if the forest is not managed, it could be destroyed by fire.

Because Barmah Forest is going to be a national park, it is scaring the daylights of everyone who lives on the southern boundary of it. So fire, flood, pest animals and weeds will be our major issue. Our local CFA group did a study and they say on a bad fire day in forty eight hours the whole forest could go. Now that would be just devastating. I also don’t want it to burn me out. In 1967 we had a really bad fire out there. Burnt a thousand acres which devastated that area. Some forty odd years later, it’s still just a thicket of suckers. There’s not a habitat tree in that area. It’ll be a hundred years before it’s anything like a forest if we’re lucky. So fire, flood, pest animals and weeds will be our major issue. It’s a great place and the last thing I want to do is see it lost. So that’s why I’m so passionate about it.

2.7 Farm management: environmental conservation and innovation

Drought and reduced water allocations have encouraged innovation in water efficiencies. The high price of water also encourages irrigators to be prudent with water use. Participants provided several examples of innovative environmental conservation practices on farms in the region. Some of these had been supported by government initiatives.

- Innovation in water efficiency

Annual croppers and dairy farmers are changing their farm layouts to allow for ‘fast flow’ flood irrigation. Water is applied quickly and more evenly, thereby reducing surface drainage and groundwater infiltration. One local business that produces irrigation stops has been proactive in promoting the fast watering technique for flood irrigated areas:

Irrigation in this area is still predominantly flood irrigation which is only 60% efficient. We run trial sites here for a fast watering technique which is precision surface irrigation. Water is not soaking into the roots. You are only watering the root zone and giving it what it needs and not wasting water. We have managed to get to 80% efficiency using this and we aim to bring it up further to 95% efficiency.

An agronomist said that despite the drought farmers were also keen to invest in improved drainage:

...a lot of people are currently embracing drainage schemes - even though there’s no water. They recognise that drainage is very important to them. Government has given them the incentive to do something and they are embracing it as they realise they need good drainage systems to prevent salinity.

Many of the people interviewed reported that the Commonwealth Government’s $20,000 Irrigation Management Grants for on-farm efficiency works had sped up improvements in water efficiencies.
There is additional state and federal funding for upgrading irrigation infrastructure in the Murray Darling basin and in northern Victoria in particular, which is ongoing.

- **Conserving native vegetation**

Many farmers had preserved areas of native vegetation. One farmer explained:

*One paddock has the sheep run through it every now and then just to keep the grass down. There’s also a natural forest that’s not fenced off but it’s not cropped and it’s not over stocked. The sheep will walk through there once a year and we like that to happen so the animals in the ecosystem can see the predators coming. But you would get in trouble if you cleared it. We are borrowing from the land at a cost and it is up to us to leave the environment in the best shape we can. That’s the reason we leave those areas.*

Another farmer had 90 hectares of his land preserved, including 70 hectares under a Trust for Nature covenant to maintain the environment in perpetuity:

*It’s a good thing to do – it’s land that was never cleared and has been left. It has been low intensity, continuously grazed since the first block was settled. Our family has been here since settlement – 4th or 5th generation. My aunt had an interest in flora and fauna and was able to identify that particular block had significant endangered vegetation on it - the Mueller daisy which is on the national endangered list. There are parrots; probably 5 or 6 endangered plants and animals on that block. The Trust for Nature has come out for years and done surveys and have identified it as a block of significance. Ultimately, even if I wanted to, I couldn’t get permission to clear it. It’s good for winter grazing and part of the charter with the Trust for Nature is that the grazing rights had to be in perpetuity. We wanted to show that conservation and farming could coexist. It might not be the most productivity I can get from a block of land - and there may be some purists who say they are not achieving the greatest conservation values – again we all get something - I get to graze it for a time of the year when it’s good for me. I would argue strongly that without the grazing a lot of what exists on that block would disappear - because of the introduced plants - and if you don’t thin them down then the introduced plants crowd out the natives. The strict regime is the stock go in at a certain period and go out at a certain period. We hope to have the block grazed down prior to spring. Then the stock come off so all plants - either introduced or natives - can regenerate over spring.*

Most farmers reported that they had planted trees on their land to improve salinity, provide habitat for flora and fauna, create windbreaks and improve the aesthetic value of their property and the district. One farmer stated:

*I’ve got the Mulwala canal along my boundary with seepage problems. I was approached to see if I would allow tree planting on the canal boundary. There is some useless ground there - it is water logged and salt affected, so I fenced off nine acres altogether.*

Two other farmers reported they were very involved in sustaining the habitat of the Superb Parrot in the district. One explained:

*I have numerous bits of native bush that are still left - probably around one hundred acres. We’ve also done a fair bit of fencing and re-planting of habitat for the Superb Parrot, something like about ten kilometres of corridors - and that will continue to happen.*

- **Saltbush**

A farm family in the Yarrawonga district produces saltbush lamb. Saltbush is a deep rooted native plant that is drought tolerant and provides a high protein feed for stock all year round (Figure 2.10). Saltbush grows in a season, requires no chemical application, little to no water once established and reduces salinity. About 10 or 20 years ago the farmer foresaw the problems with water scarcity in the district. He was not in favour of irrigation and began planting acres of saltbush as drought-tolerant feed. The idea came from shearsers who ate a lot of lamb and who maintained that saltbush
lamb was the best as the meat was very lean. The family have been a part of a three year sustainability progress plan with the Murray CMA in relation to the establishment and management of Oldman Saltbush Plantations. The farmer explained:

*The sheep will get a bit of grain and hay in tough times, mainly in the autumn when you have run out of carbohydrate. The saltbush is all protein so there is lack of carbohydrate when there is no grass. That’s why we cell graze so that they can crash graze, get a good balanced diet and move to the next one. They like the saltbush. Animals are very good at self-monitoring. They will walk in, chew what they want and then leave.*

*This area used to be covered in saltbush and Murray Pines and Grey and Yellow Box. It has all been cleared and grazed out. What I was looking at doing here was sowing our property out so it had the right balance of saltbush to cropping country and after 15 years we will pull the saltbush out and put crop back in. It cuts your costs and fertilizers etc. to get back into a cropping regime.*

Increasing numbers of local farmers are realising the benefits of saltbush and have also established plantations. The local CMA had been proactive in promoting the concept throughout the district:

*The CMA have been great as far as getting other people involved in the last couple of years. The officers have been asking questions about the saltbush and there was a group of 15 or 20 farmers who put saltbush in little trial plots around this area. Some are now involved in it pretty heavily.*

---

**Figure 2.10 Oldman Saltbush Atriplex nummularia (Photo: July 2009)**

- **Other innovations**

Participants were asked if there any farmers in the area trying radically different conservation techniques. A local agronomist reported:

*There is one farmer I know of who is retaining stubble. That is not radically different but the way he is doing it is. Most people sow with conventional equipment; with a tyne. He has an air boom that he blows the seed and fertiliser onto the ground, runs along quickly and then comes behind that with a harrow disc that lightly mulches up his stubble and the seeds. He is not sowing in rows, he is sowing everywhere. A lot of other people are interested. They see how quickly he sows and he gets weed control. It is a two tractor job using light, smaller tractors so he has decreased some of his equipment that he no longer needs.*
Another agronomist gave further examples of innovative practices, including biological farming:

One farmer practices biological farming and he sees that as groundbreaking and environmentally sound. He can't understand why everyone is not embracing what he is doing because he believes he is improving his soil – which is more important for the environment than anything. He believes he is leaving his land in a better condition than he got it.

2.7.1 Farm innovation and conservation: community initiatives

The extent of participation in community-level environmental conservation was explored. Moira Shire Council has run a number of drought employment programmes with the Goulburn-Broken Catchment Management Authority to provide people affected by drought the opportunity to gain some employment and new skills. The programme has included environmental projects on Crown Land in the Shire, including rehabilitation of obsolete stack sites on roadsides, revegetation works at wetlands and rubbish removal from riparian areas. Significant progress in biodiversity conservation has been made via this collaborative approach. There is also a high level of participation in volunteer activities in the Shire and Landcare in particular is very active. Local groups have successfully applied for grants for tree planting projects. Local schools are involved in the activities. A representative explained:

We plant trees most years. You can’t do it in drought of course. But with x amount of kids, it’s amazing how many trees those kids can plant. They love it - a BBQ lunch - it’s great.

Both Landcare and the participating schools had been recognised in the local media and with a plaque at one tree planting site. Another group had conducted a similar tree planting project but chose to distance themselves from Landcare:

We’ve got a local group called Patrol Soil Care Group -we didn’t call it Landcare because some people didn’t like the idea of Landcare, they thought it was too green, but it is very similar. It’s been going for about twelve years.

Several of the farmers interviewed were involved in the Superb Parrot Group which establishes bird habitat on private as well as public land. This group has been operating for the past sixteen years within the district. To date the group has planted around eight hundred thousand trees. These activities have been supported by private and government funding. Cathay Pacific was an initial sponsor. A spokesperson explained how support had been engendered and described the complexity of undertaking conservation measures in agricultural areas:

It was very simple with Cathay Pacific, they just gave us dollars, they didn’t say what it had to be spent on our how it had to be spent. They provided us with signs that we were required to put on fences where they had done some work and they wanted to use it in their promotional material. That’s all.

When we first started I think we had a budget of a thousand dollars for the first year and now I think we’re up around the fifty thousand dollars a year. We had trouble getting people to plant trees at first but now we’ve got a waiting list of people wanting to do it, so it’s been sensational stuff. The next door neighbour over here is a nice bloke, but he has not planted a tree, not interested - doesn’t want to do that. Still farms conventionally and that’s fine; that’s his business.

If you drive around you see these Superb Parrot corridors. We do all the planting collectively. We’ve got a committee and a paid co-ordinator and she gets us all going. We plant probably thirty thousand trees in about ten days. We’ve got a local bloke who made the planter up himself to direct seed. It’s all well organised: everyone knows their job, what’s got to be done. Once they grow they look fantastic and it makes it a nicer place to live. There are a lot of other benefits: it cuts down wind, lots of birds, lizards and other animals. I don’t think it helps your production a heck of a lot; it probably impedes it a bit because it pinches moisture, but it is just a nicer place to be. It’s like green lawn around your house, it gets to 40 degrees here and there’s nothing better to come home after everything is burnt off to a nice green lawn but it just makes you feel better. It
doesn’t take much to maintain. We did get a Banksia Award a few years ago. I believe the parrot has survived pretty well anyway. The best thing that ever happened to the parrot was Canola, because that is what they feed on predominantly.

The Barmah Forest is an area of particular focus for groups involved in natural resource management, including the Barmah Forest Preservation League, which has been in operation since 1982, and the Nathalia and District Wildflower group, who record the native species present in the Barmah Forest. The Yorta Yorta people have established solid working relationships with local environmental groups restoring river gums in the Barmah Forest. The Rivers and Red Gum Environment Alliance have also been prominently engaged in public debates as to the appropriate balance to be given to conservation and other objectives in the Barmah Forest and surrounding areas.

2.8 Pressure on farmers to do more for the environment

Participants were asked whether there was any pressure being placed on local farmers to undertake environmentally sustainable practices on their land. Most participants did not believe there was significant external pressure. Most pressure was seen to be internal and action self-motivated. An agronomist observed that external pressure would be desirable in assisting and supporting farmer’s own interests:

No – I don’t believe that’s the case [that there is external pressure]. I think it is voluntary – it’s not imposed on them. If anything there is not enough encouragement. There might be some incentives to do things but I don’t hear people complaining about being forced to do anything.

A farmer maintained:

I think that farmers are very individual people and although we do have a lot of field days and stuff like that, it’s totally up to you how you manage your own property, it’s your business. I was probably the first one in the area to go direct drilling. There are a few that have taken it on. Others haven’t, that’s their business. They’re doing quite a good job of what they do so providing it’s accepted by the community, it’s OK.

A service provider believed farmers, like most people, were becoming more aware of environmental issues, and that this growing awareness exerted a subtle pressure to make improvements:

Probably not direct pressure but the farmers are more conscious of the problems. I think we have had a reasonably good approach to the environment for years. When you do development you try and keep trees and plan things around trees and that sort of stuff. We have got a farm we are developing and I had to go through an environmental plan and everything else. And whichever way I did it I had to knock out two grey box trees, which I didn’t want to do but I couldn’t avoid it. So I had to lock up 8 or 10 other trees on a big hill. They effectively put a chain around them -they won’t come out. I have got no intention of taking them out. But we went through the plan and in the end we negotiated a reasonably good deal. But it is just a process you have to go through. I guess there is a cost - and sometimes it is a pain having to do that - but I think the outcome is good.

Positive reinforcement was also evident:

Well you get a little bit of feedback via the grapevine I suppose, but I’ve been very lucky, most things that I do I think have been fairly well accepted. Four years ago I got a letter in the paper from a person congratulating me on not burning stubble as her son was an asthmatic.

2.8.1 Pressures related to water

Participants noted that the lack of water was placing growing pressure to improve water efficiencies while at the same time impeding the ability to make improvements. A service provider described
how drought and economic decline, along with labour shortages, had acted as barriers and limited some farmer’s ability to change farming practice:

Farmers feel that their practises are environmentally sound - they don’t believe they are doing anything wrong. They don’t care what anyone else thinks. A lot of them are willing to pick up technology. They’re probably the upper end [of farmers] that can afford to take more risks. The ones that are under financial pressure, they’re the ones that they go out to do farm work because they don’t want to think about the future. Most farmers in this area want to do the right thing environmentally but it’s not always a priority.

Farmers are doing the best they can to protect the vegetation on their property. Irrigation and horticultural systems are pretty sophisticated but in the last couple of years it’s been a matter of survival and any sort of capital investment for environmental purposes has been put on hold. There’s not only the financial restraints but also the physical labour constraints of people doing more work themselves because they can no longer employ people. Also water is extremely expensive to buy on the temporary market and you wouldn’t be spending $800 ...or whatever it takes to water native trees that in the long run are good to have but in the short term, it’s hard to justify.

This participant noted that economic pressures had reduced farmer’s capacity to be optimistic and confident enough to access grants. In the past, farmers had been keen to take advantage of grants that were available for environmental conservation:

Prior to the drought setting in, people were looking out for environmental grants and the like. Well nothing’s more attractive than money for nothing. A little bit of hesitation when they had to spend a dollar to get a dollar, but people really got a kick out of being able to do something for the environment.

The mounting pressure with regard to water use was mainly identified as coming from the physical environment (with reduced rainfall) as well as from the policy environment (government objectives to reduce water consumption and raise water efficiencies in agriculture). One service provider believed that there was also social pressure for irrigators to do more about conserving water:

I think the government pressure to secure water for environmental flow is paramount in peoples’ minds, coupled with the pressure from their own communities about what their peers are also doing to address that issue and what eventually that is going to mean to them and what’s an appropriate amount of money to be compensated for losing that water and that capacity to produce.

In this community therefore it appears that peer pressure may be asserted in support of government policies to improve farm management practice and to achieve better environmental outcomes. This aspect of the informal order within the community was explored further, in particular to examine how people dealt with environmental problems caused by other members of the community, apart from formal legal intervention. The results of this are discussed in the following section.

2.9 Order without law: Managing problems in the community

Participants were asked if any properties in the area had been negatively impacted by land use changes or poor land management by other land owners in the district. All participants cited at least one incidence of land mismanagement in the district and the most oft mentioned issues were weed and pest (mis)management, urban encroachment and newcomers to the district who were ignorant of agriculture and land management practices. Underperforming operators were easy to spot:

Oh there’s always an element that take no action or who know very little, you know you drive around the district and you can pick the good farmers out from the not so good.

However most respondents indicated that little action would be taken within or by the community against rogue operators. Questions which explored the way the community managed poor land
management practices elicited the common response that rarely would anyone be confronted directly. Instead, subtle pressure was applied to deviant farmers, as this farmer explained:

A friend of mine has put a feedlot in on his property and it’s blowing dust and stuff everywhere, and he’s not very popular. There’s nothing legally that can be done but he knows that people are concerned about it and he’s probably becoming more aware of some of the implications of that. It’s a fairly close knit district and most people here have been born and bred here. We sort of stick to ourselves a bit and this guy will probably be getting the idea that people aren’t all that happy. It’ll be softly done, and I would imagine that he will probably sort that out as time goes by, without anyone having to have a protest at his front gate or anything like that. It seems to work and always has. No one ever goes and confronts anybody.

However the same farmer also provided an example in which the response had been confrontational, and indeed become formalised, as the police had been called. Confrontation is therefore not avoided in all cases. The example concerned newcomers to the district:

We do have some issues with newcomers - hobby type farmers - which can be a bit of a drama. About six weeks ago this bloke decided to burn off in a fire danger period. I’m on the fire brigade and I dispatched three trucks. I went down there and here he is burning up leaves under trees. I put a stop to that and after some consultation we got the Police out to have a look at it. Because it’s his third year in a row, we’re going to prosecute him. I’m probably not all that popular down there at the moment but you just can’t do that.

This suggests there are exceptions to the general rule of informal control through social disapproval rather than confrontation. One exception is fire management, and it may be that newcomers generally operate as another exception. Since their social ties are not as strong there may be less tolerance for mistakes made by newcomers than those made by longer-standing members of the community, as well as reduced fear of negative repercussions.

The same factors worked to reduce inhibition to complaint by the newcomers themselves. Newcomers were not averse to making complaints. A service provider said:

The hobby farmer or the small block owner can put reverse pressure on the farmer because ... the fences have been let go, so the sheep keep getting into the hobby farmer’s paddock. Or the bull keeps jumping the gate and those sorts of things.

There were also some other factors which operated to make it less, rather than more, likely that action within the community would be taken. There was acknowledgement of mitigating factors which would reduce culpability, such as drought and economic barriers to better land management. These same factors however were also associated with causing and exacerbating the environmental problems which were the issue, as well as then impeding social pressure being exerted and action taken. In the Cobram district, service providers noted that persistent drought, water scarcity and poor commodity prices had placed many farmers in the area under a great deal of stress. As a consequence environmental management often became a lower priority. One participant observed:

Where water had been sold off the property and the pastures aren’t being irrigated, more weeds are coming up which affects neighbouring properties - and that’s all been as a result of lack of water or people leaving properties selling stock, not farming and they may be working for a wage somewhere and not so much on the farm.

In situations such as this, where farmers were experiencing extreme financial pressures due to drought, there appeared to be great difficulty in ensuring that environmental outcomes were being maintained. When asked how the community manages such situations, the same service provider acknowledged that there was a tendency for people to withdraw. They knew there was little that they could do, and knowing very well the barriers those responsible were facing, little the other farmer could do either:

It’s a resignation; they know that the neighbour’s not looking after his farm, but there’s nothing they can do. As far as I’m aware of they don’t bring it to the attention of the neighbour or they
A service provider agreed that many farmers were financially and physically stressed due to drought and no longer had the capacity, as well as sometimes also lacking the willingness, to address problems. This situation had been exacerbated by government policies such as the exit grant scheme:

The problems are caused by people that are actually choosing not to farm or manage their farm differently. So the farm gets covered with weeds and pests. In most instances they’ve probably just sold the water to finalise the debt and decide to retire on their land.

He suggested that a condition of Government exit grants could be an agreement to maintain such properties. Weeds and pests were a common problem identified and in other cases of weed infestation people were more willing to take action.

- **Weeds and pests**

The problem of weed infestation from neighbouring farms was a common problem. Patterson’s Curse, Bathurst Burr, Prairie Ground Cherry and White Horse Nettle were the main weeds of concern in the area. Two farmers provided their experiences:

We have Bathurst Burr that thrive right around us, we keep ours clean but the neighbours don’t. It’s only the fence between us.

I’ve got the same problem, and I’ve got a channel as well. I guess they won’t cut or they won’t spray or whatever. Well they spray but they don’t do it properly.

One participant did not hesitate to complain about weed encroachment:

I have five neighbours around my block; one is exceptionally good, two are good, and the other two are lazy. I tell them ‘you’ve got weeds over there; I don’t want them in my place. Do something about it.’ One of the biggest problems with weeds is public works. They brought dirt in to repair their channel and on each occasion I’ve been left with weeds. I even offered to give them dirt and they chose to bring it 50ks from another area. It’s just poor management and I’ve complained and complained and last year I told them I would be sending them a spraying bill. Its cost me about $600 a year to get rid of their weeds. They developed in a crop and I couldn’t see them. When the crop was harvested the next year the seed source was there.

An agronomist reported:

A lot of New Zealand dairy farmers come to farm in the area and they don’t have an understanding of weed management. We have had complaints that some of those farmers are letting weeds go - such as Patterson’s Curse and Bathurst Burr - which are serious weeds. There has been some animosity between the traditional long term farmers and these guys.

Newcomers to the area were frequently identified as offenders.

Most of it is not farmers it is absentee landlords and/or hobby farmers where people come in and buy a block and not look after it.

Asked to expand further on how the community manages the issue, the agronomist quoted above said that neighbours used him as the middle-man, refraining from direct involvement themselves:

I will get a phone call from a disgruntled farmer saying, for instance, my next door neighbour is away and has some ‘paddock problems what can you do about it? I would say give me his details and our weeds person will give them a call. Often people want to remain anonymous if they are
complaining about weed problems and they don’t want to have grief with their neighbours. There could be repercussions. I would be unaware of many cases where someone has directly talked to the person.

Public lands were often identified as areas with poor weed management. Weeds in the Barmah Forest were a concern for neighbouring properties. One farmer reported:

Weeds are a big issue, but that comes from both neighbours and from the forest. The Forest is probably the most concerning issue because it’s not being addressed. Usually you’ll find a neighbour that has a weed issue - that’s usually brought about because he’s a bad farmer - and bad farmers usually don’t last that long. So he will go and someone else will come in and usually it will fix itself up. Unfortunately with the forest it just seems to get worse and worse, which is really sad. And no one seems to take any notice.

As well as being singled out in this way for being poor land managers themselves, government was also blamed for not providing adequate support for struggling farmers to manage weed problems:

I’ve been involved with the local Landcare group for 17 years, and there’s regular talk of Joe Blow down the road who has done nothing about a certain noxious weed or pest. Unless they’re priority weeds, the Government agencies haven’t got the funding to follow up. The farmers haven’t got the money. They let their properties get run down in tough times. Perhaps they should be more proactive themselves but they need help.

Pest management was another concern which was identified as doomed to failure without the requisite government assistance:

The locust issue that we had at the end of last year, DPI were telling farmers they had to buy the spray and spray them - so they weren’t. From what I can see unless you help them with the dollars for the spray, then you aren’t going to hear from them again. They can’t afford spray.

An associated concern was the lack of maintenance of rogue fruit trees which can lead to fruit fly and other pest and disease issues:

There is a fruit grower down the road and there are a couple of rogue trees on the road, why doesn’t he get the tractor and chains and pull them out, amazes me. Fruit Fly is becoming worse mainly because of the hot, dry climate. These rogue trees aren’t being sprayed or treated, so they are a potential problem as hosts for Fruit Fly. A bit of self-help wouldn’t go astray. But fruit growers themselves have said when you try to get individuals to do something about it; it is pretty hard to get them to look after themselves. I don’t know why they don’t take it into their own hands and get rid of things on their own boundaries. I guess a pest and disease problem hasn’t become a serious problem so they haven’t worried about it. There is one fruit grower who is very environmentally conscious and has done a lot to remove rogue fruit trees. Our Fruit Growers Association is applying for a grant right now to do something similar.

One fruit grower described a time when farmers were asked to approach their neighbours regarding fruit fly control:

When fruit fly was first declared in this area, we had a meeting of the fruit growers, and properties that were neglected and allowing fruit fly to prosper were identified and a letter was sent to all of them requesting that they clean up their act. That was through DPI. Before the letters went out there was a suggestion that people just went and saw their neighbours first to ask if they could pull out some of those trees - like some people had old orchards or maybe five or six trees that were just dropping fruit everywhere. Then if we didn’t get anywhere the letter would come. But it’s not easy, no-one wanted to go to their neighbours.

Again, it appears that people are not prepared to take direct action and in this case the agency would be relied upon to take appropriate action.
Trespassing and hunting

Trespassing and unauthorised hunting were common problems and ones for which farmers expressed more willingness to confront offenders. One farmer however acknowledged the practical constraints to doing so:

> We've had yahoos doing burnouts and people dump rubbish on some of our sites. Well if you catch them you catch them. You tell them don't dump. But normally you don't catch them.

A fruit grower reported that while informal confrontation may be taken, formal complaint would be unlikely:

> I have put some private property signs up around various entrances now just to try and protect ourselves legally. I don't know whether it does or not. There are just people going in and having a walk about. I have got people just helping themselves to fruit and you catch a few. I was telling the young joker not to do it again - But they have got a nerve. I say, 'This is my livelihood you are helping yourself to'. They haven't got an appropriate answer. They are just pinching your fruit but I don't think I would ever take anyone to court over something like that. Unless they were pinching sub commercially.

Increasing numbers of people in the area due to urbanisation also creates problems due to non-compatible neighbouring land uses.

Peri-urban encroachment

The Shire is a popular tree change destination and recently some rural land has been placed under pressure for conversion to rural residential and tourism uses. One participant noted that there can also be tensions within the community when new residential neighbours lack understanding of farming:

> ...the small block operator owner doesn’t like the fact that the tractor’s buzzing around or the pump is going throughout the night, those sorts of things...

Another participant cited problems with people reporting farmers for animal cruelty due to a lack of knowledge and understanding of farming:

> People, that probably don’t know much about livestock, are dobbing farmers into the RSPCA, that they are starving animals on their properties when they really haven’t. Just because an animal is in a bare paddock doesn’t mean it’s starving, they drive past and make an assumption and that sees somebody getting a knock on the door.

One horticulturalist found that he needed to be mindful that farm activities did not impact upon urban areas:

> You have got to be careful as you farm. One part of our land is near a school. So we manage what we do down there so it is all after school hours. We would rather head off a problem before it occurs. There have been a couple of complaints over scare guns with cockatoos. Something we have handled all right. I can’t blame anyone else because we are developing land and selling it ourselves. But urban encroachment obviously has some impact on farming there is no doubt about that.

Some participants were very conscious of people within the community that had varying views on land management and were willing to adjust their practices to accommodate them:

> I know there is a new neighbour that has bought just next to one of our farms and I have been told that they are very conscious about spray drift. We are conscious of it anyway but I guess we will try a bit harder when we are near there.
An agronomist stated:

*Spray drift is not supposed to happen but there is a bit of that. I think our farmers are closer settled and I think people know their neighbours are nearby and maybe near a town or school so people in denser areas think about their spraying jobs. I think it frustrates them but nonetheless they do it because their right to farm is basically based on them doing a good job.*

Spray drift was also a problem experienced in general farming areas.

- **Spray drift**

Spray drift was a topic of much discussion amongst participants. There are clear regulations governing chemical use, however there also appeared to be strong informal conventions operating. One participant stated:

*There have been a couple of little wipe outs of crops by the neighbour - being a windy day. There was canola up against wheat and they were spraying for selective grass weeds - they sprayed it across and it drifted across and maybe killed two runs. The community around here is pretty good. If I wiped out this bloke’s wheat over there for two runs he would be compensated somehow. If he did ours he would compensate us. What goes around comes around.*

The discussion in the focus group revealed that many spray drift incidents are dealt with informally and may go unreported. There was a deep aversion expressed towards damaging community relations, to the extent that the motives of people who did take action were questioned:

*One of my neighbours ended up in court, they had a contractor in and he just sprayed, the neighbours said that the drift came over and killed their trees and they took them to court and ended up suing them for big dollars. Well, there was a lot of discussion on it, especially since the trees were going to be pulled out anyway, as to whether it was a money making exercise. And the people that were guilty, well apparently guilty, didn’t feel there was a case to answer, they felt that it had been done properly. So it was just one word against the other. It is very difficult living side by side with people who do that to you.*

The employment of third party spray contractors to do the actual spraying does not enhance the likelihood of compliant (due to the reduction of potential damage to neighbour relations), rather it appears to absolve fault:

*I had a case of spray drift last year where the wind was blowing, like it was a windy day and it was the contractor that came in and sprayed the paddock, and I lost the first two rounds on that side of the paddock, but I didn’t do anything about it because the contractor should have known better. It was quite a strong breeze and it sort of stretches the friendship of the neighbour a little bit. If it happened again this year I certainly would be jumping up and down a little bit.*

Another agreed that with repeat offenders there may be cause for complaint:

*You got to live with them, that’s the problem. I suppose you try to put up with a little bit but if it continually happens, then you probably do have to front them.*

However complaints did not appear to be happening, even with recidivists, due to the disinclination towards confronting neighbours:

*If someone accidentally does something wrong then fair enough but in cases such as our neighbours who do it consistently every time then we are probably at fault for not complaining. We just sit back and say ‘it’s the neighbour.’*

Another farmer said that as well as being averse to confrontation, they were just too busy to complain:

*You don’t want to fall out with your neighbour intentionally, but it’s still not right. You are just so busy, there are so many other things on your mind, you know, this is just one thing that is annoying and I guess you just put up with.*
Spray drift was an issue which was considered as being severe enough to be classed as an environmental crime, discussed further in the next section.

### 2.10 Environmental crime: participant’s perceptions

Participants were asked whether or not they considered certain actions to be environmental crimes and were asked to outline the ways in which the community managed problems that could be defined as such. Participants generally referred to traditional ‘brown’ environmental crimes such as pollution of waterways or the dumping of toxic waste. However there was also acknowledgement that ‘green’ environmental crimes, such as habitat destruction, were accepted by the community as criminal. For example, one participant gave examples of environmental crime as:

> Decimation of native bushland that affects habitats and flora and fauna, or the deliberate pollution of waterways and streams.

The most frequently discussed crime was spray drift. There was also concern for water theft.

State of mind or intention, as well as economic and environmental consequences, were considered salient by most participants in their estimation of whether actions were considered criminal. The focus group concluded that ‘intent’ was fundamental, as well as deleterious impact, in defining any act with environmental consequences as a crime:

> Depends on the ramifications of what they are doing. If it is going to affect your livelihood next door because they are not doing it properly or they are doing something wrong, well then it does become a crime then doesn’t it, really?

> I mean sometimes it might be not as a result of bad intentions. A lot of the seed comes down the river unintentionally, and you get a little patch and the next thing you have a bigger patch, that’s not a crime, it’s a natural happening.

> Like with Bridle Creeper, that was brought in as a pot plant, now that could be considered a crime now that people are aware of it, if they brought it in and they were cases of those sort of plants being sold at markets, ‘cause they are very easy to propagate.

Degree of harm was also critical to the type and severity of punishment considered appropriate for offenders. Rubbish dumping was cited as an increasing problem, one attributed to the local shire having increased tip fees. When asked if rubbish dumping was a crime, one farmer responded:

> It depends on the severity of it. If they’re dumping toxic waste or, as we had here around the creek a while ago someone dumped some drums of oil in the forest. That’s environmental crime for sure.

When asked whether fines should be imposed for such actions the farmer responded:

> It depends. A little wrong is just as bad as a big wrong you know, but punishment needs to be appropriate.

Another farmer maintained that indiscriminate removal of trees was a crime but that punishment needed to reflect the severity of the offence:

> I think you have to be careful not to make an example of the man who chops down one tree but the one who chops down acres.

Another participant who agreed that laws criminalizing tree clearing were appropriate described an incidence of de-snagging which was prosecuted. He considered this was a crime and the outcome was appropriate. He maintained that the community generally was disgusted with the action:

> They were removing dead tree limbs from the river which had significant impact on water flows and habitats for wildlife in and along the river. They were actually charged. It was a development project and I assume they were de-snagging the river to make it look better and improve access.
for people. In the current climate you would never do that because it’s considered appropriate habitat and the state government is carting snags and logs into it to further snag the river.

I do think it is criminal to undertake an activity knowing it’s an environmental issue. Those laws and regulations are quite obvious to many landholders on the river and at no point have I ever heard of a landholder ever removing a snag or timber from the riverbank or the river itself and I think most people are very compliant. Those people openly and knowingly did it and they deserved to be prosecuted. I think the law applied in that situation was a good law.

De-snagging was once a popular activity historically undertaken in waterways to manage flow regimes, however more recently re-snagging has been promoted in order to raise river biodiversity and fish habitat. In this case the participant found a victim difficult to identify. The victims of crime were generally considered by other participants to be the farmer and the environment, depending on the activity in question, although this aspect was not considered determinative of whether an action was classed as criminal.

- **Spray drift**

Participants were asked if events such as spray drift should be considered to be a crime. An agronomist initially responded with some hesitation but reasoned that it was a crime, due to the harm caused:

> It probably would be if you could prove that someone was affecting someone else but ‘crime’ is a harsh word. If you look at the opposite thing in terms of animal welfare or health, if something is happening to an animal it is a crime so if it is happening in plants and soil, why is it therefore not a crime?

Asked however if the farmer should be considered a victim, he responded, “That’s profound! No, I wouldn’t see it that way”. The focus group of farmers were also somewhat ambivalent but agreed it was a crime:

> It sounds a bit harsh but in reality spray drift is probably a crime. It impacts on that farmer financially and in a lot of cases they might have been there for 30 or 40 years and tried to keep the weeds out and there might be one neighbour who lets them go.

One farmer was more resolute that it was a crime:

> My neighbour who is down the bottom of the hill gets a lot of spray drift onto her place. She has got rain water tanks and now she’s got breast cancer. So how do we know that is not linked and why should her life be wrecked because someone is irresponsible?

Several farmers within the focus group reported they had experienced problems with chemical spray drift but defined such incidences as accidents rather than crimes.

- **Water theft**

An agronomist reported that water theft and waterway diversion was having “significant impact” but that culpability needed to be modified during times of severe drought. Mitigating factors were deemed important:

> They have significant impact. A lot of the incidences I have been made aware of people have been discovered and charged. In desperation to access water, people often lose their capacity to make good judgements and decisions if they’re under complete stress with their backs against the wall. In those situations I don’t know that I would call that criminal I would just say the poor people must be really feeling pressured to make a decision like that and act on it. I think we should have some compassion in that situation.

He maintained that each situation needed to be assessed on its own merits:
There are no two situations that are identical. They are all individual cases with individual needs and nuances that need to be dealt with.

Another agronomist observed that instances of illegal activity may be dealt with informally through social ostracism:

*Altering water ways has been an issue in our higher rainfall areas the 550ml – 600ml rainfall zone. Historically they always had a lot of water and had issues with water logging, particularly in winter. There has always been community angst there where they see someone getting a bore down in the summer and you see someone making a drain. There are certain unspoken words in those areas and you wouldn’t really say that you were putting in a drainage spike! You do it under cover of darkness almost. People know they need drainage (or they did need drainage) and some people decided they needed it but they wouldn’t do anything about it because everyone would be up in arms. Other people would do it anyway. If they do, they can be called names I suppose! Their neighbours might not talk to them!*

A fruit grower said that “Oh look there has been instances of that but it wouldn’t have been very much. I think Goulburn Murray Water they have taken a couple of them to court over that I think.” At the same time he also realised that economic pressures were high:

*Well probably possibly people get away with it too but I don’t know. But most people are honest but when you get desperate I guess you get pushed into some positions you don’t want to be.*

### 2.11 Attitudes to Environmental Laws

Participants’ views on environmental laws and regulatory approaches were explored, including whether they thought environmental regulations were necessary, on the mark, and fair. An agronomist offered general approval:

*I don’t think there are many examples of laws that are unfair. I think if they were harsher it would be less fun farming but I think at the moment they are not unfair. Generally when we have laws they are there for good reason.*

However most participants offered qualified support only. Conflicting laws emerged as a common cause for complaint. The five year proscription of irrigation on land under the Federal Small Block Irrigators Exit Grant package can encourage weed and pest problems on abandoned land, as well as precluding more successful operators from buying and producing from that land. The programme also conflicts with land use policies in the region as one participant explained:

*In order to satisfy the exit grant you must prove that you’re no longer a farmer and you no longer own land. The new land use policies are making it more difficult to carve off the two hectares with the house then sell a hundred acres. If I’m a farmer, I want to keep my home, I want to sell the land, apply for the exit grant, can’t do it because I can’t subdivide, so I’m limited.*

As well as concerns for efficacy there were equity concerns. One participant maintained that laws were not applied consistently between different types of operators and that smaller farmers were suffering as a result:

*There are rules for corporate farming and they seem to get away with things that single farmers cannot. For example, some guys chopped a number of trees down and the local farmers were upset about it but nothing happened in the end because it was a huge company and they had a lot of money. For a single farmer they would ‘take them to the cleaners’ – so there is a ‘them and us’ situation. That sort of attitude stifles individual farmer development.*

The identification of unfortunate adversarial positioning, the “them and us” characterisation, was also made in the other case study areas, and is indicative of a growing social distance between regulatees and regulators. As in the other case studies, many bad laws were identified by the
participants in Moira. These were blamed on governments being increasingly divorced from rural concerns and understanding. There were also some good laws identified and here participants in Moira, unlike the other two case study areas, were more forthcoming in offering support for unpopular laws like land clearance.

### 2.11.1 Good laws identified by participants

Participants were invited to nominate laws which they admired. Unlike in the other two case study areas, where native vegetation laws were almost unanimously criticised, here there was some support. An agronomist noted however that this support had taken time to achieve and that they themselves had had to be mindful of perverse effects when educating farmers of the benefits of native vegetation in the landscape:

> Some people recognise the benefits of vegetation laws. We do have native blocks of vegetation and also other areas are being protected and slowly people are embracing it more. We get windbreaks and have less frosts and a warmer climate, we have good shelter around our paddocks. When there is a benefit we have to demonstrate that benefit to the farmer. Sometimes if they see a benefit they become cynical and perceive it as something that someone is going to make money out of it.

Land clearance laws were also nominated when participants were asked to identify laws that they disagreed with.

### 2.11.2 Bad laws identified by participants

There were two areas of law identified as bad by participants: land clearance and water regulation. Other laws which were also criticised were the declaration of the Barmah Forest as a national park, with attendant fears of growing bushfire, weed and pest risk as well as declining timber jobs in the area.

- **Land clearance**

Participants called for common sense as well as greater facility for flexibility and adjusted balance in laws and regulations. The present regime was felt to be too heavily weighted toward a narrow ideal of environmental health, as well as involving time-heavy and costly bureaucratic requirements. One farmer with a 50 metre by 10 kilometre riparian zone of preserved native vegetation pointed out that there were extensive restrictions placed on managing the area while the adjoining land had been zoned residential and was therefore used intensively with relatively little concern for the environment. In particular he was concerned that he had to obtain a permit and employ an arborist to trim limbs and branches from river red gum trees which were at risk from falling (Figure 2.11). The property has been in his family for four generations and he would appreciate greater trust and flexibility in managing the land.

Farmers experience frustration dealing with agencies administering the laws:

> I think there’s a lack of understanding from the people enforcing laws. I had a recent case on a 300 acre property I lease that had a lot of regeneration because even though we’ve been in drought, it’d had a couple of wet periods that allowed trees to establish. The person I had to deal with at DSE said ‘nothing over ten years old’ and I said ‘well how do you prove that’. She said “trees that are bigger than three inches in diameter’. So I said, ‘come home to my chook yard and I’ll show you two trees that are nine years old that are that a metre thick. We argued and argued and she declined until I produced an aerial photograph that showed the changes in vegetation.
However another farmer had an anecdote describing a more flexible process and outcome:

We have a large block that was flood irrigated. In the middle of that block was about 25 very old grey box and red gum trees – it was a beautiful block with the dam in the middle and the water from the flood irrigation used to run into that dam. When we did the redevelopment of the irrigation on the farm we had an option to completely redesign the flood layout or we could put in a large travelling irrigator. The problem with large travelling irrigators is that they can’t go through trees. We went to DSE to get permission to pull out the trees – I argued that we have 20% tree cover. For me it was a choice between removing a tremendous amount of carbon from the soil and huge soil disturbances to land fall the area if we wanted to retain it as flood. You would then have an ongoing liability of a less efficient watering system. Compare that to the spray irrigator there would be zero soil disturbance – no huge amount of earthworks - we had to remove vegetation but we then have an ongoing water saving and efficiency issue using the spray. The plan went on display at the post office – to put the plan into action it was meeting after meeting – two or three months of solid negotiation to do it. People saw that we knocked the trees down and asked how many trees we have to plant and I would say we don’t talk in numbers of trees but hectares of trees. Some people would ask why we got permission to cut down trees when they weren’t allowed to cut off even a limb. It’s all about offsets and a reasonable balance.

The impact of land clearance laws in impeding bushfire hazard reduction was also frequently cited as an example of poor flexibility and common sense in the dominant regulatory approach to environmental management. With the Victorian bushfires still fresh in their memory, participants stressed the need to clear undergrowth, particularly along roadsides. One farmer stated:

The land clearing thing is a bit controversial isn’t it at the moment with those bush fires here - people lost their homes because they were just not allowed to clear anything around their houses - that has got to be looked at hasn’t it?.

I think the situation that exemplifies that is the story of the chap down in one of the small Victorian towns that were burnt out in the bushfires. He cleaned up, he did what the CFA told him to do, and he decided that two trees were in the wrong place so he removed them. He was fined

Figure 2.11 River Red Gum Eucalyptus camuldendensis (Photo: May 2009)
Order with and without the law

$100,000 in the environmental court. Yet his house was the only one left still standing after the fires.

The case referred to by this farmer has been misreported a number of times but the degree of escalation in the fine here is nonetheless surprising. On 29 April 2005 the Seymour Magistrate Court in Victoria fined Liam and Dale Sheahan $15,000 each (plus $20,000 costs) for clearance in August 2002 of 4 acres of Eucalypt forest. The cleared logs formed a pile which created a fire hazard that Mitchell Shire Council had to take further action to have removed. However the perception which has been generated around the misreporting of this situation appears to have sometimes fed but mainly strengthened the view that government interference in land management is ignorant and counter-productive. Participants were not short of examples. Another told of an incident where regulations prevented fire fighters from saving an environmental area:

*We had a major bush fire here two years ago went through a reference area. The local volunteer fire brigades were out there trying to put it out, got to the reference area fence and weren’t allowed to go in - so the fire just went through. Then had to go through management levels, had to go to Melbourne to be approved, just silly. Common sense would have said we should have nabbed it before it got too far.*

**Water and irrigation regulation**

The area of law which attracted the most criticism in Moira was water regulations; however the views on this were mixed. Both good and bad aspects of the law were identified. Major concerns were losing water out of the district for agriculture but also losing the lifeblood of jobs and communities along with capacity for environmental management. Abandoned land and stranded assets was seen as the worst possible outcome for both socio-economic and environmental reasons. A fruit grower had supported and embraced water trading but “never expected it to go as far as it did”. Water trading was identified as having awakened sleeper licences which had placed additional pressure on available water resources. A community group leader reported the range of views:

*The water trade is not necessarily a bad thing because some people want to buy extra water and need it, so it’s important that they have the opportunity. You also have people who don’t want to and they have a right to be protected as well. I talk to a lot of farmers on this issue and you have a certain amount who say no water should leave the area and you have others who say they want more water to come into the area. You also have others who say they have too much and they would like to pass some on as they are not utilising it all. You have to take everyone into consideration. I talk to everyone and they all have their points of view. Don’t take all the water off us!*

A fruit grower said they used a broker to buy mainly Victorian water. He identified that earlier on some farmers had bought too much too soon. He described the trade as risky. Due to drought permanent water was often under-allocated:

*... in the last few years though if you buy a meg of permanent water all you get is the allocation which is 33%, if you buy a meg of temporary water you get the 100%.*

Overall however he thought that most had adapted to the market approach:

*The fruit growers ... we have had to embrace it, whether you like it or not you are in the system running commercial businesses. ... But you have got to have the money to get into the system to start with.*

There were reports that the banks were also recognising the value in water as an opportunity to realize debt. This appeared to work both ways. A dairy farmer identified that the new-found value in water had raised the equity of his operation and impressed the banks; “it’s given us heaps more security.” However the same farmer said that the effect on the community had been unfortunate, as
the once-thriving dairy industry in the region had virtually collapsed. Water trade had provided a way out for some:

> When water trade began there was a lot that wasn’t particularly productive and so water trade was a good option.

A fruit grower identified that they had benefited from being able to access more water and thereby save their orchard:

> If we didn’t have transferability though ... we would have knocked out more trees I suppose.

A benefit of the increased value of water and other policy measures to manage the resource had been raised water efficiency. A fruit grower said:

> There is no doubt we have used less water more efficiently. We have changed systems too and put more efficient plastic sprinklers in and drippers in on young trees rather than having overhead sprinklers – which would use 2 megs per hectare instead of 5 – 7 megs per hectare because it is actually cheaper to save water than buy water. They have put a lot of change in, particularly for young trees.

At the same time the policies had been a mixed bag and imposed production and management costs, discussed further in the next section.

### 2.11.3 Costs identified by participants

A fruit grower noted the allocation for environmental flows had restricted groundwater access:

> [it] is totally controlled. You can’t put a hole down unless you buy someone else’s licence. It is all controlled and any transaction or trade from one spot to the other 20% is given up to the environment each time. So if you buy 100 meg you only get 80 meg. It comes at a high price.

One farmer reported that in his experience, regulations had been generally fair but that the ban on dams was too restrictive and was limiting productivity for irrigators:

> We’ve built a dam and developing this farm, and the people we have been dealing with have all been reasonable people and in the end we’ve ended up with a reasonable outcome. It just takes time. Red tape takes time and it costs money. But in the end we have ended up with reasonable outcomes. I am in favour of trying to protect the environment but you have still got to be sensible in development. There has got to be a balance. This straight out ‘no dams’ policy, I just don’t agree with. There should be discussion over requirements. You know, if it is wrong, agree it is wrong but allow discussion. Well, the way global warming is going, we have got to do something to protect existing developments. As it is we are going to start losing irrigation development. And it is so critical to us, this district has been built on irrigation. It’s just not sustainable buying 10, 20, 30% of your water at $300 a meg. You won’t survive. Or you have to cut back production. And if you cut back production you may not survive anyway because of infrastructure costs and overheads and whatever. You might be unviable.

The problems environmental regulations cause for farm businesses included maintaining records, such as for chemical use. A local agronomist stated:

> I think chemical record keeping would be one that is state legislation and has changed recently. People once only had to keep records on schedule 7 chemicals and now have to keep records on everything. If we went to 80% of farmers and did an audit I am sure they would fail – they would not be keeping the records they should. I think it is something they wish they didn’t have to do. It is just a bit more paperwork for them. I think most farmers can see why we ask for that but they are still not doing it so there is clearly an issue there. From where we sit it is not a silly requirement. When you have to follow up issues the worst thing is not having any data to work with in terms of what they did. That still doesn’t stop someone from making the data up - that happens.
Order with and without the law

There are lots of issues with compliance in terms of animal legislation and a lot of that causes people real grief. We have had BJD and AJD outbreaks in Victoria. I suppose this something where our state government has imposed legislation on testing and reporting and destruction of animals and that has caused a lot of people heartache. Our people as well, but the farmers in particular. It has caused anger – it has been simmered down now – but it has been going for 5 or 6 years. Things like that reinforces that feeling that they should be left to do what they are doing and the government should leave them alone.

2.11.4 Other good activities by government identified by participants

Participants were also asked if there been any instances of “good” government activity and what they liked about it. The $20,000 Government grant for eligible Murray-Darling Basin irrigators for irrigation infrastructure improvements on farms has been widely appreciated and has helped irrigators to improve water efficiency, save money and operate with the lower water allocations available. Grants have assisted irrigators to undertake a range of activities to improve on-farm practices to maximise production from available water including installing pipes, troughs and associated activities for stock and domestic water; sinking/extending/refurbishment of bores and pumps; reconfiguring irrigation systems; equipment replacement to maintain irrigation systems; implementing water efficient crop options; and laser levelling (DECCW, 2009a).

Moira Shire has prepared a rural land use strategy to provide a consistent regional response to secure the future of agriculture across the region. One participant stated:

It kind of protects the farming future. Council recognised the need a long time ago to ensure the right to farm and protecting land and making sure that all our planning decisions are predominantly agricultural. We need to do our part in planning to make sure that we remain an agricultural region.

2.12 Participant’s suggestions for improving environmental laws

Participants were asked for their suggestions for policy and legal reform. The most common preferences were for raising simplification, certainty, consistency, efficacy and integrity, as well as ensuring that practices were appropriate to local conditions and challenges by including local input and flexibility. Farmers desired greater education and persuasion and saw these as the means to raising compliance, and, where necessary, enforcement should adopt an effective deterrent approach otherwise the integrity of policy objectives and government efficacy was undermined.

- Raise education and persuasion

Many of the suggestions provided to improve regulation reflected a common theme of preferring ‘more carrots less sticks’. A service provider cited Workcover as an example of successful implementation of new legislation which countered natural resistance to change:

I think Work Cover did a pretty good of actually giving us legislation and then showing us what that actually meant in the workplace. Here are the rules, here are the guidelines, here’s how you deal with this legislation, what does that mean in the workplace, e.g. anything over two metres has to have a rail on it. Farmers don’t always accept legislation - whether it’s resignation or just a head in the sand mentality: ‘I don’t want to know about it I’ll get by’ or ‘I’ll just wait till something happens before I do something about it’.
I guess it's like all things, what's being presented? What are they going to gain? Does it affect their bottom line? What are the motivators for getting on board? Because of the attachment they have for the land, they are pretty clear on the need to protect it and preserve it and so I think that emotional aspect is what you can appeal to, but at the end of the day, if it's going to cost me, I'm not interested.

One of the farmers agreed that such approaches work however changes in behaviour take time:

Landcare lost a lot of appeal around here because it's just too radical. You can't force a farmer to do anything, you have got to just coax him along gently. You tell him he has got to do it and it won't happen. But if you say that is not a bad idea, you want to have a look at that, it might happen.

Any new innovation, you speak to other farmers who are doing it or have tried it and whatever and it won't happen overnight it is just a time thing. Like the Superb Parrot thing, the first two plantations we did was on the secretary's place and one on the president's place and one was on the side of the road because we couldn't find anywhere else to do it. And some 16 years later we have got a waiting list for people are wanting to do it. So it just takes time. I don't think they can speed it up. I reckon they need more community consultation, with local groups, and perhaps seed them along a bit to get the idea up and running and just let it evolve. You can't force things - it just won't work.

- Reduce inconsistency

A service provider believed that there were inconsistencies between levels of government which caused problems for river management in particular:

I'm not sure they are generally fair. I think there is a lot of variation in the environmental laws between Federal, State and local government, landholders and other stakeholders in the system. I don't think there is continuity there when it comes to planning environmental projects up and down the river.

- Reduce uncertainty

Some laws had been undergoing almost continual reform which had undermined certainty. Rules and regulations surrounding water markets are constantly being revised which causes confusion for farmers as well as for support services. One participant explained:

Water makes people angry but Victoria has changed its water laws a lot in the last 3 to 5 years - there is almost constant change in the laws of water in this state and some people still don’t understand the changes that happened 5 years ago, let alone what is happening now. There was a meeting yesterday and a farmer said he was watering in that really good rain a couple of weeks ago and he said he had to use his water before the end of the season (15 May) and he said he could carry it over. Up until 2 years ago that was the law, if you hadn’t used your water by 15 May you forfeited it. A stupid rule in terms of environmental use of a resource. This farmer said he didn’t trust them that the water would be there - he thought it would be taken away from him so he felt he had to use it now while he had it. We were wondering how common that feeling was.

- Simplify processes

A complicated application process for land clearing can deter some farmers. Therefore simplifying the process may improve compliance.

I understand government and it isn’t daunting for me to go through a long and laborious process of filling in forms and writing letters and taking pictures and having meetings to have a plan approved but for a lot of people around here it is a huge task that they are neither equipped to do
it, or confident and they find it very difficult. There are so many agencies that have fingers in the pie that every application is a big deal – everyone gets involved – DPI, DSE, CMA, the Shire, RTA.

Another farmer who had experienced a highly bureaucratic process was less critical but acknowledged “If you don’t know where to start that’s a problem”:

*Urban planning shouldn’t go unchecked and in the same way rural development shouldn’t go unchecked. Governments say they are going to make it easier for businesses and farmers and that’s not the case. It is also expensive. Everyone takes their cut – planning permits, etc.*

- **Raise flexibility**

Arbitrary benchmarks and standards were seen as inappropriate. Laws pertaining to vegetation on fence lines was one problem for farmers:

*Now having a set distance, it used to be four feet, but it’s just been altered. There needs to be flexibility. That one costs farmers a lot of time if they’ve dangerous trees on their property that they want knocked down.*

- **Raise integrity**

The focus group of farmers noted that even when farmers comply with regulations, agencies fail to follow up. Such lack of consistency and professionalism undermines government integrity and public confidence. One farmer stated:

*A few years ago we all had to do chemical courses and get accredited and we were told we wouldn’t be able to buy chemicals unless we had the little card and we could present that. And that never happens. I’ve never been asked for a chemical card.*

The Flora and Fauna Guarantee Act 1988, which is the Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes, was described as very weak. Other participants noted that several laws were currently under review which meant that they were not being implemented or enforced. A community leader continued:

*I think it’s absolutely ridiculous to have an element of legislation reviewed for two years leaving no clear definition and new interpretation of that part of the Act and all of the stakeholders doing nothing regarding weeds on the roadside. If it is clear that an Act can be enforced, it gives you somewhere to go to get action. That’s not just for farmers that may be for developers or agencies. I think the law allows for people to have their own interpretation and not be aware of any consequence for their actions. There seems to be an attitude out there that as the Act stands now you can do something, you can remove something, and if you get caught then deal with the consequences. We have had an example in this area where the people had remnant vegetation on the property that the landowner had received some funding to fence it off and preserve it and enhance it. The land changed ownership, new owner claimed to not be aware of this and damage was done and really the legislation had not been strong enough for that person to face any consequences for that. Sometimes a Council’s will to pursue enforcement isn’t always there either for various reasons.*

One agronomist maintained that deterrence was required for laws which may not always have evident benefit in all cases:

*Things generally work if you can demonstrate to people that there is a benefit to them. The problem with chemical records is that the benefit could be there but you hope it never will be. You hope you never are going to be hauled over the coals as to what has gone wrong. It’s not something that you can look back in a week’s time and say “I’m glad I did that”. It’s not exactly tangible. There is the perception that the risk is not high and until we go and prosecute someone*
I imagine the perceived risk of getting caught is really low. We threaten to do it but it hasn’t happened yet.

The underlying fundamental principle for farmers appears to be something along the lines of “what works”. If a practice works for the environment and production, and increasingly these are seen as overlapping rather than mutually exclusive, then farmers will adopt it and government should promote it and enforce it, and these strategies should be effective. If they are not, then public confidence in government may be undermined because they are seen as failing in their role. Regulatory failure undermines public confidence in the law and its appropriateness, as well as undermining voluntary compliance. Raising local input was seen as an easy way to address these types of failures.

- **Raise practicality and local input**

A farmer noted that if laws were seen to be practical, they would be agreed with:

> Well we’ve got to have laws but unfortunately there’s not a lot of common sense goes into them. I think a lot more of it should be left up to the local Government person’s discretion. If you have a good habitat tree that is right bang in the middle of the fence line, you should be able to go out into crown land or put the fence around instead of a hard rule to knock it down. Most farmers will accept that.

An agency representative maintained that compliance with regulations concerning weed management would be improved if agency staff worked alongside farmers:

> There is probably not enough action taken in Victoria and the penalty is not severe enough to deter people. It comes down to a moral obligation not financial – the fine would be $500 so who cares - and they probably wouldn’t get fined anyway and everyone is doing it. In NSW it’s different because you have the Pastures Protection Board, they do a great job – it is a great model that Victoria should look at. There is someone out there that talks to farmers and identifies problems with weeds. They are not so much policing as a local in the community and they are respected. Most people would abide by their rules. I think that works well. We lack that.

A service provider maintained that smaller cohesive communities are better able to ensure compliance. Agencies should therefore work with locals:

> If you look at this locality it has a reasonable population in a small area and so community is very strong, and the willingness to engage the community is quite good. So geography is important as much as the social aspect. The Barmah forest group, there’s a lot of history, generations that have an intimate knowledge of seeing policy come and go. What seems to bring them together more than anything else is a common enemy. There have been some smart cookies that have engaged the community. There are big issues about grazing in the park, management of the park, those sorts of things, but then you put a bit of fear out there, say ‘Oh we all could get burnt out tomorrow because of poor management’, well that seems to be a good motivator to get the rest of the community on board.

**2.13 Environmental management: local co-regulation**

Participants were asked who should take the lead in natural resource management in rural communities. The most common response was that farmers should be primarily responsible. However two farmers suggested a combined approach would be optimal. One stated:

> No group alone. A combined model will end up with a compromise that won’t be ideal to any party but it will be at least appropriate - not everyone gets what they want but everyone gets something.

Asked if community sponsorship should give the sponsors a voice in management of the target area he replied:
It gets very difficult when someone from the outside has a right to say how it’s managed. I guess we’re very suspicious people and sometimes people from afar have some funny ideas and whether we’re right or not, we think we’re doing the best by our bit of land. Ninety-five percent of farmers are pretty good farm managers, I would suggest.

Farmers objected to too much outside influence, believing local knowledge and understanding should prevail:

I think public land management is seriously flawed. We battle metropolitan based greenies as we call them and my view is that they have probably got the same attitude that I have, they want to protect it and save it, but we differ in the way we want to go about it. I’m a practical person who lives here and I don’t agree with locking it up as the way to save it. I believe the local community has got a pretty good track record. Barmah Forest has been managed by Europeans for the last 150 years and it’s not perfect but it is still a pretty good place. It’s got issues of weeds and stuff but overall we probably haven’t done a bad job with it. A greenie in Melbourne, genuinely wants to save it and I agree with that wholeheartedly, but to lock it up is not the way to go.

One of the big issues is that the forest out there is outstanding the way it will grow feed, grasses and brushes in a good season. You take stock out of it, it will just grow as thick as it can. You get a flood in winter-spring, it is beautiful and moist and hot and things just grow, fantastic. But you let it build up like that and the next season when you get a flood flow coming through, it blocks up because of all the debris and then the water comes out here. We know it happens but these guys have got no idea. They did a control burn at Browns camp but you never burn in spring because we are in a dry climate and things can smoulder and get going again. But they burnt in spring, they didn’t inform the local community and that put everyone panicking because they saw the smoke and thought it was a forest fire. It was in a noted Superb Parrot nesting area, there is only six of them in the forest so it’s a very high value area and probably 90% of them burnt to the ground. I witnessed a cockatoo trying to get its young out of the nest because all the nests were full at that time of year. I saw a koala and its young one that is singed, and this is an area of 40 acres. To burn down habitat trees in spring when all the nests were full, in such a small area it just doesn’t make sense. If you had a local group that could make recommendations about that and say well it’s a bad time to do it because all the nests are full, lets sort of put it off or do it some other time or shift it down to not a Superb Parrot area of something like that, but there is no consultation.

Another farmer provided an example of the importance of local knowledge in natural resource management. He identified two local residents whose significant knowledge and understanding of local flora and fauna were valued highly by the community. One had commented on the loss of river red gums in the Barmah forest area:

They will probably die, but there shouldn’t be red gum trees there anyway, it is not red gum country. It is high country that wouldn’t have been flooded prior to the levy banks going up. These trees have probably come up in the last fifty years and shouldn’t be there’. The native species have been here for millions of years, they will have seen many many droughts like this before and they will see many more droughts like it again.

The farmer added:

Barmah Forest again is nothing like it was before white man got here. It used to go all the way up to the Goulburn, so that has changed it dramatically. We have got to supply water to Adelaide and we have got to grow food. So we have altered the water flow, you have put a levy bank all the way round it and changed the way it floods. It has been harvested and grazed for over 150 years, so that has changed it. You have introduced rabbits and pigs and that would have changed the fauna dramatically and introduced weeds are prolific. My dad when he first came out in the 1930’s used to drive a horse and gig all through the bush. Now you can’t even ride a horse there it has got that much thicker, and that is just in one generation. It is a forest of too many trees, it needs to be thinned dramatically.

However, he concluded that a combined approach would be optimal:
Science is a pretty valuable tool, and it comes up with some great stuff. So you need science to feed information in; you need people who are familiar with government policy and management and how that works; and then you need your local community who have got a strong connection to it, and experienced, very practical people plus it also has to be appropriately funded too of course.

A service provider maintained that CMAs often fail to take note of local knowledge:

Trouble with the CMA, there too much to one side and the farmers are probably on the other side. I know lots of people in the CMA and it's just trees, trees, trees and we've got huge problems out in the bush where the trees have fallen into the creeks. The next time there's a flood farmers will be suing when flood water gets forced out onto private property. And they argue that the trees in the waterways are a fish habitat. Well I argue that when they're standing up they're not and when they're removed reasonably soon after falling the fish don't even know they're there. Aboriginal people burnt them years ago and the fish still breed.

Local agronomists agreed:

Landcare is being filtered away and governments don't understand that they could use those groups to get their message across for more effectively than putting in legislation. Government has not had to say plant more trees, etc. because Landcare and other groups have done it for them.

Another thing is we see a lot of cynicism about having to manage our weeds, but the government doesn't manage their weeds and vermin. An example is fox poisoning. The government pays for the farmers to bait the foxes. What they are doing is getting the farmers to do their work for them. The foxes live in the forest. The government is more interested in turning it into a national park than spending some money to control feral populations.

We get 500 people to a meeting and talk to them and they seem like they are listening but they are not. There's a strong perception that governments don't listen and farmers think if they are not listening to me here why should I listen to them when they decree that I have to do this or that.

2.14 Talking point: water trading

The most oft-talked about issues in the Moira Shire were related to water, and conversations centred on water shortages, drought and the dynamic and uncertain policy environment related to water, particularly water trading. Water trading began in Victoria and New South Wales in the 1980s but has been increasingly facilitated and encouraged by government policy since the mid 1990s. There have been several important multi-level agreements aimed at reform as well as state legislation. The most recent intergovernmental agreement is the Intergovernmental Agreement on Murray-Darling Basin reform which was signed by all basin states and territories and the Commonwealth in mid-2008. It initiated a fresh process of Basin-wide management for the catchment, including harmonisation of state policies and instigated the production of a Draft Basin Plan that is due mid-2010.

2.14.1 Water trading: COAG and state legislation

In 1994 the Council of Australian Governments (COAG) separated property titles to water from titles to land and introduced further initiatives to support interstate trade in water. Ten years later the Intergovernmental Agreement on a National Water Initiative committed the signatories (it was signed in 2004 by all of the states in the Murray Darling Basin, Tasmania and Western Australia signed later) to eliminate trade barriers and further expand the volume of trade. This agreement established a cap on trade of 4%, with a move to full and open trade by 2014 at the latest (clause 63). In Victoria the state government adopted a staged approach to the introduction of water
trading. As provided by the 2004 Agreement, Victoria imposed a 4% annual limit on the amount of water which was able to be permanently traded out of irrigation districts. Victoria also initially limited the amount of water which could be held by non-landowners to 10% only. The policy objectives behind these caps were to manage the transition effects on communities and environments from such a radical policy shift. A staged introduction was designed to allow time for agricultural restructuring and limit social upheaval and community dislocation while also managing potential market volatility. However there has been growing pressure from some quarters to end the caps in order to achieve a level-playing field within the basin. The Victorian government drew a close to the 10% limitation in September 2009 and more recently has made exemptions to the 4% cap.

2.14.2 Commonwealth buybacks for environmental flows and relaxation of the 4% cap

There has been growing public concern as to the health of the Murray Darling Basin, which has been steadily declining due to prolonged drought and mismanagement of the resource throughout the catchment. The Commonwealth government has been increasingly willing to intervene in state policy to achieve basin-wide outcomes, in particular to buy-back water for environmental flows. On 4 June 2009 the Commonwealth and Victorian government reached an agreement to allow the Commonwealth to purchase an additional 300 billion litres of water. In return, the Commonwealth agreed to fund a $2 billion Northern Victoria Irrigation Modernisation Project, including $1 billion towards the Northern Victoria Irrigation Renewal Project. Funding is intended to reduce system losses by retiring about 25 per cent of the system’s channels and regulators while also lining the remaining channels to reduce leakage and automating the system with new regulators and more sophisticated meters. The programme supports Victoria’s existing Our Water Our Future Water Plan (2007), which is focused on achieving water security for Victoria and is to be facilitated by the Sustainable Water Strategy (2009) for the Northern region (Figure 2.12). The Strategy includes as a key principle the allowance of “exemptions from the four per cent limit on trade out of irrigation districts when purchases are linked to modernisation programs.” (DSE State of Victoria, 2009).
The exemptions to the 4% cap are to occur in certain defined locations only (Figure 2.13). In the 2009 agreement it is also stated that the 4% cap will be phased out completely by 2014, repeating the earlier commitment under the Intergovernmental Agreement on a National Water Initiative. However the South Australian government wishes to hasten this and has mounted a High Court challenge against Victoria, alleging that the cap is invalid under s 92 of the Constitution. The Victorian Farmer’s Federation Chairman maintains support for the cap (Anderson, 2009).
2.14.3 Trade within the Moira shire

Rules governing water trade within the Moira district is quite different to other irrigated areas in Victoria. At Barmah a ‘choke’ in the River Murray\(^1\) reduces the potential for water entitlements to be traded downstream due to the limited water that can be passed through the Barmah Choke. Entitlement trade downstream of the choke can only occur if it is offset by other trade upstream. There are also restrictions on trading allocations downstream, but with ongoing drought conditions, these have been relaxed because with reduced allocations, less channel capacity is used.

Consequently, local irrigators have been unable to supply demand in the lower Murray over the past 15 years. The main buyers of entitlements in this region have traditionally been dairy farmers within the region. Prices are much lower than downstream – approximately $1500 to $1600 per mega litre rather than $2200 to $2400 and because trade was contained within the region, the 4 per cent cap had no real bearing on the market. However the Commonwealth has now entered the market and is seeking entitlements including Victorian high reliability water shares from above and below the choke. In effect, entitlement holders in this region are now, within the constraints of the 4 per cent limit, part of the larger integrated market of the southern-connected Basin. The 4 per cent limit was reached in 2007–08 and 2008–09. A rush of applications for trade at the start of 2009–10 led Goulburn-Murray Water to conduct a ballot for the order in which applications would be processed.

---

\(^1\) An earth movement about 25,000 years ago caused a 12 metre high ridge running roughly north/south not far from the towns of Deniliquin and Echuca. It eventually changed the course, pattern and character of the River Murray for some 500 kilometres when the Murray stopped flowing along what is now the Edward Wakool River System. It turned south instead, breaking through the section between Picnic Point and Barmah, before taking over the Goulburn channel downstream of Echuca. The section where the Murray cut through to the Goulburn channel is today known as the Barmah Choke because of its limited capacity to carry flows.
At the time of interview, the backlog of applications had not been cleared and many people were uncertain about whether or not they would be able to benefit from the high prices on offer from the Commonwealth; $600 a mega litre difference would have a big bearing on many retirement plans and many debt restructuring plans.

Irrigators were concerned about uncertain future water allocations, not only because of drought or climate change, but also because of unpredictable policy decisions which rarely took account of community needs. As Young (2003) maintains: “The fastest way to decrease value and the quality of any investment in resource management is to increase uncertainty”. Tisdell et al (2001) previously found irrigators in this district believed there was unfairness within the rules of trade and the allocation of water. Furthermore, there were common beliefs that policy objectives of (a) maximising the economic surplus generated from available water supplies, (b) ensuring an equitable and fair distribution of water, (c) maintaining environmental flows, and (d) accounting for local economic and social impacts, were either in conflict or not achievable simultaneously. Irrigators considered social justice objectives to be far more important than reform objectives of maximising economic surplus (Tisdell et al 2001).

The on-going effectiveness of the water market is heavily dependent upon the perceived fairness of the processes and outcomes to address equity issues (Gross 2007). Perceptions of unfairness can lead to non compliance by some users with some regulations. Authorities imposing rules at odds with local norms can become regarded as less legitimate and trustworthy by prospective traders, and are less able to gain voluntary compliance with those rules (Barclay et al 2004). These studies have highlighted the need for more recognition by governments and regulatory bodies of the social norms of local communities. While uncertainty in water availability is a fact of life in Australia, institutional arrangements enabling more effective community participation in deciding water trading rules may allow better adaptation to local conditions of institutional arrangements for anticipating and dealing with third party effects.

2.14.4 Enforcement of water provisions

In Victoria water offences are proscribed in the Water Act 1989, legislation which the Department of Sustainability and Environment are responsible for implementing, however enforcement is undertaken by regional water bodies such as Goulburn Murray Water for the case study area. In early 2008 there was widespread media coverage of increasing instances of alleged water theft in the Goulburn Murray and Lower Murray areas. These included meter tampering and bypassing (Edmonds, 2008). In the 2008 irrigation season there were 240 reports of water theft, compared to around 150 in the previous season (ABC 2008). In 2008-2009 there were 343 incidents and complaints investigated and 120 matters were referred for prosecution (these figures including alleged illegal diversions as well as interference with works) (Goulburn Murray Water, 2009a).

Penalties for water theft include fines and imprisonment. The maximum penalties for water theft from waterways and irrigating without a license range from just under $7,000, and/or 6 months imprisonment, to $23,000 (Water Act 1989 (Vic)). In New South Wales the maximum penalty for intentional unauthorised taking is $1 million and/or seven years imprisonment. The cross-border disparity in penalties is contrary to the uniformity and harmonisation intended by the COAG agreements but as yet has not been addressed. The disparities may be seen to be unfair, as different penalties for different offenders in land clearance currently are. However the participants were relatively silent on this issue generally, an aspect expanded upon in the next section.

2.14.5 Water policy and water crime: silent informal order

The June 2009 agreement between Victoria and the Commonwealth was reached a month after the interviews. At the time of interview there was much concern about policy volatility and attendant
sovereign risk in this space, for both the environment, agriculture and local communities. While water policy was criticised, water crime was little mentioned and rarely complained of. However there have been reports of increasing contraventions in the region and Goulburn Murray Water have reported increased enforcement activity in response. The relative silence on this issue amongst participants may therefore reflect a number of things: a lack of awareness of thefts, a general or particular disinclination to comment, a refusal to acknowledge theft occurs when water is such a scare resource, a recognition that some financially stressed farmers have no other choice, or a relative prioritisation of this issue as lower in the order of issues of concern. However many of the investigations undertaken by Goulburn Murray Water have been undertaken in response to public reports (Goulburn Murray Water, 2009a).

There was also little discussion concerning ground water. With declining surface water there has been increasing reliance on groundwater however groundwater levels too have been falling, which means that shallower bores are unable to access the resource (Goulburn Murray Water June 2009b). In 2007-2008 records from meters also indicated greater water yields than license entitlements. In response 11 warning letters have been issued and 17 cases of water theft being prosecuted (Goulburn Murray Water June 2009b).

The rapidly changing nature of the regulatory environment in this area of environmental management, alongside the importance of achieving policy objectives, identify this issue as one which requires further research, both to underpin and evaluate policy reforms.

2.14.6 The informal order in Moira: concern for communities and the environment

The Chairman of the Victorian Farmers Federation has argued against removing the 4% cap, alleging that “allowing unfettered trade at this time would result in unintended and irreversible consequences for the sustainability of the many rural communities dependent on the irrigation sector” (Anderson, 2009). This sentiment was echoed in the comments of participants and there was much concern that government policy in the area of both water and national parks was ignorant of the risks and unintended consequences such decisions could have on communities and natural environments. This appears to be affecting attitudes towards government intervention in agriculture for environmental ends more generally.

2.14.7 Community survival

There were concern that water and river red gum forests were being treated in isolation without consideration of the consequent impact of changed management on jobs, land management and rural survival. There were fears for job losses due to the reduction of logging in Barmah forest, as well as due to water leaving irrigation. Reduced population in the area would have flow-on effects such as reduced services as well as reduced land management, with growing threats of weeds, pests and bushfire as a result. However one farmer who decried the demise of dairying also recognised the resilience of the district:

*These towns were built on irrigation like but they’re probably good enough now to sustain themselves - you know with retail alignment and building - like Numurkah amazes me. It’s gone from 3,500 to 4,500 in the last 5 years and now there’s a really big building, someone had the wisdom to build a lake out the back of Numurkah ... the building around that has been astronomical. Builders have never slowed in Numurkah, and Cobram’s the same. I think there would be a fair few retired people that would sell a house in Melbourne for a million dollars, they can come up to Numurkah and buy one for 300 grand and they’ve got 700,000 to live off. I wouldn’t say there’s a lot but certainly some of that.*

Therefore there was optimism as well as pessimism. The statistics appear to support this with growth projected to increase in many of the localities in the region (GBCMA Strategy, 2003, Table...
5.13). At present social norms are pro-environment but hampered by economic barriers, which if income streams increase may be employed in addressing problems and improving systems with both production and environmental benefits.

2.15 Summary and conclusions

The Moira Shire is experience significant social change in being an important tree change area and with many farmers leaving the land. Those that remain are very proactive in conservation and were quite welcoming of laws and policies with environmental aims, so long as they were effective and locally relevant and practicable. Farmers were also proactive in adopting innovations and appreciated funding for increased irrigation efficiency. They desired greater acknowledgement by government of local natural resource management knowledge and capacity. They were resistant to decisions which appeared to be ignorant of flow-on effects and consequences. In particular the formal order of water is increasingly aimed at obtaining more water for environmental flows, via a marketised approach. However the informal order appears to be fed by broader concerns. There are concerns for social sustainability and food security, agricultural viability, as well as concerns for environmental damage caused by water scarcity in environment and degradation to land which has previously been used in agriculture.

There is greater complexity and nuance in the community regard for water than that outlined in government policy. Water is the primary environmental concern for this district. The rain which has fallen in late 2009 and 2010 in the northern parts of the Murray Darling Basin may alleviate the drought in the Walgett Shire (the second case study area) but at the time of writing this case study area continues to be severely drought affected. However if the drought is broken, as in the northern basin, then a number of other environmental issues may re-emerge, in particular salinity. What however may also emerge is an increased capacity to deal with environmental issues, which, with increased economic capacity, could be given greater effect.
3 The Walgett Shire

3.1 Introduction

The Walgett Shire is situated in north-west NSW approximately 696 km from Sydney. The Shire covers an area of 22,000 km$^2$ and is bounded by the NSW-Queensland state border (Figure 3.1). Towns within the Shire include Burren Junction, Carinda, Collarenebri, Cumborah, Cryon, Lightning Ridge, Rowena and Walgett. There are also several mining camps on the opal fields in the north and north west of the Shire around Lightning Ridge. The field work centred around the towns of Walgett and Carinda, to the south-west of Walgett (Figure 3.1).

![Figure 3.1: Settlements within Walgett Shire (Source: after Walgett Shire Council, 2008: Map 1.2).](image)

This district was selected for the NSW case study as it is an important transition area between broadacre cropping areas and rangeland grazing systems. It is also a unique environmental area, in that remnant native vegetation in much of the region is grassland (e.g. Mitchell grass) and trees...
(Patrick et al 2009). There are a number of significant wetland sites including the Narran Lake, Pilliga Forest and the Macquarie Marshes. The farming community is recognised for its innovation in successfully farming in semi-arid environments. However, it has also been embroiled in controversy over land clearing activities in defiance of legislation. This chapter reports on the findings of two focus groups with farmers and face to face interviews with farmers as well as support agency staff in the Walgett Shire.

### 3.2 Population and Settlement

The Shire has a population of 7,503 people. Population has been falling in recent years due to drought (Walgett Shire Council, 2008). At the 2006 Census, 21.8% of the total population for the shire were children aged between 0-14 years, and 27.0% were persons aged 55 years and over. The median age was 39 years. There were 2,204 Aboriginal people living in the Shire which is 29.37% of the total population (ABS 2009).

The town of Walgett has 2,100 residents. It is an important service centre for a large pastoral area and the opal fields around Lightning Ridge (76 km to the north). The town is located by the Namoi River near its junction with the Barwon River (Walgett Shire Council, 2009).

Carinda is a small village of 194 people situated about 70 kms to the south-west of Walgett. The Macquarie and Castlereagh Rivers and the Marthaguy creek all flow through the town before connecting with the Barwon River. The Macquarie Marshes lie 15kms south of Carinda (Walgett Shire Council, 2008).

Approximately 30% of the workforce in the Walgett SLA is employed directly in agriculture. Opal mining and tourism are other important industries. Mining employs 8% of the total workforce (ABS 2006).

### 3.3 Agriculture in the region

Agriculture is currently, and has historically been, the major industry in the Shire, both in terms of economic value and land area. There are some 882 rural properties in the Shire occupying an area of 2,085,850 hectares (Figure 3.2). Property sizes range from around 5 to 6,000 hectares and holdings are much larger in the north-west than in the south-east (Figure 3.3) (DNR 2006; Walgett Shire Council 2010).
Order with and without the law

Figure 3.2: Land use within Walgett Shire  (Source: after Walgett Shire Council, 2008: Map 2.9).

Figure 3.3: Size of landholdings in Walgett Shire(Source: after Walgett Shire Council, 2008: Map 2.10).
Production is primarily cropping (wheat, cotton, chickpeas, sorghum) and grazing (sheep and cattle). In the past decade there has been more cattle production due to higher prices available and drier conditions. Feed-lotting has also gained popularity making used of failed crops and crop residues. Grazing mostly relies on native vegetation (DNR 2006). Cropping is most suited to the productive black-soil plains in the south-east of the Shire while the land in the west and north is better suited to grazing (Figure 3.4).

3.3.1 Western land leases

What is interesting in this district is the combination of both freehold land and Western Lands Division (WLD) leases within the Shire boundaries. The Shire is divided by the Barwon River into the Central Division (11,310 km2) which is comprised mostly of freehold land titles and the Western Division (11,030 km2) which primarily consists of Crown Land held under Western Land leases according to the Western Lands Act 1901. The Act is designed to ensure appropriate management of the fragile environment. It is one of the oldest pieces of legislation regarding resource management and demonstrates the environmental foresight of early policy makers. Under the Act land must not be overgrazed and approvals must be sought to cultivate, subdivide, or transfer the lease. Lessees can be ordered to destock areas or rehabilitate damaged areas. Most leases are perpetual but the right to lease can be bought and sold. Rents are annual and are based on the total area of the property and the environmental impact of the land use (DNR 2006).

Only 8% of the Western Division lease area in the Shire is cleared; primarily for grazing. By comparison approximately 40% of the freehold land in the Shire (primarily in the Central Division) has been cleared for cultivation (DNR 2006).

3.3.2 Catchment management areas

The Western land lease area of the Shire falls within the Western Catchment Management Area. Catchment Management Areas are overseen by Catchment Management Authorities, a level of government intermediate between local and state. They have restricted responsibilities in the areas
of water and land clearance. Seven member boards in each of the 13 Catchment Management Areas across the state administer water and native vegetation regulations, but do not enforce them.

The town of Walgett falls within the Namoi CMA. Walgett Shire also encompasses three other catchment management areas: Western, Border Rivers-Gwydir and Central West (Figure 3.5).

![Figure 3.5 Catchment Management Areas within the boundaries of Walgett Shire](Source: after Walgett Shire Council, 2008: Map 3.2).

All of the CMAs represented in the Shire, except for the Western, have less intact native vegetation, and greater non-native cover, than the State average (Figure 3.6)
Areas to the east and south of Walgett in particular have greater non-native cover, or a native/non-native mosaic, consistent with the land being under more intensive agricultural production (Figure 3.7). The Western CMA by contrast has over 90% intact native vegetation.
3.4 Climate

The climate of the region is semi-arid. Climate characteristics include high summer temperatures, low and erratic rainfall and high evaporation rates that can exceed the rainfall. Temperatures peak in the summer months, with a mean maximum temperature of 35°C. Lowest temperatures are experienced on winter nights, which can drop below freezing. The mean minimum temperature in July is 4.2°C (BOM Monthly Climate Statistics, 2009).

The average yearly rainfall is 511mm, with a major summer peak and minor peak in May-July. The average figure conceals great variability. Floods inundated much of the Shire during the 1970s. The town of Walgett is protected by levee banks. The Shire more commonly experiences extended dry periods and at the time of interview was marginally drought declared. According to CSIRO climate change models the area is forecast to experience drier and warmer climate in the future (CSIRO, 2007).

3.5 Ecology

There are a number of rivers including the Barwon, Namoi, Macquarie, Castlereagh, Narran and Moonie rivers. At the time of interview most of the rivers were dry (Figure 3.8). Landform is predominantly floodplain, with an elevation between 120 and 145 m above sea level. Soils vary greatly from rich black self-mulching to red clay and sandy ridges (Walgett SOE 2007).

The region has significant areas of remnant vegetation which is primarily grassland (e.g. Mitchell grass (Astrebla spp.) and trees. Dominant tree species include Eucalyptus populnea (bimble box), Callitris glaucohylia (white cypress pine), Eucalyptus microtheca (coolibah), Eucalyptus largiflorens (black box) and Eucalyptus camaldulensis (river red gum) (Walgett SOE 2007). Some species, like Coolibah-BlackBox woodlands, are endangered while other tree species may be considered native weeds. Some introduced tree species, like the Leopard Tree (also known as Brazilian Ironwood), have also become a feature of the landscape (Figure 3.9).
Order with and without the law

Figure 3.8: The Barwon River (Photo: November 2009)

Figure 3.9 *Caesalpinia ferrea* or Leopard Tree (Photo: November 2009)
There are 164 bird species including the endangered Red Tailed Black Cockatoo. Within the Shire there is about 250 square kilometres (25,000 hectares) of Nature Reserves and National Parks and 36 square kilometres (3,600 hectares) of State Forest. Notably these include the Narran Lake, Pilliga state forest and the Macquarie marshes.

- **Narran Lake** and floodplain wetland complex, situated 96 km west of Walgett, is one of Australia's largest natural inland lakes and is listed as a Ramsar Wetland of International Importance. The ecosystem is a terminal system of the Narran River and the Condamine-Balonne Catchment River and consists of four distinct lakes and a complex network of river channels that traverse a large floodplain. In April 2008, the Murray Darling Basin Commission purchased 10,423 mega litres of water from a private storage in Queensland to provide water to the Narran Lakes to sustain water levels in the Lake system during a rare bird-breeding event. The breeding event was the largest observed in the area in nine years. It was initiated at lower than usual inflows and during the hottest period of the year. Low water levels in the past led to mass desertion of nests and high chick mortality (Kingsford et al, 2008). There was a brief window of opportunity to intervene and maintain water levels long enough for the chicks to fledge. Farmers interviewed within the present study were in favour of this initiative.

- The **Pilliga State Forest** is approximately 400,000ha of Cypress Pine and Ironbarks. The area is managed for timber production. It is also known for its artesian bore baths, salt caves and unique flora and fauna. Pilliga has over 200 bird species, 25 native mammals, 18 bats and over 60 reptile species. Pilliga provides habitat for endangered species such as Koala, Mallee Fowl, Glossy Black Cockatoo, Regent Honeyeater, Black-striped Wallaby, Rufous Bettong, Pale-headed Snake and the rare Pilliga Mouse.

- The **Macquarie Marshes** cover about 200,000ha at the lower end of the Macquarie River and is one of the largest remaining inland semi-permanent wetlands in South-eastern Australia. The marshes are recognised on the Ramsar Convention as a Wetland of international importance. The Marshes contain extensive areas of common reed, cumbungi, river redgum woodlands, coolabah woodlands and water couch grasslands. The Marshes also support a wide range of animals including over 200 bird species such as Egrets and Ibis. The Macquarie Marshes Nature Reserve contains 19,842ha and is managed by the NSW National Parks and Wildlife Service. The remaining 90% is privately managed, predominantly for agriculture.

### 3.6 Environmental issues for the Walgett Shire

The main environmental concerns for the Walgett shire are:

- **Native vegetation and land clearing**

A number of types of woodlands that exist within the Shire have been extensively cleared and modified since European settlement. Fragmentation, overgrazing, weed invasion and alteration of flood regimes can threaten the long term viability of ecological communities (Walgett SOE 2007).

Many landholders would like the opportunity to clear additional land to improve their farming operation. This has been encouraged by progressive improvements in cultivation techniques such as no-till cultivation that preserves soil moisture and maximises crop yields, as well as by the ongoing comparatively low returns from sheep and cattle grazing (Walgett SOE 2007).

However, there are a range of land degradation issues that can arise from inappropriate land clearing, including:
Soil erosion – The removal of endemic vegetation and cropping of marginal lands can increase rates of soil erosion. Drought conditions can exacerbate rates of soil erosion.

Dryland salinity – Clearing reduces the abundance of deep rooted perennial vegetation which is replaced with comparatively shallow rooted crops and pastures. This can facilitate rising water tables.

Loss of flora and fauna – Clearing reduces the extent and diversity of native vegetation communities, and habitat for native fauna. Some plant and animal species cannot adapt to changed environmental conditions.

Water quality degradation – Clearing and cropping near watercourses can reduce surface water quality by increasing soil erosion and sediment loads within watercourses, and can allow pesticides and fertilisers to flow into watercourses.

Chemical alteration of soil – Removal of native vegetation and its replacement with a grazing or cropping system can change the level of organic carbon and potentially increase the amount of pesticides and fertilisers, or alter the nature of biological activity in the soil.

Weed establishment – The elimination of native vegetation can often result in an increase in the variety and density of weeds (Walgett SOE 2007).

Current native vegetation legislation and policy in NSW aims to end broad scale clearing, unless it improves or maintains environmental outcomes, and encourage revegetation and rehabilitation of land with native vegetation. Clearing can only be undertaken in accordance with development consent or consent in a Property Vegetation Plan (PVP) (Walgett SOE 2007).

**Weeds**

Weeds are a significant problem in the region, causing challenges to both environmental sustainability and economic viability of farm business. Management of weeds by landholders is regulated by the Noxious Weeds Act 1993, which imposes positive responsibilities to control weeds, as well as national legislation (Environmental Protection and Biodiversity Conservation Act 1999). The main weeds of concern include Parkinsonia, Mesquite, Parthenium weed, Prickly acacia, African boxthorn, Golden Dodder, Johnson grass, Lippia, Hudson’s Pear, Desert rice flower, Noogoora and Bathurst burr. Growth and distribution may be exacerbated in times of drought. Weeds are believed to be imported into the district on headers, other equipment and domestic stock transports, which has increased in response to the prolonged drought (Braysher 2005).

**Woody weeds**

Some native plants have exceeded their natural population balance and may be considered to be woody weeds or invasive native scrub. The density of these woody weeds stifles the growth of native pasture species, causing significant soil degradation and reduced biodiversity (McIvor and MacLeod 2004). This is one of the major weed problems in the region, and their management is regulated under the Native Vegetation Act 2003. Invasive native scrub species are able to be cleared but only after landholders have made Property Vegetation Plans (PVPs). The main species of concern are Turpentine (*Eremophila sturtii*), Budda or false Sandalwood (*Eremophila mitchellii*), Broadleaf hopbush (*Dodonaea viscosa subsp. spatulata*), Narrow leaf hopbush (*Dodonaea viscosa subsp. angustissima*), Punty bush (Senna form taxon ‘filifolia’) and Silver cassia (Senna form taxon ‘artemisiodes’) (Braysher 2005). All of these are listed as invasive native species with Catchment Management Authorities within the Walgett Shire.

Patrick et al (2009) in a study of 48 landholders in the Walgett Shire found farmers considered woody weeds to be a unique and important problem in the area which reduces biodiversity and productivity. An abundance of trees can ‘bind up’ the soil to form a solid claypan where water and nutrients cannot enter. Farmers were adamant that environmental management on this country requires grazing and weed control. Almost all of the participants (93 per cent) believed that
government is more concerned with regulation than real environmental management and fails to show appropriate leadership in the conservation debate.

A more recent survey of landholders’ farm management practices in the Western CMA (of which Walgett is a part) (EBC 2009) found 66% of respondents had problems with woody weeds affecting an average of 33% of their land. Just over half (55%) had tried to manage weeds through mechanical (58%) or chemical (53%) means.

- **Pest animals**

The main pest animals are foxes, feral pigs, rabbits, and dogs, and cats. Native animals that cause difficulties for farmers include crows and wedge tail eagles and kangaroos. However, the impact from pest animals has lessened due to persistent drought (Braysher 2005).

- **Water quality**

River water is used for irrigation, stock and domestic water supplies as well as urban requirements. As the region is semi arid and downstream from many water users including cotton irrigators, water volume and quality varies considerably. Occasional blue green algae blooms in rivers degrade water quality. This is monitored by local authorities and by the actions by landholders and CMAs (Walgett SOE 2007).

- **Sustaining groundwater**

Flows from bores and artesian pressure have declined considerably over the last 100 years. In some cases, bores that originally flowed at 2500 mega litres per year have now ceased to flow, or flow at reduced rates. Most flowing bores deliver water to bore drains, where up to 95% is wasted through evaporation, seepage and breakouts. Many bores discharge large volumes of water into watercourses and swamps.

Although the artesian water is not high in salt content (500 to 1500 parts per million), the large volume being delivered to the surface but not used is adding about 150,000 tonnes of salt to the NSW landscape each year, eventually contributing to salinity in the Murray-Darling system. This is currently being addressed by a Government grants initiative for landholders to cap and pipe the bores.

### 3.6.1 Participants’ views of environmental issues

Participants in the present study were asked to nominate what they consider to be the main environmental problems in the area. An agency representative mentioned overstocking and overgrazing. An agronomist summarised the main issues as water quality and riverine environments, encroaching native scrub, particularly in the west of the Shire, while over-clearing is becoming an issue in the east. Another agronomist agreed that protection of the riparian zone was important for water quality while over-grazing could be an issue in the west of the Shire, given adequate rainfall. They also acknowledged the progress made by farmers in reducing some of the major historic issues such as erosion through no-till farming.

- **Weeds**

Weeds were a primary concern for landholders interviewed. Roly-poly (*Sclerolaena muricata*) is a native species but it has become invasive (Figure 3.11). Farmers find it difficult to manage and it is not suitable for stock feed. One farmer said that it “should be on the noxious weed list”. Roly-poly is listed as an invasive native species with the CMAs in the Walgett Shire and therefore it can be removed provided a Property Vegetation Plan (PVP) is in place. Other native species which have become weeds locally, such as Mimosa (*Acacia farnesiana*) and Galvanised Burr (*Sclerolaena birchii*), are also listed invasive native species. All are difficult to control. An agronomist said:
Roly-poly is always a big concern. Towards Narrabri, certain areas have Mimosa and that’s a real threat. It’s bloody hard to control.

Weed management is one of the chief motivations for land clearing:

The Galvanised burr is our biggest thing, that and Bathurst burr. We’ve slashed it and that keeps it down but it’s very invasive. I don’t even know where it comes from but it’s a terrible burden. It was one of the reasons I wanted to get the paddocks cleared up so I can get rid of the Galvanised Burr because it just takes over.

Bathurst burr (*Xanthium spinosum*) is an introduced species and a declared noxious weed in NSW.

**Figure 3.10 Sclerolaena muricata or Roly Poly (Photo: November 2009)**

- **Land clearing**

The main environmental issue identified by members of this community were concerns regarding the restrictions on land clearing. The extent of removal of native cover in the region and the movement from predominantly grazing to farming in the last twenty years has focused regulatory attention on retaining vegetation for environmental conservation. Legislation to limit land clearance was introduced in 1995. This issue pervaded every interview. As one farmer stated:

*Not being able to clear is our biggest problem and I think most folks you talk to will say that.*

Many farmers were concerned that government was regulating the issue as if agricultural production was antithetical to conservation. Most agreed that land clearing needed to be regulated but they also thought that land clearing should be allowed to assist food production, farm business and the broader economy, as long as viable areas of remnants were set aside or revegetated. Viability was considered in environmental as well as economic terms. For example, some thought that a requirement that 10-25% of each property should be under native vegetation would be appropriate. Such a requirement would certainly address the concerns of some that properties which had been totally cleared were unaffected by current regulations. Several were adamant that current regulations were hampering their businesses with little resultant benefit for the
environment. Land clearing laws were perceived as impeding good farm management by stopping the removal of woody weeds:

> On some places, the trees are so thick you can’t ride a motor bike between them... There is no ground cover. If I was a lizard or a gecko, a skink or whatever I know where I’d rather be - not in a dense forest with no ground cover ’cause that’s where a bird is going to get you, or a fox.

Single paddock trees were also identified as an issue. An agronomist explained that these had little ecological value while imposing costs on farm business:

> You have a trade off between the environmental outcomes that you would like to have against the efficiencies of the business you want to operate. Trees aren’t highly valued in farming... That’s an area that needs to be targeted. Collectively, there needs to be clumps of trees or windbreaks on the appropriate scale and farmers should be encouraged to put that back in the landscape. Agronomically, single trees in farming - we don’t want them. Robust clumps are fine. Single trees are just a disaster.

Farmers in this region believe that the current legislation is too restrictive, but acknowledge the need to preserve the environment; this was also borne out by their farm management practices.

### 3.7 Farm management: environmental conservation and innovation

Many farmers in the area conserve environmental areas of their property for both public and private good reasons. The present study found support for Patrick et al’s (2009) finding that farmers in the Walgett district undertake many activities that improve or maintain the environmental quality of their land. Several participants commented that environmental conservation came naturally to most farmers and as a land stewardship ethic was already present it did not have to be legislated for. One farmer observed:

> Most farmers look after their land because that’s what they do. They don’t really need a financial incentive. From a lifestyle perspective, I like to be able to drive around my farm, and have areas of timber where we are able to maintain native flora and fauna because I do like having that around.

Many farmers have fenced off wildlife corridors and rivers. One noted that active management of these areas was essential:

> I’m not a believer of locking areas up. I think it needs to be managed, even just to strategic graze for a few days twice a year. I think the country responds to it. Grazing for profit and rotational grazing - the research shows it’s good for biodiversity as well as groundcover and deep rooted perennial grasses and things like that.

Farmers described themselves as naturally well disposed towards conservation and better land management because it was in their economic interest as well as part of their land stewardship ethic. Prescriptive regulation was in the main perceived to be unnecessary and observed to be counter-productive. Farmers saw themselves as proactive in adopting best practice and natural diffusion could be relied upon to disseminate new techniques. Farmers would be convinced by the improvements evident on neighbouring properties. One farmer observed:

> People have seen the benefits of fencing the river... Farmers who were previously a bit reluctant are now saying, we want to see it fenced from Come-by-Chance to Walgett. They can see the benefits and their river banks are coming back.

The same farmer noted wryly that “mind you, we haven’t had a big flood.” Destruction of fences during times of high water flow may moderate support for riverine fencing, since support for land management practices, be they for conservation, production or both, was highly dependent on there being evident benefits. This was reiterated in discussions around on-farm innovation.
3.7.1 Farm innovation and conservation: individual initiatives

The Walgett farming community is widely known and respected for their innovation in conservation farming within a harsh semi-arid environment. These farmers were leaders in no-till cropping systems in New South Wales and have successfully produced crops despite ongoing drought. As one farmer described the challenge:

We've got two natural resources; a magnificent soil-type and a variable rainfall – up and down like a yoyo – it varies six to thirty-six inches here. The only certain thing in Walgett is the uncertainty. But within that framework, we produce in surplus.

No-till (also known as zero-till and minimum-till) farming is a win: win for farming and the environment. It reduces costs and erosion. When combined with stubble retention it improves soil structure and maximises soil moisture. There are also biodiversity gains, as this farmer noted:

I think we’re all getting into the no till farming. You see the odd bloke still doing it the old fashioned way and ploughing the hell out of his land and spraying. There’s no biodiversity whatsoever in that land. You’re flat out getting anything out of it. Today we’re better educated about biodiversity, what’s on top of the soil, what’s beneath the soil and how to keep that flow system going.

A survey of landholders’ farm management practices in the Western CMA (EBC 2009) found no tillage or one pass sowing was the most common cultivation procedure by 51% of landholders on 53% of their cropping land. Stubble retention was the most common cropping practice, adopted by 78% of participants. Others included crop rotation (61%), soil testing (57%) and selective grazing (50%). Almost all (97%) had adjusted stocking rates to better manage pastures in times of drought, by reducing numbers to a core herd (82%) or moving stock off their property (46%). Access to watering points was controlled by 65% to control stock movements. Most tried to maximise groundcover and the average groundcover maintained in paddocks was 55%.

Farmers in the present study were proud of their reputation as leaders and successful producers. As well as no-till, cell grazing, direct drilling and the generation of Mitchell grass pastures were identified as other main innovations which benefitted the environment and production. All of these practices had experienced accelerated adoption through ‘over-the-fence’ learning:

A neighbour went to cell grazing. All he runs is cattle, and he just moves them continuously -his place tends to grass up. Everyone notices. We’re quick to accept change especially if it’s an obvious benefit. If it’s some hare-brained scheme everyone knows it’s not going to work but if it’s an idea that’s got merit people will try it.

New practices were also dependent upon there being several leaders or innovators within the community who had the willingness and capacity to carry the risk of trialling and adoption:

There is a lot of over the fence watching. Let the pioneers get the arrows in the back. Like the WeedSeeker. The bigger growers do it first because they can afford it and can afford to take the risk. Others think that’s great we would love to do that but we are not in the financial position at the moment. We are trying to talk our spray contractor into it. I think people wait and see if it works.

WeedSeeker is a selective spot spray system for herbicide application which reduces chemicals in the environment. There were some farmers who remained more traditional and uninterested in change. Age and labour were identified as limiting factors. Asked what the community reaction to cell grazing techniques, one farmer responded:

My impression is the older farmers think it’s all been done before and it never worked. Then you have the younger farmers my son’s age, he’s 30 he thinks we should be trying new things. They are enthusiastic about making money quicker. It’s getting harder and harder to manage a big place the old fashioned way. We have to come up with new ideas and be a bit innovative.

One farmer compared current practices with old:
My father looked up for rain. I look down. I use a moisture probe in the ground and that’s one hell of a difference in running the land. I have a far better system than what my father had. He was totally reliant on the Lord and what fell. What we’ve done, we take what the good Lord lets us have and try and store it.

An agronomist noted that agricultural restructuring as well as generational change in the district was facilitating major reform in farm management practices:

When I first came here I was the only agronomist. Agronomy is now a big industry here. The rural decline has seen more and more farms bought out by neighbours. As farmers get bigger, they do less and less of day to day stuff and tend to rely more and more on people like myself.

There has been a generational change last 15 years. Half the growers I’m now dealing with younger than me. That’s rewarding. Typically the people coming back on farms have been to uni, gone and done trades, worked other places, been financial planners in Sydney, and been round the world. They come from all backgrounds and they bring a huge mix of skills and experiences back to the district, which is great. Their idea of how they run the farm is very different to their parents who were much more hands on. Most of the parents are essentially graziers. The younger farmers are looking at farming and at the new gear that costs a fortune several times year. They have to managing that plus their life. They are happy to outsource agronomy and a book keeper, accountant, and lawyer and set their businesses up with the right support structures to make it function. Then I have people who do everything themselves. I don’t know what is best but the movement is to people who do less themselves.

He added that while the district had been successful there was still room for improvement:

We are the kings of managing variability. I don’t think livestock does it well but farming systems that we have developed manage variability well. I am sure there are improvements and bits we don’t understand that have poor environmental outcomes. For example fallows where you can’t do anything because of lack of rainfall. Fallow is a curse for storing carbon but nature has huge fallows in this part of the world. Our good grasslands from a perennial point a view goes through a drought, soil cracks that you could put a shovel in. Native grasses and trees struggle to survive on those heavily cracking soils. It’s a tough environment.

One participant forecast other innovations required in the future:

There is an agronomy group: it’s all very cutting edge and interested in moving cropping forward. Unfortunately our cropping system is heavily dependent on chemicals. The biggest leap forward has been the WeedSeeker – it just sprays what it sees. There is probably a whole area of research that needs to be done on broad acre composting and introducing livestock into a system so that they eat the weeds. The difficulty is we are classed as semi-arid and a lot of those farming systems need water to kick start them.

Other ideas with merit included practices with environmental benefits, such as reducing stocking rates:

Dad used to stock it up fairly well. He ran a lot more sheep, double what I run. I took over from Dad in 1984 and I now run one sheep to three acres. And when I started stocking lighter that’s when the Budda and the Wilga and the scrub - as well as the rabbits really increased.

We had scalded country, clay pan country and ever since I took over and lightened the stocking rate up that clay pan slowly has rejuvenated. It’s still a horrible bit of ground but a lot more vegetation grew on it because there weren’t so many mouths on it. Probably the worst thing you can do here is overstock - that’s the worst damage you can do to your paddocks.

Environmental constraints, particular drought, had also been a significant driver of new practices:

Feed-lotting is happening for two reasons. One, the price of the land’s going up, so it’s dearer to graze than out in the paddocks and two, the capital value of those animals on the world market has risen dramatically. The rest of the world for half the year shuts up its animals because it’s too cold. Here we have drought. Normally you’re forced to sell some stock; you’ve got to reduce your carrying capacity. What’s happened now in this drought is quite remarkable. We take stock off
the landscape when it gets dry, and we shut the animals up so they’re not walking condition off, so we don’t have to agist them or put them on the road. That’s happened in the cattle and sheep industry, particularly in these mixed-farming zones where you can grow crops and hay, as well as run stock.

The reintroduction of native pasture such as Mitchell Grass (Figure 3.13) provides a telling example of innovation. One of the local farmers has been growing Mitchell grass and other grasses since the early 1990s. He now sells Mitchell grass seed and Mitchell grass bales to other landholders. He described the process:

Back in my Father’s day this place was all Mitchell Grass. In the 1975 floods, there was four foot water all over the place because the Coonamble Road held the water back on us like a dam and it just drowned everything. And drought is just the worst thing because it degrades the grasses. The stock dig the grass roots out. After it rains, it doesn’t give the grass a chance to come back. This place was a dustbowl, there was no grass on it because of floods and overstocking and we needed to put it back. If you don’t have grass, you don’t graze. So I got a patch of Mitchell Grass from Burren Junction and put a nursery block in. I nurtured this block and harvested it every year and when I got enough seed together I sowed a 1200 acre nursery block which I harvest and spread it on our property.

I made the commitment to destock for two years and sowed the place with grass and took a short term loss for the long term gain and it’s paid huge benefits now. And because we’ve brought our cell grazing technique into it and nurtured it, every year the grass just gets better, and better. We’re running more stock than we’ve ever run before.

Figure 3.12 Mitchell grass Astrebla spp (Photo: November 2009)

The last lot of cattle before we had the grass, were some Hereford heifers and we wanted to keep them going and we were down to dry licks and we said; never again. So we got them through to the point of calving, sold them and we haven’t fed anything at any stage after that. We always move them on, if we run out of grass, they’re gone. I would rather have grass and looking for stock, than have stock looking for grass. Once our grasses get down to five to six inches high we take the stock off. We do the hard calls. If it’s getting dry, we sell and after the next rainfall event we let all the grasses seed out before we bring stock back in.

The regenerating of grasses on the place and not stocking the country down to ground level has environment benefits all over. All the regenerated areas are special areas because they have brought back birds, we have got budgies again. We haven’t seen bird life on this place since 1970. All our grazing areas are special conservation areas. David Phelps from Longreach is a Mitchell
Grass guru and he’s found the benefits for stocking far outweigh leaving it alone. So if you manage it properly you’re actually doing the environment a favour.

Asked what the community’s reactions to these initiatives were, he stated:

When I destocked, people just shook their head, and said: ‘you’ve got to pay your bills.’ When I was sowing Mitchell Grass they said: ‘why don’t you sell the seed it’s worth so much more money?’ - and I said if I can’t get it to grow on my own property, it’s no good promoting it. And then when we did well, they classified us as lucky – but it was a management decision. Another reaction was neighbours stock were getting on our place. They didn’t really see that as a crime because we had so much grass and didn’t have anything to eat it off.

3.7.2 Farm innovation and conservation: community initiatives

The innovation of local farmers is evident in the development of the Walgett Sustainable Agricultural Group (WSAG) in 1995. This collectivity of local landholders ended in 2006 having achieved significant changes to farming practices in the district. A local agronomist explained.

WSAG was very successful and worked for 11 years and is an example of something that was born out of adversity. The wool industry crashed and people who were big wool producers said: ‘there is no future in what we have been doing for the last 150 years’. These big producers got rid of all the sheep and then said: ‘now what are we going to do to survive?’ Typically they had all been farming but would not call themselves farmers - they had contractors or sharefarmers. There was no money in wool, there was no real sheep meat industry then and cattle have always been a bit ‘how ya goin’. They were big enough to say ‘we are going farming but we know nothing about it so we need to employ professional advice’ and that was way out there. WSAG ran four staff. We ran into the 2002 drought and it became too difficult to be an agronomist at a group level. They were just too divergent. The best thing happened – it folded and growers who wanted good advice got it and have continued on. Those who wouldn’t or couldn’t afford it have left. You can’t keep structures going if the reason it began has gone. Things don’t always stay the same. It was a good group. What we did with agronomy and system changes worked really well and we got to where we wanted to go.

The Lower Plan/Pagan Creek Conservation Group is a current group of landholders who have developed a multi-farm vegetation management plan covering an area of approximately 41,000ha between the Barwon and Namoi Rivers, east of Walgett (Figure 3.11). The plan includes proposals to clear vegetation for environmental weed control, landscape rehabilitation, pasture re-establishment and crop establishment. A member stated:

There is a lot of power in a group in what you can achieve and the resources you bring to a community and the research you can get done.

3.8 Pressures to improve farm management

Participants were asked whether they thought there was pressure being placed on farmers to undertake environmentally sustainable practices on their land. A government agency representative believed that improved understanding of human impact on the landscape, particularly in recent times climate change, had led to increased pressure to do better:

I think there is pressure on farmers because there’s a lot of talk about the future. Everyone used to bury their head in the sand about climate change before but now we’re hearing more and more about it. It’s to the point where you can’t ignore it, and I think people are seeing results when taking on new ideas like cell grazing. People are looking over the fence and thinking that’s great.

Most participants thought that there was increasing external pressure, but felt that in the main it derived from the opinions of misinformed city-dwellers and therefore was misplaced. There was some bitterness that neither agriculture nor progress in the area of sustainable farming appeared to
be properly appreciated by urban populations. Many believed negative press perpetuated ignorance of both agriculture and the environment. Popular opinion in turn was understood to influence policy makers, translating into increased regulation of farmers:

_The biggest problem is uninformed people who are not out here at the coal face - that are making decisions on emotive reasons and whether it looks nice - instead of actually coming out here and spending a few days and seeing what’s actually going on before making decisions._

There was resistance to government regulating farmer’s activities on private land through command and control. One farmer felt that this type of pressure was unwarranted and that support would be far more effective:

_There is a huge amount of pressure but there is not a lot of support. Most farmers are doing the right thing. There is not a lot of recognition for that. This area has a really bad name for land clearing but there is a hell of a lot of good farmers. People have been able to survive out here because they have taken on new technology. It’s happened with conservation farming and it’s now happening with grazing._

A local agronomist observed that the rest of the state was free-riding on the local community:

_There is a lot of environmental pressure preventing farmers from doing a lot of things which are not necessarily fair. Just because in other areas they’ve cut every single tree down, this area has been unfairly punished because it’s late in its development. This area could be a lot more productive if there was a bit of sensible environmental legislation. There are a lot of trees that are just a jolly nuisance. So we’re stuck and I think that’s a real issue. Last year this area produced a million tonnes of grain. This year, six or seven hundred thousand tonnes. That’s two big years compared to the rest of the State - but its penalised for what the rest of the state did a hundred years earlier._

Participants thought that little external pressure was required in order for improvements to be realised, since farmers’ internal motivations could be largely relied upon to do the right thing. Many felt that environmental problems which did arise could be better managed within the community, since locals had a better understanding of the local environment and its constraints. However the next section makes clear that although peer pressure is a dominant force, locals may be reluctant to confront each other over perceived poor land management.

### 3.9 Order without law: Managing problems within the community

Community cohesion in the district was described as especially high. Participants’ stressed there were also significant benefits in maintaining a cohesive community.

_We all help one and other out. In floods and that. We have helped pull neighbours sheep out and vice versa. So it’s a pretty good bunch. I think its Walgett all over is very much like that. Everyone lends a helping hand especially in a disaster._

One farmer attributed the cohesiveness to a lower population and the sound economic health of agriculture locally:

_I would think that this area is quite unique in how the landowners combine to solve common problems. You’ve got bigger areas and you’ve got not as many people. The less people you put in the fight the less fight you have. And the other thing you’ve got an economy of scale of business practice where they’re actually working the land full time themselves, the wife isn’t out working, they’re not out doing other part time jobs. In other words the economic unit is economically big enough, sound enough to have them there all the time attending to their properties. And that makes one hell of a difference to running the land. People ask me why are the farmers here good? One of the reasons why they’re good is they’re at it all the time. We’ve got no ‘lifestyle’ farmers here._
Lifestyle farmers are hobby farmers who are not dependent upon agriculture for income. The same farmer made the important point that reactionary resistance to change was lower since many were cropping where their fathers once grazed. These farmers had already made major operational transformations so change was welcomed rather than feared and further external pressure unnecessary. The rapid adoption of no-till practices was an example:

*The other big thing we've got here is very important. We were the last to start farming and we'll be the last to stop. We haven't got any opposition to the way the land was run so people owning land here accept changes in land use far more readily than a lot of other areas in Australia. People didn't have to contend to what Dad had done, what Dad had said. That's why they took to no-till farming because all our Dads were sole graziers.*

Participants were asked if they experienced environmental problems due to land use changes or poor land management on neighbouring properties. Spray drift was the most frequently mentioned issue, and both croppers and graziers were mentioned:

*Look it's hard because everyone impacts one another... Graziers would be the biggest culprits for spray drift. They might be spraying their pastures and they may not have the best gear to do it.*

Other issues identified were weeds management, poor fencing leading to stock loss and pests, and upstream water use and diversion.

To explore the ways in which the community managed poor land management practices, participants were asked if someone in their district was not doing the right thing, such as neglecting weeds, and how the community had responded. Most participants acknowledged that there were bad land managers in the district and overstocking in particular was cited as an example. Few however said that there would be a direct response from the community. The norm appeared to be for landholders to keep to themselves and avoid direct confrontation with a neighbour. Indirect action, however, such as gossip and ostracism, were tools used to express social disapproval. An agronomist observed that people would pass judgement but rarely take direct action:

*I don't know of people actually dobbing people in but I know that people pass judgment on neighbours doing the wrong thing such as clearing land close to a river.*

Participants were asked if they had any thoughts on the best way to manage these types of situations and maintain peace within the community. One service provider stated:

*It’s always talk behind their backs. It’s not a done thing to walk up and say look ....How do you tell someone you need to de-stock? People get offended by that so I don’t know how you’d go about it.*

There were no guaranteed benefits in making a complaint and these would be likely to be outweighed by the costs in a small community:

*If you had a farmer down the road that had over stocked his sheep and the place is all bare and there’s dust blowing off the place, I wouldn’t say anything because you’re only going to make enemies in a small area. But there must be authorities that get on to that or neighbours or close friends - but some people can’t be told. Living in the district there’s plenty of time for someone to get you back like through the kids at school - if you dob someone in.*

Others felt that finger-pointing would be unwise since few were perfect and the culprit may have had little choice:

*I wouldn’t talk to them. I’d just whinge behind their back. It depends on how well you know people. I wouldn’t feel comfortable. There are things I am not doing perfectly either... I could knock on this farmer’s door and say you’re flogging your country mate– I will probably make an enemy and probably won’t do anything about it anyway. He might have three kids at boarding school and the bank leaning on him.*
Financial constraints were viewed as factors which limited farm management capacity and therefore the blame attributable for environmental problems. One farmer acknowledged that financial stress limits what farmers can do and therefore there is a need for support rather than criticism:

*If you asked a farmer who lives on the river, he probably grew up on the river and would be sad about what’s been happening to the river, the Red gums dying. Sometimes lack of money gets in the way and we are not as good as we could be but you hope to get there. You have to be in the black to be green. When you are cash strapped you take short cuts. Training goes out of the window. But this is the time that you should be getting off your property and getting some fresh ideas and thinking. It’s not just the training, its mixing with people who have travelled and a done other things. But people bunker down. People are running businesses and they have to be given a reason to give it a go.*

An agronomist believed that the CMAs had a vital and important function in assisting where farmers were financially or physically unable to manage effectively as they might without these constraints:

*The CMAs have been good with their funding where they look at a particular issue and then allocate funding towards that so you can have somebody on their own who would not be able to do anything but if they are targeted with funding programs they can commit time energy and resources they can still be part of it. That has been quite successful.*

Education via extension was regarded by some as essential in changing practices. One participant discussed some of the pros and cons:

*There are two types of people: those happy with change and want to educate themselves and then there’s those that just play along and go off hearsay. Everyone is quick to say a negative thing about change rather than a positive unless it’s really working. I haven’t heard a lot of negative comments about cell grazing and there are lots of good opportunities out there for landholders with regards to funding and doing courses such as grazing for profit. If you own your own property you can get funding to help you go and do these courses, but if you’re not interested you’ll never find out.*

*It’s easy to sling off about something that goes wrong, but there’s always a reason why it didn’t. It might have been human error, might have been seasonal, and might have been a completely preposterous project to start with. Education has certainly changed my views. The more I do courses and learn about the environment you have a different perspective - looking at what has worked and promoting that and making people aware of what the benefits are for them and for the environment.*

*You could go around in a low profile manner talking to people face to face, and find out how they’re going with things and make them aware of what is on offer in education. A lot of people are stubborn; they’ve always done it this way, and always will. People do get attached to their livelihood and they become emotionally involved and that starts warping their decisions. There’s no separation between a business and the lifestyle.*

Another farmer observed that pride, as well as denial, may also get in the way:

*One of the reasons farmers themselves into predicaments is that they haven’t got access to or won’t allow agronomists or other consultants to give advice because they don’t see it as a problem. And if they do see it as a problem they’re too proud to say I’ve got no feed for my sheep, I’ve got trees turning into a forest, I’ve got no grass. They just keep going and hope that they’ll wake up one morning and it will all be fixed.*

The environment was acknowledged as another confounding factor, as it was highly changeable and uncertain. Today’s best practice may be tomorrow’s poor practice. One farmer recognised that where the science is unsure criticism needed to be hedged:

*It’s really hard this environment. There is a paddock which was perfect Mitchell grass country and few years ago it was all turnip and it was grazed to dirt - and turned into Mitchell grass and now that paddock - in 12 months - is full of roly-poly. There is a lot of stuff we don’t know. The ecology of the grasslands and how they respond, there is a lot of research that needs to be done.*
Another observed that substandard practice was in the eye of the beholder:

Most people are flat out controlling weeds unless they put on a lot of chemical or are into intense rotational grazing. We have a neighbour and he lets the weeds grow on his cropping country and he uses cattle to graze it all down. His idea is getting organic matter, manure and soil biology happening. Most agronomists in town would roll their eyes at that but who is to say he’s wrong? I’m watching - he’s an old bloke in his 70s - he’s done alright and he’s done it all his life. The only thing that makes me cranky is grazing to dirt. I’d prefer to see a paddock of weeds.

There was a common belief expressed that poor land management would self-correct over time as it would not be economically viable. The environment and the market could be relied upon to eliminate bad farming practice by a process of natural attrition:

You flog your country to an inch of its life; you are going to go broke because productivity is still market driven. There are people who are still not running this country properly and they won’t be here in the next generation. It’s as simple as that. The higher the price of land goes the more certain that’s going to happen. And it’s happening all round in rural Australia. It’s not just here.

One farmer took a business orientated view, saying that they had little sympathy for farmers who refused to adopt new practices. Instead, they waited to buy the land:

The penny doesn’t fall for some people and you know that’s probably a good thing because if there were no bad farmers you’d never be able to buy land. The bad farmers are just managing it for us at the moment.

The land can then recover. Another farmer in the far west of the Shire related a tale:

The worst thing that blokes round here can do is flog the ground - although I don’t think there are too many of them left now. We used to have a bloke round here, and they reckon he used to have a set on grass - they reckon he must have tripped over some grass when he was a kid or something - because he used to flog his place as bare as this table because he overstocked. But he died and the place was sold off a few years ago now and we had a good year in 2007 and that place came back magnificently. To see it now - there’s no burrs or rubbish. It’s just all grass.

Asked if anyone in the community had challenged the original farmer, he replied:

He’s probably not the sort of bloke you could have told anyway. I’ve no doubt someone did say to him - but surely it should have been obvious to him!... Anyway when the drought broke, he tallied the cattle up and he said: ‘oh, somebody’s been stealing me cattle.’ Everyone just said ‘don’t be bloody stupid they’re dying all over the place’ but that’s the sort of guy he was. If you said anything, all you would probably get was an argument.

Asked if people tend to mind their own business, he said:

I think it depends more on the person - but it’s more it should be that you look for yourself. Everyone used to say it, surely he can see it, the sheep don’t grow anywhere near as much wool because there’s too much competition for the feed, and they don’t rear their lambs very well. If you’ve got any nous at all, those things should be obvious to you, and you shouldn’t need someone else to tell you. I don’t know why it wasn’t obvious to him - because he wasn’t a silly bloke.

3.9.1 Damage to the commons and neighbourhood watch

One farmer however noted that some people may not be so reluctant to make complaints official. The fear of reporting by someone would influence land clearance behaviour. Public reporting is an important source of information state wide, with 434 reports made to DECCW’s Environment Line in 2008 (DECCW, 2009a). One exception to the general reluctance to confront individuals personally appeared to be in situations where a landholder’s actions materially impacted upon those of their neighbour. Participants described that the response would be tailored to the damage inflicted, the intention involved and mitigating factors, including the personality concerned and the context. A
farmer on a Western Lands Lease emphasised that approaches needed to go “softly softly” in order to avoid “more problems.” Keeping the peace was a high priority, so if a neighbour was thought to be “volatile” they would be avoided altogether:

> You see weeds in the paddock next door and you know if they don’t get on top of those weeds they will be in your paddock. So you try and encourage them to get on top of it but they are too busy or it’s not a high priority for them it’s really difficult. My husband discusses it with them. He wouldn’t make a big issue of it; he would just mention it... I think most people in this district try to get on with their neighbours and try to sort things out without making it a big issue... If we had an issue with one of our neighbours probably a phone call to start with and a sit down and have a cup of tea.

Spray drift was another example which was considered able to be dealt with within the community if there were “good neighbourly relationships.”

Another exception was in relation to travelling stock routes or reserves (TSRs) which are public lands used for droving and feed in times of drought. One farmer thought that the community would be quick to complain:

> If people had cattle on stock routes and they weren’t meant to there would be reports about that. If stock on the stock route were getting into people’s places there would be complaints about that. If there were too many weeds on the stock route there would be complaints about that.

The final exception was where the activity was being undertaken by unknown parties or parties from outside the community. The following comment was made in relation to unauthorised hunting, and neighbours were identified as being as, or more, effective than formal control mechanisms. An informal neighbourhood watch was identified as operating:

> We discussed this problem with neighbours and we all look out for each other. If the neighbour saw someone that he thought shouldn’t be there he would go and question them and the same with us. We reported it to the police but because we are so far from with either town sometimes they would respond and sometimes they were too busy.

There were other instances of activities which attracted significant concern and moral approbation and many of these were defined by participants as environmental crimes, and thus deserving of formal, in addition to informal, condemnation.

### 3.10 Environmental crime: participants’ perceptions

Participants were asked about the way the community managed problems that could be defined as environmental crimes. They were asked to describe the incidents and whether or not they considered them to be crimes. Several activities nominated were traditional crimes. For example several farmers used the example of property theft. Amongst environmental practices, chemical and waste pollution, as well as water theft, were identified by participants as environmental crimes, although in many cases with caveats. Most participants took into account factors such as intent and wilful ignorance or negligence. Without these aspects present participants were less likely to think that activities were, or should be, considered crimes. A number of common mitigating factors were identified in relation to spray drift and chemical management. Several participants reported crop losses due to spray drift in the past year. One farmer noted that as there were regulations regarding spraying, it was a crime if it resulted in damage. However he acknowledged that sometimes accidents happen and if spray drift was not deliberately caused, it would not be a crime. An agronomist thought that spray drift would only constitute a crime if it killed crops or wildlife, while noting that some of the GM crops required less chemical use and thus avoided the problem altogether. Another agronomist thought that negligence also would suffice:

> I call it an environmental crime when the person doing it knows they can do better but doesn’t want to do anything about it. It’s a crime if it results in damage. With this region going from a...
grazing base to a dry land farming base to the leaders in conservation farming techniques where our main weed control is centred on herbicide use, there is always a lag. It’s easy to jump in and start spraying but the knowledge about what you are doing and how you do it effectively without off-target drift tends to follow. I wouldn’t call it a crime except where a grower should know better.

A farmer agreed that spraying was the downside of no-till farming but that it was not a significant problem as it was in farmer’s own interests to manage chemical use:

If you want to have a no-till situation, you’ve got to use chemicals. Most of the chemicals are pretty friendly. They’ve got that pretty well organised and the sprayers are pretty well under control. If you don’t spray under the right conditions you don’t get results. Your neighbour gets a result - so basically you’re spending money and setting up your neighbours place and you’re getting a half-arsed result on your place - and then he comes back and sues you for whatever, well you’re mad.

Another farmer agreed that economic incentives would work to constrain farmers from wasting chemicals, but perhaps not contractors:

Chemicals are too dear to go blowing in the wind so people are very conscious about it. The cowboys that are operating, if they are causing spray drift, they’re going to be brought to justice pretty quickly. There’s probably been a couple of incidences of spray drift that we’ve heard of but on both occasions they were contractors, not actually landholders, who get out there and they have to spray the acres to get their dollars, and they don’t really care - whereas we don’t have contractors, we do it ourselves, so we’re paying for the chemical - so it’s up to us to do a good job because that’s the most efficient and cost effective. But contractors seem to not really have that care factor at some stage. They are getting better.

An agency officer thought that it was a crime for farmers to persist with old farming practices that negatively impacted on the environment, given all the information available on conservation farming:

I would call it a crime because that’s really hurting the environment. I’m just talking about the paddocks they’re ploughing and then they’re growing and spraying the hell out of it with all the chemicals. You’re ruining those soils and it takes a long time to build those soils back up. I couldn’t say I’ve seen it a lot but I can think of the odd individual that’s like that. Nobody owns the land. We all think we do but we’re only here for a short time and it’s very sad to see an ecosystem being killed and abused because of old fashioned practices. All the information’s out there now.

Pollution caused by more conventional means, such as rubbish dumping, was also considered to be a crime, although it was not a major issue in this region. One participant believed this was because the region had insufficient numbers of people to cause problems. One farmer observed that less people meant less surveillance.

Beyond chemical and waste pollution, environmental crimes were described as including water theft, unauthorised hunting, and land management practices such as over-clearing and overstocking. Existing regulations of these activities therefore appear to be supported by those on the ground, although the level of support varied. There was consensus amongst participants that water theft was an illegal activity. Water theft covered a wide range of activities, including harvesting of water by erecting structures on waterways. Drought and reduced flows in waterways has highlighted these practices because they have serious consequences for those downstream. Drought has also created greater incentives for water theft. One farmer whose property is on the Queensland border supported greater monitoring and enforcement of water diversion structures:

The biggest problem to be addressed is water theft. There is a whole range of structures on the river system that are unlicensed, or they are licensed but in the wrong place. The individual state governments crack down and clean up these unlicensed works to divert water from the natural flow. In our area here, there was development about 14-15 years ago, people objected, but while that was happening they put the banks up anyway and so for ten or twelve years those objections
have never ever been aired and the banks have never come down. It’s too long ago now, you can’t move them. NSW DEC never have enough staff. They don’t know where the levies are or if the levies are in the right place or the right height.

In the south west of the Shire another farmer agreed. He was concerned about structures on the Macquarie River which were inhibiting flows through his property and having environmental consequences for the marsh areas:

We told NSW Compliance about the block on the river on the neighbour’s place. We gave them the GPS co-ordinates but it took those guys five years to come and have a look at it. They turn their back on it but that’s their job. If someone messes with the water they should be right in there. I think the government started off fine, then they pulled back. The media has been on it too. You could put all their names out there but you’d get shot but it needs exposure. In the meantime there is no water in the river so you can’t forget about it. The river is my livelihood – that’s why I go on and on about it and I won’t stop until we get this thing right. It has been going for about six years. In the Land [newspaper], NSW Compliance found - of 100 blocks on the river - 28 were illegal. Four have been pulled out and 24 received warning letters to take them out. We have talked about class action – the money we have missed, but we haven’t gone any further with that.

He was very clear that the illegal damming of waterways was a crime and concluded with the definition: “If it affects other people then it’s a crime.” Another participant agreed:

I think that’s a crime. You shouldn’t change natural water ways. We’re all putting pressure on water these days because it’s getting drier and drier. And everyone’s tapping down on the water table and more bores get put down and that’s killing natural ecosystems that have existed for a long time. Also less rainfall affects them as well. We’re always battling on the TSRs with people if they’re getting a bit dry they might steal a bit of water with their tankers. I’ve had a phone call today about a creek that’s been sucked dry and now stock can’t walk there, they can’t get a drink. People are pinching water because it’s a river. People think anyone owns the river.

Water becomes like gold when it gets dry and people get a bit cut throat to get water to fill their dams. I don’t say that in a bad way, but if you haven’t got water you can’t have stock and if you’ve got a bit of feed, well if you’ve got no water your feed’s no good to you. Stock is their livelihood and that’s driving them to do what they have to do.

Drought was also identified as a factor in over-stock ing, which was also considered to be an environmental crime. People may have over-stocked in an attempt to raise income but the plight of starving animals and loss of cover made the problem more evident:

Overstocking is environmental crime because pasture goes back to bare dirt and never gets a chance to recover - even if you get a lot of rain you don’t get a full array of grasses. We are very aware that we can’t overstock our property. Because we have had so many droughts you have to supplementary feed or find agistment or sell. And now it’s an issue with the RSPCA because it’s an issue of animal welfare rather than environmental with huge fines and consequences.

Unauthorised hunting was identified as a problem whose occurrence was exacerbated by the many river systems attracting animals and increasing access throughout the region. The negative effects can be compounded through the consequences of trespass. Asked if this was an environmental crime one farmer said:

Only in the fact that they shot the animals and left them. It wasn’t to take them to the abattoir – it was a sport. The other thing was we had people come in and camping on the dams which was annoying for us because the sheep wouldn’t come in to water while they were there– so not really environmental crime but a problem.

Excessive land clearing was also considered by some to be a crime. One farmer stated:

If I flattened everything - that would be a crime. If I left a manager here and went away and there was nothing left I wouldn’t be happy. If my neighbour cleared his place and it affected me in a bad way; that would be a crime.
According to an agronomist there had not been any instances of clearing constituting environmental crime in Walgett, and that environmental damage had not been caused by any clearing taking place, but acknowledged that other people could think differently:

I don’t think any clearing I’ve seen in Walgett in the last 20 years is environmental crime. It’s people trying to improve their business. We are operating in an economic rationalist world and we have to run businesses that are profitable. As technology develops and enables us to become more efficient sometimes you have to change the landscape to operate in it. I haven’t seen people being environmental vandals and clearing next to the rivers. Most people have been pretty responsible. That doesn’t mean that someone with a different perspective wouldn’t look at what we’ve done in terms of single trees and farming country and accuse us of being environmental vandals. That’s just a position you have.

Another farmer agreed that it depended on the circumstances and found it difficult to consider all tree clearing as criminal. It was generally thought of as a farming practice that occasionally was unwise, rather than a “real crime”:

Some of the clearing would be crime, certainly. But in terms of farming in this area, I think it’s absurd to think it’s a crime when you look at real crime like burglary and all the other crimes that we experience. They go on and nothing happens. I think it’s a funny world we live in when we are starting to look at environmental crimes as such - when cutting down a tree is a bigger crime than abusing a woman or breaking into someone’s house.

Such perceptions influenced perspectives on environmental laws, discussed in the next section.

3.11 Attitudes to Environmental Laws

Participants were asked their perspectives on environmental laws and regulatory approaches. Although there was much disapproval of government, and some laws in particular, there was general agreement amongst participants that environmental objectives were generally sound and needed to be pursued. This was evident in farmer’s attitudes towards past practices, land stewardship and commitment to caring for the land for future generations. There was also a strong recognition that if the environmental facets of the landscape were not managed appropriately by farmers then farming would not be viable either:

It sort of goes hand in hand, if you don’t have a healthy environment you have no production.

However it was recognised that not everyone did the right thing. Therefore most participants agreed in principle that there still had to be some externally imposed boundaries in place. However they thought that current boundaries were too restrictive, that some were inappropriate and counterproductive, and had been established with insufficient consideration of the benefits of agricultural production and existing conservation occurring on farms. One farmer called for more balance in land clearance laws in order to support production as well as environmental ends:

You’ve got to have some laws. You can’t just have people willy-nilly knocking everything over. I don’t think you should completely exclude clearing on highly productive country. There must be some sort of balance there. They don’t let you touch anything that’s productive. Or to turn unproductive land into production. They’ll let you knock down some Sandalwood trees over there ‘cause they know you won’t make any money out of it.

Concerns for greater balance also permeated participants’ considerations of good, as well as bad, laws.

3.11.1 Good laws identified by participants

Participants were invited to provide examples of laws that they liked: laws that they thought had worked and were appropriate. An agronomist identified the benefits of regulation:
Oh there are some benefits, definitely, protecting water ways, getting better quality water. Certainly reducing run off into the rivers, water running through pastures rather than running through bare soil.

A farmer agreed and thought regulation could go further:

... certainly protecting waterways is good. I don’t see why they couldn’t have legislation where you can’t drink stock out of rivers and subsidies where they can water their stock elsewhere.

Another agronomist appreciated the benefits but thought there needed to be greater attention paid to application in practice:

I’m sure there are laws out there that are good— I just don’t know the names of them. The Protected Lands Act – prohibits certain activities on steep lands and adjacent to water ways is probably a good law. The only thing wrong with that is the 20 metres from the middle of the river but in this area it should be 220 metres. The intent is good. The Threatened Species Act with the eight point test. Again the intent of that is sound - it’s how it’s imposed on landholders’ activities that is flawed. It’s hard to get the right sort of outcomes from that sort of system.

Participants approved of regulations where there was evident need and demonstrable benefits to farms, to the environment, or to both. Laws which failed these criteria were found to be bad.

3.11.2 Bad laws identified by participants

When asked about the types of regulations participants did not like, land clearance laws was the most frequent response. While there was general agreement that laws regarding land clearance were necessary, the current regulatory apparatus was rejected. Water law and policy was also critiqued. Both types of laws were seen as in the main well-intentioned but in practice counter-productive and ineffective. Participants were also asked if they thought environmental regulations were necessary, on the mark, and fair. Land clearing laws also featured in these discussions. There was agreement that while clearing should not be uncontrolled regulation should be moderated by the needs of agriculture and requirements should be customised to local conditions. Farmers were also concerned that costs should not be borne by farmers alone but spread equitably amongst the public.

- Land clearance laws: Disconnect from reality

Land clearance laws were perceived to be ignorant of local biophysical and social conditions, and therefore unlikely to achieve their stated environmental objectives, while at the same time impeding agriculture. An agronomist maintained that land clearing laws were an ill-fit in the study area:

Some of the laws we have to live with are wrong. They don’t fit the landscape we have to live with and work with. They don’t apply to this part of the world. The Native Veg Act. There is so much about that that is wrong. That’s the one that has given us the most grief over the years.

While in implementation the restrictions do make distinctions between CMA regions these were still felt to be insufficiently discriminating. One farmer said:

The scientific committees make recommendation about whether to list vegetation as endangered like coolabah-black box but if you ran a PVP on the western part of the Shire it would be different from the east. It’s arbitrarily based on a CMA boundary, I fear the value judgements of the bureaucrats create legislation that is not representative of the community.

Coolabah-black box woodland is listed as an endangered ecological community in some parts of the state, including in the Walgett Shire, and therefore is afforded additional protection by the Threatened Species Conservation Act.

Farmers felt that land clearing laws were being made by people who lacked the requisite knowledge and understanding of farming and who were ignorant of, and failed to acknowledge, the contribution to conservation made by farmers. A farmer stated:
I love the environment, the river, the fish and the birds its beautiful but you should be able to tidy your country up by burning a log – it’s ridiculous these laws as far as I am concerned. Logs would have got burned in the old days. Lizards and snakes live in the logs - these are some of the pathetic things they have come up with without looking at the things that are real. They are trying to control nature but the lightning struck out there in the tall grass, there was no man or fire fighters to put it out - it just burnt out. The lizards will get into the ground and come back. The next thing they are in abundance – same as all the eucalypt trees shoot back up again. That’s why we are going to have huge fires here – they won’t let them back burn to clean up the rubbish. Eucalypt trees drop their limbs and that builds up and it’s fuel – the lightning burns it.

Land clearing laws were perceived to be driven by concerns in city populations divorced from the bush and disconnected from the realities of food production:

In the old days (70’s) you could clear your land as much as you needed to develop a farm. That was alright for the majority but there was a minority group (4% or 5%) who wanted to flatten the lot and that’s what caused all the trouble. People had gone too far. But you shouldn’t punish the majority because of what the minority does.

We’re a highly urbanised country so people in the cities what they consider is going on the other side of the range, is exactly what the media feed them. They talk about landcare and the first thing they show an inland lake with some birds flying across and the next shot is two dozers with a massive big chain wrecking every single tree. People think that what’s happening. And it’s rubbish. It’s not what’s happening. So the media are driving it and the politicians are living on it.

One farmer maintained that land clearing laws were “definitely not fair” because:

They’re totally out of balance. It’s politicised. We’ve been coping it left right and centre in a place like Walgett in Western NSW. Decisions are being made by people who haven’t got a clue what the local conditions are because they’re aiming at an electorate that wants to hear what they believe is the right thing, which is totally opposite to what really should be done up here and that’s been the story the last 20 years here. 10 August 95. We’ve been in trouble ever since that day.

The date quoted is when the first regulatory instrument to control land clearing, SEPP 46, discussed further later, was introduced. The woody weeds issue was frequently cited as an example of the law being out of touch with the environmental realities of the area as well as unfair. A farmer stated:

No, they’re not fair at all. I don’t think people should be fined off their places for doing it, but if they clear everything it is wrong. There is regrowth and invasive scrub that has all grown back here in my lifetime and in the last 20 to 30 years it has taken over the place and is totally useless and needs to be cleaned up. When I was 18 or 19 you could see all over this country – beautiful big trees but now they are all choking one another out in places, they are too thick. At my age now, if I’m not allowed to clean up a bit of country it’s going to be too late for me.

There appeared to be a very clear informal order operating, which was expressed as being based on common sense appraisals of practicality and equity. For example an agronomist observed:

A lot of nonsensical things like when they give permits to clear, the wood can’t be used for firewood because you’re trying to protect the wildlife and then it gets put in windrows in the paddock and burnt anyway. Sometimes it makes no sense at all.

If the law departed from what was considered sensible then it could be justifiably ignored. An agronomist declared:

I know there’s lots of incidences where people don’t abide by the law because they think it’s unreasonable and there are a lot of people who bend the rules but in the spirit of the environment they’re doing a good thing, because a lot of law can be a real dog. Like protecting roly-poly because it’s a native plant. It’s as good as useless. It’s completely illogical and no-one in the Walgett district would uphold something like that. Anybody who would enforce laws like that would be seen as very strange. I don’t think they’d have a very good time in Walgett. In contrast,
there have been incidences where people have cleared wetlands and generally the community would say that wasn’t right and they deserve to have the book thrown at them.

People turn a blind eye to the removal of a tree here and there, like one smack in the middle of the paddock. There’s a group here that have been trying to negotiate with the Government and it’s been going on for years. No one will sign up for it. Everyone puts them on the back and says what a great thing they’re doing but no-one signs up for it. I guess that’s a sign that farmers generally want to do the right thing and want to do it by the law.

Roly-poly, as discussed above, is a listed invasive native species for the CMAs in the Walgett Shire, and therefore can be cleared if a PVP is in place. PVPs are pre-requisites for obtaining land clearance permission but this system was seen as impractical. An arduous permit process is a disincentive to comply. One farmer felt that it was a deterrent and was critical of the application process which was perceived to be contrarian:

There’s so many hoops and hurdles to go through to get anything done it’s just not worth it and the end result is so compromised and so pathetic that it’s just not worth even applying. The thing they seem to want to stop is anything that you can make money out of. They’ll let you knock a few Sandalwood trees because you won’t make any money out of it, but if its good black fertile, self mulching soil that you can grow good wheat on, there’s no way in the world.

Another farmer described the responsible land management practices which they had undertaken, independently of the legislation. Attracting agency attention was seen as a disincentive to undertake a PVP. Previous poor experiences with similar processes had led to distrust of government:

We developed our country and sowed it all under grass. Government people came out and they looked around and they said this is just magnificent this is just as it should be, the bird life’s increased and the country looks better and the erosion stopped-but the transition from bad to good, they don’t want to see. If we’d gone through all the correct channels we wouldn’t have been able to do this.

We didn’t take the risk of putting in an application for a PVP because they are going to have their ideas and their ideas aren’t going to be the best for the property because they don’t know the property and we did not want to risk having that negative input and maybe the legislation and the regulations. They need to sit out for a week in the bush. When they come out here, they fly out in an aircraft, jump in an air-conditioned land-cruiser, and drive out have a look say yep, you can’t do that and drive away. And they’ve forgotten it, and they’re onto the next thing, but the bloke that’s stuck out there with the trees and rubbish and has to develop it and make money and pay bills.

We tried to go through the proper channels once. We were told if we got an environmental consultant and did a farm plan it would go straight through. So we did all this farm plan, it took months, got it all set up and she came out and said yep, that’s good. Then she came out with the Greenies and that was okay, yep, that should go through. Then she came out with another lot of Greenies. Next thing the goal posts changed. From one car load to another, what they wanted, what they didn’t and they sat round this table and all said that’s by far the best plan we’ve ever seen but we’re not going to let you develop. Just like that. I think they should be held accountable for mis-managing other people’s futures and for giving them wrong advice and for not letting them have a crack at it. That’s what we found, there was no guidelines, no rules. There’s no justification.

One farmer expressed the desire for greater balance and more practical regulation thus:

I think the one about too much land clearing is a good one. You should be able to clean up your country – clean up the regrowth, burn logs and small stuff but not wipe the lot out, like the big trees. It was good that they stopped that but now they have gone too far the other way. You have to go through the third degree to be able to clean up your land.

Some were also concerned that other land use practices resulting in land clearance, such as residential development, appeared to be viewed as an unqualified benefit, with little public opinion in support of the environment to question it, or regulation to control it. A farmer in the Western
Lands Lease area talked about the inequity of laws impacting on agriculture but not on coastal development:

Environmental laws are necessary but it’s a bit annoying that we can’t do a lot of things on our property as in we can’t chop down trees. We want to get rid of scrub to let the ground cover recover. So we are required to have a PVP. It’s really annoying when you see the development on the coast and they cut down these really big trees and nobody seems to care.

The regulatory approach was perceived to be unfairly impacting on farmers, with farmers carrying the cost of providing benefits for the free-riding many:

I have had feedback from people saying I don’t really agree with the way you guys clear land. I say, what’s your farm like? Open country. Yeah well what was it like 100 years ago? I suggest that it’s been cleared. 70% of land in NSW has been cleared and some of it over-cleared.

A number of farmers had put considerable time and energy into trying to close the gap between the informal and the formal orders. However when modifications to requirements seen as impractical were attempted through interactions with Government agencies the process was frustrating, time-wasting and unproductive. One related a tale:

One bloke here had a paddock of about 500 acres with a couple of trees in the middle and he took them out. He’d done the right thing, there were corridors right round the paddock. A government bloke tuned up and said, ‘You took out those trees’ and the bloke said, ‘Yes what’s the problem with that?’ And the government bloke said, ‘How are the birds going to fly from that end of the corridor to the other side without a row in the middle of the paddock?’ And the bloke just looked at him and said, ‘These birds are probably from Japan and you reckon they will want to pull up in the middle of the paddock’!

On my place there is an area that I showed them. I said, ‘This is the area I am going to manage for conservation. There are river red gums and all the beautiful things you want. But I need to do some work over here. This area has regrowth and I am going to clean it up at my cost bring it back to benchmark’. In the same paddock, there is an open area covered in roly-poly and crap and on this reasonable open country there are a couple of trees and I said ‘this the area I want to farm’. And this bloke said ‘what are you going to do with the trees?’ And I said, ‘Have you not listened? I am going to give that area to the environment, get it back to benchmark, manage it at my cost but to pay for it, I need to put a 120 foot spray rig through this country and your worrying about 10 trees. You just don’t get it.” Every single tree is sacred and I have got millions on my country.

An agronomist acknowledged that as a result people locally had good reason to “lose faith in the system.” Another farmer told of his experience:

I wanted to freehold some country. This country was owned by an old bloke. He had it for 35 years, did absolutely nothing with it. I bought it and it had trees, lots of them, and a lot of regrowth. I put the bulldozers in, tidied it up, got rid of all the regrowth, got rid of the roly-polys and we had the start of a reasonable grazing paddock. It was 2600 acres. There’s about three blokes in NSW who do freehold so it takes you about 12 months to get one to come and have a look. So he came and had a look and said, ‘you’ve obviously done some clearing here’. I said, ‘yes I’ve got rid of all the regrowth’. He said, ‘oh the paddock looks good’.

So I get a call to go and see this guy down in Dubbo. He said, ‘if you want to freehold that country you’re going to have to sign this document’ - which basically said I cannot touch that country or do anything with it forever and a day. They put a covenant on it. And you wonder why you get a bit upset with them.

I’ve got perpetual lease country, Coolabah black box country that I’ve converted into freehold and because I went through this PVP they fast tracked it. I get this list of all the things I can do on this land and the leasing payment per year is something like $3,000 for the whole lot. Well it was going to cost me $35,000 to convert it into freehold on the provision that I sign this piece of paper saying that this is what I can and can’t do with the land. Pretty much nothing. I signed the document. But within two weeks there was a guy out there with a camera going around taking
photographs and I said ‘what are you guys doing? ‘They’ve got me by the balls, there’s no doubts about that. They got photographs. If I go in there and take any more trees out they’ll know it.

Such situations demonstrate the great distance between the regulators and regulated on this issue.

- **Water and mining**

Laws about water management were also used as examples of bad laws. Farmers appreciated that limits on water allocation were required but were critical of the water sharing plans:

The water sharing plan is the biggest killer to the environment here. The water sharing plan is totally wrong and was brought in because people were ignorant about what they were doing. There was only a select group of people working with the government that made up the laws and rules behind our backs and then the water stopped. They didn’t represent us. It is a mess and the river is buggered and it runs into the Darling and into the Murray. They should let the rivers run.

Water sharing plan! It’s our river but they took the water away. We paid more money to buy river country than people not on the river but we have to go without. They take the water 20 – 60 miles away off it to irrigation farms and other towns that are not on it.

Another thought that water harvesting restrictions were too tight:

They brought it in a few years ago that you weren’t allowed to harvest more than 10% of the water that ran onto your place - I think that’s a bit wrong. I think blokes out here need to have their ground tanks full and if that involves taking 20% so be it. It doesn’t rain that often here you need to be able to harvest what you can. But I guess I’m saying that because I’m not on a creek or stream, I’m only on what runs across the flat. Most years I want to be able to take whatever I could. I’m not taking water for irrigation or anything like that, I’m not blocking up a stream.

Cubby station just takes the lot. I don’t believe in that but I also believe you should have a right to a bit more than 10%. I think 25% of whatever water comes onto your place you should be able to harvest.

After land clearing and water, the next most-common problem identified was regarding miners’ rights on private rural land:

If miners come onto places and dig holes not fill them in properly. I would like to power to stop them do that. I do feel for the farmers there. They are supposed to leave the land as they find it but they don’t they dump gravel and dirt over the property and make their own roads and things like that. Because it is western lands lease the mining lease comes over the top of it. People are continuing fighting it. Now they are talking about WLL buying back the leases to allow the miners to do what they want to do. But at what cost? They have tried to sort things out I know the farmers are trying to stop the miners coming in but that doesn’t work. A lot of farmers themselves have mined their properties. So the miners say if they have the right so do we. Farmers will say you pay us so much and they can do it. The miners are an unruly lot and they bring their dogs which cause sheep damage and the odd cow goes missing or gets shot.

### 3.11.3 Costs identified by participants

Participants were asked if environmental laws placed costs on farm businesses. Inability to clear land was seen as costly in terms of lost production. Bureaucracy was viewed as costly in terms of time and energy. An agronomist said:

Yes. It costs time, the time spent on trying to get compliance. Obviously if you are found to be on the wrong side of the law, the time and energy and money spending on rectifying that situation is just ridiculous on both sides. A cup of coffee over a kitchen table would sort most problems out.

Some of the costs imposed were viewed as somewhat arbitrary. One farmer described it as contradictory:

I have two sheep dips. One fenced off and another one. The other day I was ordered by NLIS to fence the other off too and that if I did the wrong thing I could be in big trouble. You have to put up with this stuff. He said the cattle get the chemicals. It’s ridiculous – the dip has been there for
60 years and there has been no comeback with cattle sucking chemicals out of it – it is dry. They are worried about that and then in March next year they are going to import beef from England, Europe and America where they have Mad Cow Disease. How does that make sense? They will get an outbreak over here and the cattle industry will stop all over Australia. Its contradictory. We have much more strict controls over our food standards than anywhere else in the world yet they are bringing crap in and dumping it here and you don’t know what you are eating. I can’t work it out.

Costs were also experienced psychologically and socially. Several felt that farmers were being unfairly maligned and that community initiative was being extinguished by long-term regulatory fatigue, antagonism and anguish. There was consternation that regulatory approaches had not advanced from command and control and that few benefits or incentives were flowing to farmers, or alternative approaches adopted. One farmer expressed the general feeling very well:

Land clearing wells up a lot of emotion in me. I can see the reason for not land clearing I can see all the biodiversity reasons. I think it’s more a people issue. There is a lot of resentment in this community about land clearing and the resentment has been happening since early 1990s. Its more than 15 years. I think this issue has stalled the development of our community. You go out to dinner, that’s what people talk about. They are not talking about new ideas or ways of doing things. A couple of things happened. There was some consultation between government, farmers and Indigenous people. People spent a lot of time being consulted doing reports and they thought they had got somewhere and the rug was taken from under them and everything stalled and things went back to scratch. There is a lot of resentment.

The whole land clearing debate is timing. If people wanted to clear 20 years ago it wouldn’t have been an issue. I used to work up in Charters Towers in Queensland and people there in the early 90s people were being leased Brigalow blocks on the condition that they cleared them. So there was a complete 360. A lot of the rush to get the land clearing legislation through was about meeting Australia’s Kyoto commitments. There has never been any compensation. It’s alright to change something but there’s hasn’t been anything to replace it with. OK you have to keep all your trees but maybe a new industry could be collecting native seed. Maybe that could improve employment opportunities. Maybe other industries could be tourism or bird watching. There been no research done or other options presented.

To clear land- it’s not cheap. I don’t think it would have happened willy nilly anyway. Yes sure you get some people who clear from one fence line to another, but most people don’t. If people understand why it’s not good to do something most people will jump on board. Basically farmers are business people. They there to make a living and they just happen to be in a position that they are stewards of the land. It’s very complicated. It alarms me in this area because we haven’t moved on as a community. It’s such as raw nerve for so many people. A lot of these regulations are meant to be based on science but it’s more the precautionary principle. I can see both sides and I haven’t really resolved it within myself. We need the biodiversity, we need the ground cover, and we need the habitat we people also need to make a living. Maybe there’s an opportunity to do both but no one has been able to come up with those options. Farmers are so flat strap they don’t have time. It’s a big issue for this community and it doesn’t need to be.

Two farmers within the focus group had been involved in cases put before the Land and Environment Court. For one the court experience and media coverage of the case was described as having had a profoundly debilitating effect on this farmer personally as well as on his family. The case had been heard over ten years ago and the farmer had had the advantage of community support. Still the experience grated. Legal costs were also mentioned. Another farmer observed that there is provision for appeal:

At least some of our farmers have been able to appeal. At least we have got a fair and reasonable legal system in this country where you can be heard - even though I think it’s a little bit arse up the way you are guilty until you can prove yourself innocent. Every other legal business they’ve got to prove that you’re guilty.
Some costs had arisen as perverse effects of well-intentioned regulation. Although not an example of an environmental law the following demonstrates the unintended consequences of universal laws imposed on small rural communities:

You don’t realise the impact a simple law has. In my lifetime laws about drink driving is the thing that’s changed country living the most. Families don’t come to town. We don’t come to town on a Friday night or a Saturday night unless we are highly organised, which is unusual, because you just can’t get home. It’s too much of a hassle. It makes us more isolated. And also its an ‘us and them’ thing. Those in town and the cockies living outside of town, they don’t get to know each other. The very thing we’re trying to do is working against us. Ok so you can ring a cab, but it’s going to cost you $80 or $90 to get the cab to run you home. And there are no trains and there’s no buses.

We’ve got over 30 policeman here looking after 1500 people. It’s possible to get breathalysed two or three times between 10 o’clock and 11 o’clock in the morning in Walgett and never leave the main street so what does that tell you? It’s a good law but it’s not very good for us.

Other examples were provided of laws whose overall objectives were considered sound but which were counterproductive in practice. These undermined the credibility and legitimacy of government to make laws. One farmer said that in these situations more personally relevant motivations would achieve primacy:

Sometimes rules and regulations are brought in but the reasons are not that transparent. For example at harvest each road train can only have maximum 25 tonnes. If you look in the trailer, it still has an area to fill. The RTA says over 25tonnes is bad for the roads but another truck is going to come back and get the grain that is left and that’s another set of greenhouse gasses and fuel. And stuff like that the rules are brought in but they don’t make a lot of sense. Until people are aware that something is good for their business or their kids, they won’t change.

This criterion of practical benefit also emerged as critical in the discussion of good government activity.

3.11.4 Other good activities by government identified by participants

Government intervention was more appreciated where it took the form of assistance. Participants were asked if there been any instances of “good” government activity and what they liked about it. This included voluntary schemes and other government initiatives apart from direct regulation. There were few examples provided of good government activity and each also had faults. Grants for fencing of riparian areas or native vegetation areas were the most frequently mentioned. The Catchment Management Authorities were commended for their involvement with these:

The grants where you can fence off river areas are sensible and areas where they’re re-establishing native pastures are certainly good. And grants helping to put in water points where they don’t have access to water in the rivers are good. The CMAs are assessing some of these grants. Those funds are used well.

Another farmer commended the helpfulness of the CMAs:

We hadn’t applied for any funding until six months ago. A girl at the CMA said with this money you can actually fence your corridors. They did all the application for us, all the pricing and everything and they’re wonderful. All we had to do was whack up a fence and there’s your corridor.

Other CMA projects were also singled out for support:

The CMA Drought projects were very easy access. We didn’t have to do a lot of paper work – easy to fill out forms with a lot of assistance from the CMA people. Access to information was easy. The fact that you could pick up a phone and ask if we change the project slightly half way through because we have found we can’t do this but we can do that. They were back to us in 24 hours and giving us permission. So very helpful.
The Namoi CMA has a project to reclaim scalded land through the development of waterponds near Pilliga. Waterponding involves the construction of ponds up to 0.5 Hectares in size and 10cm deep to allow water to settle and penetrate the claypan. This improves the area by reducing wind erosion and water runoff, whilst regenerating native pastures. Other projects include riparian fencing and rewatering, Mitchell grass restoration, tree planting, machinery conversion, pasture management for best management practices, and cultural heritage conservation projects (Namoi CMA 2009).

Farmers within the study reported on their involvement in such projects:

*We do have projects with the CMA where we dammed some water, and did some fencing. On our other property our son did some drought proofing and fenced off a ‘sacrifice paddock’ and we continue to monitor that.*

An agronomist attributed the success of the CMAs to their local membership, knowledge and focus, which had attracted the support of the community:

*The CMAs are an example of a structure that was set up and driven by local people, a board. What works about the CMAs is that they engage people at a local level. I think they were successful. At the moment we seem to be in a bit of a decline again. I don’t know whether the funding has run out but for a time there they were really willing to get out there and talk to farmers in an open way about corridors and threatened species and perennial grasses etc.*

Support for CMAs was not unqualified however. One farmer reported some scepticism about funding through CMAs and emphasised that on-ground works needed to be practical:

*I think some of the CMA projects have been positive - that’s been a big thing in this area for the last three years really. I’ve heard of good results and I’ve also heard negatives about it again like this lack of common sense. I know in some projects they asked us to plant all these trees. We’re in the middle of a drought and they want us to go out there and plant trees. You’ve got to be practical and wait till the seasons get better rather than going out and spending time and money on planting trees that are going to die in the drought. People have been saying what a waste of money. It’s a positive thing but they’ve got to be practical about what can be done.*

Another farmer questioned the value of some activities and displayed a sense of distrust about accepting assistance from the CMA:

*Along the river you’ve always got problems with weeds. I spray the adjoining cultivation country to keep the pests out but I’m not going to spend money down there because it’s not earning me anything but I am shutting up country and letting it go back to its natural state with no cost to anyone. I’ve got about 2,000 acres shut up like this. I know there’s money through the CMA for this. I don’t go along with that. All you do if you’re fencing a river, is giving the land away for the price of a fence because if you take Government money to put a fence in, they’ll say well this is what you can do on this side of the fence. Between the river and the fence it’s pretty much public property. And they’re compelling you to look after it. It’s not supposed to have noxious weeds on it or anything. Weeds have been coming down the river for 200 years since white man got here and long before.*

Farmers spoke favourably of the Cap and Pipe (Artesian) Bores program. This is a jointly funded initiative of the NSW and Commonwealth Governments to address the loss of water from Artesian bores and bore drains. Over the past five years, $32 million has been available to landholders in NSW for rehabilitation of bores and replacement of bore drains with piped systems so that water can be controlled and used only when and where required. It was commended for its environmental as well as production benefits. One farmer stated:

*Australia is short of water and this scheme attacks 100% of the problems. When you’ve got a cap and pipe scheme on your place you won’t have stock dying you won’t run out of water. You’ll always have clean water and nothing bogged. And stock do like clean water. Plus from an environmental perspective, and this is one of the reasons we went down this path, you extend the cap and pipe scheme into areas that perhaps weren’t able to afford it. We get stock off the rivers, the riparian areas, and water in the trough. Now that has to be good for the environment*
because stock and other cloven footed animals; kangaroos, wallabies aren’t walking down the water ways causing erosion. It’s interesting though, the National Parks who bought the property next to me took all the tanks and troughs off the place so all the kangaroos go to the river.

This quote indicates that perceived poor management of public lands can translate into poorer perceptions of government. Another farmer described the Cap and Pipe program as one which had not only had the intended environmental and production benefits but had achieved greater trust between landholders and both state and Federal Governments:

The cap and pipe relationship between State and Federal Government and landholders has been excellent. It’s driven everything for the right reason and everyone’s a winner. The timing of capped artesian water is magnificent. It coincided here with no till farming so instead of carting water we just jam the cam lock on in each paddock and we’re in business. It’s a fantastic example of how farmers and Government can well work together and farmers don’t feel they’ve been screwed. We feel comfortable with getting a bit of a subsidy for doing the work. I’m just doing one now. It’s cost me $380,000 which I really haven’t got at the moment, I’ve had to borrow it, but I know that I put $20 an acre on my country and I’ve got water forever. And it’s managed appropriately. You’ve got bores running at 5/20 litres a second for a hundred years and it’s used as it’s needed. And the pressure is starting to increase.

However, the initiative was also not supported without qualification. It had been the cause of some neighbourhood disputes. Participation in the scheme is voluntary but to be eligible for the grants, landholders must agree in writing to participate. Where there is a group or a Bore Trust there must be a formal agreement reached which includes all of the members. One farmer described the process:

We have an open bore drain running through the paddock and we got the low interest loan to cap and pipe the bore. This allowed us to water 2/3rds of the paddock. We did that as a group. There were 10 properties at the same time.

However, where one or more farmers elect not to take up the offer the remainder in the group are precluded from the programme. This has created division in the community. One farmer said it should have been compulsory:

It’s been a tremendous success. It’s just fallen at the last hurdle though. It should have been compulsory from day one. There are too many people holding up their neighbours by refusing to join the scheme and that should have never have been allowed to develop. It’s interesting, some of the bigger farmers are the ones that aren’t coming to the party because they think they own so much country they will have to pay this massive bill, but it’s all relative.

Another had ended up taking a neighbour to court and had been dissatisfied with the results:

Our neighbour doesn’t want to be in it. We have land either side of him and there are bores on both blocks. Both bores are treated as one in the grant application. We water 15,000 acres. We completed documents in August and are waiting on approval. We didn’t know it wasn’t going through. I only rang up to see how it was going and found out. We had to engage a solicitor and now the neighbours won’t talk to us because we brought in the law. We wanted to put it in during winter because summer is not the best time to lay poly pipe. Now it is past the cut off time. It has created a lot of stress.

The other problem with cap and bore is they are not working properly. There was an incident where stock were left without water in 45 degree heat when the trough ran over and stuffed the whole system. Water is the most important thing, it will come to a war.

This is an example of policy which can threaten social cohesion. As Elickson (1991) noted, neighbourhood disputes are expected to be resolved without involving the law to achieve outcomes of mutual advantage that sustain a cooperative neighbourhood. “Dobbing in” a person to authorities is widely considered to be “un-Australian”. Residents who choose to deviate from these norms can sometimes ostracised within the community (Barclay et al. 2004).
Government intervention is admired where it is both practical and fair and suited to the conditions, environmentally, socially and economically. Similar observations were made about environmental laws and the same principles underpinned and informed participant’s suggested reforms.

3.12 Participants’ suggestions for improving environmental laws

Participants were asked for their ideas for ways to improve environmental laws and regulations as well as overall management by government. One main recommendation was for laws which were practical and fair. An overriding sense of pragmatism was evident in all of the interviews. For example, to improve problems with rubbish dumping, one participant suggested that the type of rubbish bins used on highways in Queensland encouraged compliance:

*I think the best idea I’ve seen is in central Queensland with rubbish bins that resemble soccer nets. They’re large tin bins with a netting backdrop and there’s hardly any rubbish on the road. It’s a bit of a novelty for people to save a coke bottle up and peg it in the next bin. I think if they have more things like that it’s going to clean up the place. I think it’s a novel idea and it actually works.*

Another preference was for simplification. One farmer thought that both regulations and authorities required rationalisation. A single water body was recommended:

*To manage water you would still have State Water, but you don’t need a catchment management authority. There is probably 100 doing the same job (which is nothing) – simplify it down and it may work.*

A further major recommendation was for laws that valued agricultural production as well as environmental conservation. An agronomist stated:

*There’s a place for trees, and there’s a place not for trees … and eventually they’ll realise that you’ve got to get rid of those trees because the land is too valuable to be used for something else. With climate change this area is likely to be a bread basket, the south is going to become dryer and less productive whereas this area will remain productive – you’re going to get more frequent, heavier storms and that’s what this country needs.*

The realities of farming were perceived as having been overlooked and farming benefits unappreciated by the wider community. One farmer saw a need for more education of city people:

*Firstly there is a need for education. Come up and have a look see what farmers here are doing and if you think that’s degradation of the landscape then you tell us how. Then I’ll take you to a neighbour of mine who has got native vegetation all over his property, he’s conserving zero carbon, he has zero ground cover. In years gone by he probably had 3,000 sheep. Now he runs 2,000 sheep because he hasn’t got enough feed because the trees are taking so much moisture out of the ground that nothing grows. So is that a positive environmental outcome? I think not.*

Governments too needed to gain and demonstrate greater understanding of local conditions and farming realities. One farmer said:

*Government agencies if they could prove themselves to have local knowledge and to be real about it. We’ve had people out here coming to have a look at what we’re doing and not having done their homework, not even knowing what a Mitchell Grass plant looks like but they’re making decisions for us. I was horrified.*

One farmer suggested that land type and land capability should determine land use rather than regulation:

*Certainly there has to be protection on clearing without a doubt. It has to be controlled and only on land that is suitable for cropping because some land is better suited for pastures. It needs to be assessed. There has been many cases where land has been allowed to be cleared but really the paddock next to it would have been far better because the soils more suitable and more productive.*
One farmer believed greater regionalisation was the solution to getting community support:

*Instead of having these broad-stroke laws in NSW maybe you have one for catchments and land that has similar environmental characteristics and you’d get the people behind you.*

An agronomist agreed, and also recommended a greater focus on incentives rather than disincentives to attract compliance:

*Laws need to be regionally focussed. They have to relate to the environment that they are trying to protect. The native veg spend a fair bit of time working on specific issues but it’s still too broad-brushed.*

*I’d change the focus to rewarding rather than punishing and I would offer real rewards for people who do the right thing. I’d grade the landscape into conservation values and pay people accordingly if they were improving or protecting whatever the areas according to conservation value. I’d pay the real market rate. The only way you will get the environment on an even platform with production is to value it on the same basis. If I have a Namoi riverine corridor frontage on my farm and I get paid a real value for that by society then I will protect it all my heart but while they don’t do that I will focus on production. I’m pleased national parks have taken a position and bought land holdings to turn them into national parks. Suddenly Coolabah-Black box is important and is protected and that’s a good thing. Unfortunately we operate in a world governed by the dollar and some of those values are hard to determine the dollar terms but you have to get realistic dollar values on them to get the outcomes.*

Although another agronomist agreed that in implementation the approach needed to be more persuasive rather than punitive they recommended a best practice standard to support farmer’s natural inclinations, rather than economic incentives:

*I think you need a rule book rather than law – a best management practice rule book. We should be encouraging people rather than penalising them. Most landholders are not environmental vandals and certainly don’t think of themselves as committing environmental crime but you have to look at things from their perspective. They have a business to run and what they are doing in their eyes is what they need to do to move forward. But then the law is really on them if they step over the line rather than more encouragement-based system that says: we appreciate that you are trying to run a business but in the process these are the outcomes that we would like to see from a greater good point of view.*

A farmer agreed that persuasion was the way to go:

*I think its attitude and generational. It’s like drink driving - there are regulations and a lot of people drink and drive but peer pressure stops them. I don’t think the big stick works - not brain washing people - but saying here is a reason for this.*

There was support for extension to combat a regulatory approach which was perceived to have become unnecessarily antagonistic. One farmer observed that

*If people know you care people don’t care what you are talking about – they will listen even if it’s not what they want to hear. It’s about the way you go about it.*

Another farmer called for a return to the early Landcare days where community conservation plans were developed:

*Years ago, we did whole farm development plans and you could submit the plans and that was it. You developed how you wanted it and if you put that whole farm plan in (as a community group) they would say go ahead and do it. The early Landcare stuff was good. We did our own plan in consultation with a big group and looked at each other’s plans– not so much having a body overseeing it. Our farm was perfect and we could clear regrowth. There was a big push on inter-property corridors and the only problem with that was that kangaroos knocked holes through the boundary fences and you got diseases etc. A lot of people had sheep then and with holes in the fences – lice going back and forth.*
But there was true agricultural extension. The agronomist was highly respected and he would come out, you would have a field day on your property (probably one every two or three months) and that’s where I got a lot from the grazing for profit, etc. Bring back that system which will put more eyes on the ground as well. Within the Department you need to get some of the local people who know and understand the area, who would understand the guidelines and say here is a way you could open this country up. There is your corridor percentage which has to be 10% or 20%.

Overall there was support for prosecution of the most egregious acts but that a less adversarial system was required and there should be a greater focus on supporting farmers to produce. When asked how he would address problems with landholders who clear land irresponsibly one farmer responded:

I don’t know what we could do to better manage this. People often won’t change. You need to get the people that do the wrong things but leave the people who are just tidying up and not flattening everything. You do need authorities to keep some of these ‘cowboys’ in line. There are not many of them. So you still need to have an authority but the authorities must not cripple the production. The authority has got too powerful and overruled the people that are on the land. Too many rules, regulations and laws. We can’t progress to develop the land and be more productive.

Asked if he could envisage local farming groups having the ability to enforce compliance within the local community, one farmer stated:

No that would be like communism. I wouldn’t like that. That’s controlling people to the extent where it is not healthy. We are all individuals – what you want to do in your life, I might not think is right but it is not my business to tell you what to do. If you are affecting the livelihood of someone else that’s different. But it is too restrictive now. We have to ask someone every time you want to do anything on your property.

Another farmer argued that the cap and bore initiative had demonstrated that co-operation between government and landholders is possible and thought that similar outcomes might be achievable with land use. However as heard also in the other case study communities, Walgett farmers lament the loss of a sound working relationship with government extension services. A loss of trust is impeding co-operation.

The cap and pipe system is Government working with landholders. Now I think the same thing is possible in this part of the world with land use. That’s the step they’ve got to take. It’s a trust thing. See we used to trust the old DPI and Soil Conservation. I wouldn’t let any of those blokes near me now.

Another agreed:

I think it’s an educational thing. I think the universities are turning out greenies and they’re now working for Government Departments. You haven’t got a chance. That’s why agriculture, generally, doesn’t go near them. It wouldn’t make any difference to us if the DPI left town. We would not miss it. DPI, especially in Queensland, they were fantastic 20 years ago. You could ring up and say: what do you think about my cattle? - and the bloke would come out and preg test your cows and set up a program for you with your cattle and go through it all. Now you go into Charleville and they just flatly refuse to come out. You’re lucky to get one on the phone, you walk in there, the office used to have one or two computers and a few people in there, now it’s a huge room with 50 screens and people sitting in front of them - and you can’t get one of them to do anything. The word production has just gone, it’s just a dirty word. It’s pretty much the same here.

One farmer concluded:

I think it’s a relatively simple thing as far as the law goes. It’s about co-operation with land holders and if you fail to co-operate with land holders you’ll get nowhere.

Participants therefore also had further suggestions for how the environment should be managed in relation to the question of who should have responsibility. These are discussed next.
3.13 Environmental management: local co-regulation

Participants were asked who should take the lead in natural resource management. There was a strong feeling that farmers should be primarily responsible but not solely. There was very strong support for the idea that all stakeholders needed to be involved and included in a co-regulatory approach:

A combination but probably more farmers because farmers are more environmentally aware of environmental issues now and can readily access information and assistance. The new generation farmers are more aware of new practices.

An agronomist stated:

It needs to be a combination, but credible people. Doesn’t matter who it is as long as they are credible. And as long as they are acknowledge the position they are coming from is probably going to be different from the landholders. That has been a problem in the past. We have these acts imposed upon us but it’s the landholder’s livelihood. That’s why it doesn’t work. It doesn’t matter who brings the information as long as they have an understanding and they are credible.

Asked what establishes credibility, he responded that time in the district and sound understandings of the district and of the local environment were factors.

One farmer argued that all stakeholders should have input:

I think it has to be a group approach. It can’t be one sector because everyone has an agenda. Farmers have an agenda. It has to have a balance. I think the danger is that you get these small lobby groups behind laws who can be fanatics with very strong views who push their agenda. I think certainly industry, farmers and some environmentalists have to be in on it.

Another emphasised the value in groups but suggested that they should be smaller and more focused:

Farmers are secretive about what they do but when you are getting ‘screwed’ you need people to come together in a group. You don’t need the big groups and I am sick of running to meetings.

One farmer could see little role for government:

If you’re going to control land use in the Walgett Shire it has to be run by locals. You’ve got to get it away from Governments - State and Federal. They might appoint the people, but it’s got to be arms length. The Western Lands Commission in NSW back 70, 80 years ago, whilst they were operating under State Governments, they were somewhat at arm’s length from the Government. The Western Lands Commission was appointed by Governments but it managed 42% of the land area of NSW and they had laws that were applicable to that region of the state that weren’t subject to every Tom, Dick and Harry in Parliament. In other words they knew what they could do, and they knew what they couldn’t do. Even today, you can do more in the Western District than you can in the central district.

I believe it is one of the clear cut solutions we can offer to this problem. It’s not the perfect answer but it’s a bloody lot better than the system we’ve got at the moment. You need a panel. If you want to do anything with your country you ring a number. A bloke will be out the next day. You get a tick or a cross. If you get a cross you come to a Court of Appeal in your home town. See things work on the land and the reason they work is because people have got a plan. All you’ve got to do is extend that plan to the community; it’s easy. The land capability drives what you can do with the land not what someone in Sydney thinks.

Therefore while most saw a role for government some did not. A farmer who had won a Land and Environment case demonstrated the depth of feeling about the absoluteness of what property rights means to some landholders in Australia:

Well to me it was just, my attitude from the start of SEPP 46, I own it I’ll do what I like with it and that was my attitude. I just thought it was inconceivable that someone could tell you what you could do with your own land so I just decided I was just going to do whatever I wanted to do with
Order with and without the law

It and the Department didn’t like it. So I ended up in Court and I still couldn’t really get my head around the fact that they could do this to you. So I just decided I was going to fight it and regardless of what the outcome was going to be, and that’s what I did. That was in 1997. We had a win. But it was a pretty major thing. It wasn’t that easy to win.

This aspect is discussed further in the talking point for this case study on land clearance legislation.

3.14 Talking point: Land clearance legislation

The area of environmental regulation attracting the most criticism in the Walgett Shire was land clearing. The first general land clearance laws were introduced in the area in 1995 (Table 3.1), although earlier controls had been in place in the Western Division under the Western Lands Act 1901. Over time it might have been expected that acceptance of land clearance controls would have grown and any initial resistance overcome. However resistance remains and there is evidence that disagreement and distance between the regulated and regulators on this issue is widening rather than narrowing. This widening is due to the regulated maintaining resistance while legislation has been tightened and statutory maximum penalties for illegal clearing raised. Sentences meted in Court have also escalated.

<table>
<thead>
<tr>
<th>Date of Effect</th>
<th>Instrument</th>
<th>Maximum Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2005</td>
<td>Native Vegetation Act 2003 and Native Vegetation Regulation 2005</td>
<td>$1.1 million And/or remedial order</td>
</tr>
<tr>
<td>January 1998</td>
<td>Native Vegetation Conservation Act 1997</td>
<td>$110,000</td>
</tr>
<tr>
<td>August 1995</td>
<td>State Environment Planning Policy 46 1995 (Protection and Management of Native Vegetation Policy) (‘SEPP 46’)</td>
<td>$110,000</td>
</tr>
</tbody>
</table>

A person who clears without permission is guilty of an offence and is liable to the maximum penalty provided for under section 126 of the Environmental Planning and Assessment Act 1979. This is currently $1.1 million dollars. Remedial directions are also available under s 126.

Permission is not granted unless and landholders have entered into a Property Vegetation Plan (PVP). PVPs may allow clearance with offsets and regeneration elsewhere. Under the 1,476 plans currently in place 5,440 ha of clearance was approved between 2006-2008 (DECCW, 2008; 2009a). PVPs often include incentive payments and may include areas set aside in perpetuity. The largest area now covered by PVPs is invasive native scrub. Between 2006 and 2008 1,132,770 hectares of invasive native scrub was managed under PVPs (DECCW, 2009a). Frustrations with the PVP process have previously been noted by the Ministerial Review Committee in 2006, including in relation to the management of invasive native species such as woody weeds (MRC, 2006).

The NSW system of restricting land clearance shares with its counterparts in other states the main feature of being primarily a regulatory system: it basically takes the form of a strict liability licensing system, where clearance for many (but not all) purposes is illegal without a permit grant from an administering body, being the Catchment Management Authority (CMA). The CMAs are responsible for implementing the PVPs. The CMAs are also responsible for ensuring that the objectives of ending broadscale clearing and increasing native vegetation cover are met. Permission for broad scale
clearance permission is not obtainable unless environmental outcomes are improved or maintained (s 3((b), s 14(3), s 29(2) of the Act). One of the priority targets within the NSW State Plan (2006) is to increase the extent and condition of native vegetation by 2015 (NSW State Plan Priority Target E4)

Figure 3.14 below demonstrates that the amount of permitted clearance did not drop dramatically until the introduction of the current Act: permission rates had remained high under previous regimes (Bartel, 2004).

![Figure 3.14 Permitted clearance 1998-2008 (Source: aW, 2009: Figure 1).](image)

It is not clearly apparent however whether there has been a drop in clearance due to the introduction of restrictions (Bartel, 2003; DECCW, 2009a). The rates of land clearance derived from analysis of satellite imagery suggest that there has been some diminution: the average rate of clearing for agriculture (labelled as ‘crop, pasture and thinning’ in Figure 3.15 below) was 21,600 hectares per year before 2004, and 16,700 per year after 2004 (DECCW, 2009a). It needs to be noted that because these figures are derived from satellite imagery they represent loss of woody vegetation only, not all types of native vegetation cover. It also needs to be noted that land clearance behaviour may alter in response to factors other than regulation, for example market prices and drought.
The Natural Resources Commission (NRC) has recently reviewed the extent and condition of native vegetation in the state and reported that between 2002-2008 there was no net change (neither decrease nor increase) in woody vegetation (NRC, 2009). In the Department’s Review Discussion paper it is reported that “there was a total reduction in the area of woody vegetation in NSW from 2007 to 2008 of 48,193 hectares (0.06% of the area of the State)” (AW, 2009). This was attributed to forestry. The NRC nevertheless declared that broad scale clearance had ceased and that the “CMAs are helping to change landholder attitudes to native vegetation and clearing over time” (NRC, 2009: 10).

However the performance audit conducted in 2006 by the NSW Auditor-General concluded:

“(t)he target for native vegetation seems ambitious as both approved and illegal clearing continue at present. Achieving the Government’s target by 2015 will require a major effort by DNR [Department of Natural Resources] to reduce illegal clearing and by CMAs to increase the extent and condition of native vegetation” (NSW Audit Office, 2006).

In 2004 the Productivity Commission had been especially critical of the economic costs and equity considerations imposed by native vegetation and biodiversity laws, including restrictions on land clearing (Productivity Commission 2004). The 2006 performance audit conducted by the NSW Auditor-General echoed the Productivity Commission’s concerns as to the social impacts of the legislation and the likely regulatory failures as a result:

“Many farmers remain concerned that the legislation may affect their future ability to manage their land and earn an income” (NSW Audit Office, 2006).

The Ministerial Review Committee (2006) also agreed:

“...there is an expectation that some landholders will experience significant financial hardship [as a result of the regulations]” (MRC, 2006).

The 2006 audit was particularly concerned by the failure of the (then) Department of Natural Resources (now DECCW) to achieve significant increase in cooperation and compliance and observed that:

“(t)he concerns of farmers need to be addressed in order to raise cooperation and compliance” (NSW Audit Office, 2006).

Regulatory failure in terms of social disagreement and regulatee resistance, including non-compliance, has definitely been apparent. In those parts of the state where landholders were most
affected (i.e. those with land left to clear) there has been active violent resistance. Partially in response to this there had been a decline in active enforcement in some areas and for a time few prosecutions were undertaken for illegal clearance. However more recently there has been another change: there have been more prosecutions and the penalties meted in these cases have been significantly higher than in earlier cases, although still far below the statutory maximum. While landholder disagreement has remained therefore there is currently a widening of the gap between the formal and informal orders in land clearance: the formal has moved further away from the informal.

3.14.1 Widening gap between formal and informal order

In 2004 Justice McClellan declared in the planning case of Council of Camden v Tax\(^2\) that:

“The necessity for the protection of native vegetation in the community is now accepted in virtually every area of the state.” (McClellan J, para 28).

This perspective was certainly not universally shared nor held without qualification, either by the court, or by regulatees. In a 1999 prosecution under SEPP 46 Justice Talbot described the legislation as having:

“...caused considerable debate and confusion, even anxiety, amongst the rural community. It is understandable that many farmers and graziers who, as a class, enjoy a tradition of independence, in some cases through many generations, and are conditioned to dealing with diversity in many forms are resentful of what they see as bureaucratic interference with their historic role of managing their lands in a way they see as responsible and in the best interests of production and conservation” (Talbot J, para 40, Warroo\(^3\)).

Justice Talbot went on to reinforce this idea that sensible land management for primary production was a public good which should not be seen as dissimilar from conservation:

“It is perhaps seen as conflicting that the control of noxious weeds and the need to maximise productivity is regarded by some as contrary to the protection of native vegetation and against the wider interests of the community” (Talbot J, para 41, Warroo\(^4\)).

The Land and Environment Court has since distanced itself from such expressions. More recent penalties meted by the Land and Environment Court appear to herald a transition to greater appreciation of the harm caused by vegetation clearance and greater weight given to specific and deterrence messages. Table 3 below describes only those cases which resulted in monetary penalties decided in the Land and Environment Court. Prosecutions have also been undertaken at the Local Court level where the statutory maximum of $1.1 million is unavailable. The Local Court can impose penalties up to $110,000 only, and thus these cases are excluded from the discussion, as they would artificially deflate the outcomes of prosecution. The sentences and reasoning adopted by the Land and Environment Court have been selected as the focus for this discussion for this reason and also for the reason that the Land and Environment Court is a specialist court sitting at an equivalent level to the State Supreme Court. Its judgments provide one of the most important indications of the formal order of the regulations.

---

\(^2\) 137 LGERA 368
\(^3\) Director-General Of The Department Of Land And Water Conservation v Warroo (Lands) Pty Ltd [2002] NSWLEC 10
\(^4\) Director-General Of The Department Of Land And Water Conservation v Warroo (Lands) Pty Ltd [2002] NSWLEC 10
Taylor was the first of the recent spate of cases signalling a shift in the court’s view, and the first decided under the new statutory maximum penalty of $1.1 million. Of course these two aspects are not unrelated. In the course of his judgement Justice Lloyd said:

“(P)ersons will not be deterred from committing environmental offences by nominal fines. There is a need to uphold the integrity of the system of protecting and preserving endangered ecological communities. There is a need to send a strong warning to others who may be minded to breach the law that such actions will be visited with significant consequences” (Lloyd J, para 32, Taylor).

Table 3.2: Penalties imposed for illegal land clearance in the NSW Land and Environment Court

<table>
<thead>
<tr>
<th>Case</th>
<th>Clearance Details</th>
<th>Mitigation</th>
<th>Penalty (Costs) (SAUD)</th>
<th>Price($/Ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bungle Gully&lt;br&gt;8 Jul 97</td>
<td>Walgett - 275 ha between 24 April and 13 June 96 of coolabah and river coolabah on riverfront for farming by bulldozer</td>
<td>50% reduction due to mitigating factors including: pleaded guilty, had a partial exemption that clearing was for boundary fence and paddock access, family history of farming, environmentally conscious farming practices, remedial works, costs, good character, that was first offence, financial position and difficult economy</td>
<td>$20,000 (40,000) and consent order that substantial part of the land that had been cleared to be used for the creation of wildlife corridor, riverine wildlife corridor, unfarmed flood runner corridor</td>
<td>72.73</td>
</tr>
<tr>
<td>Nunkeri&lt;br&gt;6 Feb 98</td>
<td>Walgett - 180 of 2,900 ha property between 11 and 21 June 1996 of open woodland (coolabah, blackbox, rosewood and belah) for grazing</td>
<td>Good character, cooperation, remedial works</td>
<td>$10,000 (8,525) and consent order setting aside vegetated area of 400 ha for wildlife corridor refuge registered on title</td>
<td>55</td>
</tr>
<tr>
<td>Greentree&lt;br&gt;4 Mar 98</td>
<td>Moree - 650 ha between 13 and 30 Oct 1996 of coolabah/black box interspersed with River Cooba by bulldozer</td>
<td>Co-operation, pleaded guilty, remedial works</td>
<td>$7,000 to each of 2 companies (Prime Grain and Limthomo) (52,000) and consent order including property agreement that on part of land cleared a wildlife corridor/refuge be established under Pt 5 of the Native Vegetation Conservation Act 1997 and registered in accordance with ss 44 of the Native Vegetation Conservation Act or with the Land Titles Office to be</td>
<td>21.5 (av) (11/ha for each co)</td>
</tr>
</tbody>
</table>

5 Director General Department Of Land & Water Conservation v Bungle Gully Pty Limited [1997] NSWLEC 112  
6 Director General Of The Department Of Land & Water Conservation v Nunkeri Pastoral Pty Limited [1998] NSWLEC 6  
7 Director-General Of The Department Of Land And Water Conservation v Ronald Lewis Greentree [1998] NSWLEC 30
## Order with and without the law

<table>
<thead>
<tr>
<th>Case</th>
<th>Defendant</th>
<th>Property Details</th>
<th>Offence</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones</td>
<td>Jamison, Jamison County (Narrabri/Walgett)</td>
<td>3-31 trees per ha Eucalyptus coolabah and Eucalyptus largiflorens</td>
<td>Co-operation, pleaded guilty, not likely to reoffend</td>
<td>$3,000 ($7,000)</td>
</tr>
<tr>
<td>Rial</td>
<td>Moulemein, Jamison County</td>
<td>240 ha between 1 Jan 96 and 16 Feb 1996 chenopod shrubland for agriculture</td>
<td>Good character, remedial works (by owner)</td>
<td>$5,000 (Rial), $2,000 (Harris), $10,000 (Crawford)</td>
</tr>
<tr>
<td>Orlando</td>
<td>Bellata, Bellata, Jamison County</td>
<td>1,200 ha in 4 lots of mainly open Coolabah woodland pushed by bulldozer</td>
<td>Pleaded guilty, good character, remedial works (agreed to retire area as well as to revegetate cleared) and significant financial burden (and penalty reduced also by principle of totality for 4 related offences following R v Holder [1983])</td>
<td>$35,000 in total (sum for 4 areas: $18,000; $9,500; $5,000 and $2,500 no reasons given in judgement for apportionment) and s 126(3) order to remediate area cleared as per property agreement already consented to (plus costs)</td>
</tr>
<tr>
<td>Cameron</td>
<td>same as Jones above</td>
<td></td>
<td>Co-operation, contrition, good character, pleaded guilty, remedial works, also agreed to pay $10,000 as a contribution towards the fine and costs incurred by the contractor who did the actual clearing work (above)</td>
<td>$10,000, ($15,000) and consent order for corridor</td>
</tr>
<tr>
<td>Warroo</td>
<td>Garah, Garah/Moree County</td>
<td>900 trees between 4 and 25 May 1997 for agriculture by bulldozer</td>
<td>Guilty plea (although late), consent likely due to exemptions, remorse, humiliation, embarrassment, good character, long history of association with the property</td>
<td>$2,500 plus costs (no remedial order)</td>
</tr>
</tbody>
</table>

### CASES PROSECUTED UNDER NATIVE VEGETATION CONSERVATION ACT 1997 IN WHICH A MONETARY

8 Director General Of The Department Of Land & Water Conservation v Stanley Arthur Jones [1998] NSWLEC 51

9 Director General Land & Water Conservation v Tony Rial (Director General Land & Water Conservation v Windouran Pastoral Company Pty Ltd & Oths) [1998] NSWLEC 72

10 Director General Of The Department Of Land & Water Conservation v Orlando Farms Pty Ltd (1998) 99 LGERA 101

11 Director General Of The Department Of Land And Water Conservation v Duncan Maxwell Cameron [1998] NSWLEC 236

12 Director-General Of The Department Of Land And Water Conservation v Warroo (Lands) Pty Ltd [2002] NSWLEC 1
### PENALTY WAS IMPOSED

<table>
<thead>
<tr>
<th>Case</th>
<th>Clearance Details</th>
<th>Mitigation</th>
<th>Penalty (Costs)</th>
<th>Price $/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverton13</td>
<td>Boggabilla - 325 ha on 3 lots of Brimble Box and Belah layered open woodland community and native grassland near Boggabilla between 1 August 1999 and 22 September 1999 for agriculture by bulldozer and loader</td>
<td>Guilty plea, lack of priors &amp; good character: “substantial standing throughout the Commonwealth”, embarrassment and stress, contrition, remedial works, some grass clearing was legal, economic loss and costs, “defendant's antecedents” (long history of association with the property incl conditions to clear)</td>
<td>$5,000 plus costs $31,000</td>
<td>15.40</td>
</tr>
<tr>
<td>18 Sep 02 Talbot J (max penalty $110,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilkinson14</td>
<td>8 offences – 6 for the spp offences under NPWA and 2 under NVA</td>
<td>Restoration order under National Parks legislation and Property agreement under the Act</td>
<td>$43,500 comprising $11,000 and $1,750 for illegal clearance (plus $50,000 costs)</td>
<td>n/a</td>
</tr>
<tr>
<td>27 Sep 02 Lloyd J (max penalty $110,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taylor15</td>
<td>Frederikton (Kempsey) - 30.5 ha of Malaleuca species, Eucalyptus species and Casuarina glauca and incl an EEC between about 28 October 2003 and 22 February 2004 for agriculture by bulldozer and loader</td>
<td>Guilty plea, remediation agreement, but had made erroneous assertions re reasons for clearance and misled investigator-$30,000 reduced to $20,000 via mitigation of 33%</td>
<td>$20,000 plus costs</td>
<td>655.74</td>
</tr>
<tr>
<td>9 Nov 07 Lloyd J (max penalty $1,100,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilton16</td>
<td>Craige (Bombala) - 13.1-13.5 ha on one site and 18.3 on another site of 13 native species between 4 May 2003 and 10 April 2005 for commercial tree harvest</td>
<td>Guilty plea, lack of priors &amp; good character, contrition, remed order, mistake, donation to charity</td>
<td>$40,000 (plus $30,000 costs) (incl $10,000 for general not specific deterrence)</td>
<td>~1,265</td>
</tr>
<tr>
<td>6 April 08 Biscoe J</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CASES PROSECUTED UNDER NATIVE VEGETATION ACT 2003

<table>
<thead>
<tr>
<th>Case</th>
<th>Clearance Details</th>
<th>Mitigation</th>
<th>Penalty (Costs)</th>
<th>Price $/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hudson17</td>
<td>Border Rivers Gwydir –</td>
<td>None except lack of priors</td>
<td>$400,000 plus costs</td>
<td>823</td>
</tr>
</tbody>
</table>

---

13 Director-General of the Department of Land and Water Conservation v Leverton Pastoral Co Pty Ltd [2002] NSWLEC 212
14 Director-General of National Parks and Wildlife v Wilkinson and Hockitt Pastoral Co Pty Ltd [2002] NSWLEC 171
15 Director-General of the Department of Environment and Climate Change v Taylor [2007] NSWLEC 530
16 Director-General of the Department of Environment and Climate Change v Wilton [2008] NSWLEC 297
The cases decided subsequent to Taylor support the prediction made by Bartel (2008) that the case signalled a shift in the prevailing formal moral regard being communicated by the court for transgression. Earlier penalties perhaps reflected, and communicated, a view that the acts lacked moral reprehensibility. The current view being communicated aligns more closely with the objectives of the legislation. Rae is one of the most recently decided cases and in his decision Chief Justice Preston cited in support Justice Mansfield in an earlier case decided under the Federal provisions:

“It is appropriate that the penalty be fixed in an amount which is likely to have a strong deterrent effect on the public and to demonstrate to the public and those whose business interests are conducted on land on which there is native vegetation that such conduct is seriously regarded by the community, as expressed in the legislation. The amount of the pecuniary penalty needs to demonstrate that such conduct will not be tolerated by the court” (Mansfield J, para 47, Lamattina)."

In Rae, Chief Justice Preston distinguished one of the lowest fines in terms of price paid per hectare, the 2002 case of Leverton. Chief Justice Preston referred to the $5,000 fine as “at the extreme lower end of the range of sentences for the offence of clearing native vegetation contrary to law. The sentence is not comparable and provides no guidance for the present case” (Preston CJ, para 80, Rae). A much higher penalty was imposed in the contemporaneous case of Wilkinson. This case also concerned threatened species offences under the National Parks and Wildlife Act 1974 and thus is

---

17 Director-General of the Department of Environment and Climate Change v Hudson [2008] NSWLEC 4
18 Director-General of the Department of Environment and Climate Change v Rae [2008] NSWLEC 137
19 Director-General of the Department of Environment and Climate Change v Taylor [2008] NSWLEC 530
somewhat of a unique case. Threatened species protections, although also seldom prosecuted and carrying the same maximum pecuniary penalty, also contain provision for imprisonment and attract higher penalties in Court. Clearing vegetation protected under the provisions of the National Parks and Wildlife Act has attracted a sentence of over $100,000/ha.\textsuperscript{21}

In Rae the importance of economic deterrence was emphasised:

“The very high maximum penalties fixed by parliaments for offences of clearing native vegetation contrary to law are, to a significant extent, intended to act as a deterrent, a countervailing disincentive to the economic incentives to clear native vegetation illegally. The penalties imposed by sentencing courts for offences of clearing native vegetation need to be of such magnitude or nature as to make the financial cost to an offender outweigh the likely commercial gain by offending. In this way, the sentence of the court changes the economic calculus of the offender and also of other owners, occupiers and developers of land on which native vegetation occurs who might be tempted to clear illegally by the prospect that only light punishment will be imposed by the courts. Compliance with the law becomes cheaper than offending. Crime becomes economically irrational” (Preston CJ, para 13, Rae).

In October 2009 agreement for this was provided by Justice Pain in Calman:

“It is relevant that the clearing was undertaken for commercial gain, in the case of the landowners in pursuit of agricultural activities on the land. Consistent with this use, vegetation was thinned to enable cattle to run, to enable cultivation for cropping and/or grazing, to remove dead suckers to minimise fire hazard and to gain better access, as parts of the property were impassable. There was no plan to use the timber other than for firewood. Jerilderie Earthmoving also gained a benefit by gaining an opportunity to graze cattle on the cleared land, albeit in lieu of being paid for the clearing work. In these circumstances a nominal fine will not provide an economic disincentive for clearing of native vegetation” (Pain J, para 47, Calman).

However it is also important to recognize that economic motivations are but one factor operating in the minds of offenders. If there is little countervailing moral compunction to desist from actions, due to informal orders being counter to formal orders, then transgression may be attractive, as is may not be seen as anything bad. If economic motivations were the sole factors operating in the minds of farmers then many would be engaged in growing lucrative drug crops, but this is not the case.

The fines imposed in NSW in the cases since and including Taylor are of the same order as the two cases (again few in number) decided under the equivalent provisions of the Federal EPBC Act: Greentree\textsuperscript{22} and Lamattina\textsuperscript{23}. In Greentree (the same as was prosecuted under the state legislation above) the penalty imposed by Justice Sackville of the Federal Court (affirmed on appeal) for clearance which impacted on a declared Ramsar Wetland equated to approximately $4,500/ha. In Lamattina, Justice Mansfield imposed a penalty for clearance which had a significant effect on the habitat of a listed threatened species, the Red-Tailed Black Cockatoo, which equated to approximately $2,997/ha.

It thus appears there is an evolving escalation in the regard with which clearance of native vegetation is held in judicial circles. This may be heartening for agencies but may be disheartening for the regulated community, if their views are very different. If such views are held widely then resistance may be a confounding factor for compliance initiatives. There is evidence from several recent cases that there is growing resistance amongst regulatees. In Hudson the defendant’s arguments indicated the degree of disparity possible between the regulators and the regulated. The

\textsuperscript{21} $330,000 for 2.9 ha of an endangered ecological community - Garrett v Williams [2007] NSWLEC 56
\textsuperscript{22} Minister for the Environment and Heritage v Greentree (No. 3) [2004] FCA 1317; (2004) 136 LGERA 89
\textsuperscript{23} Minister for Environment, Heritage and the Arts v Lamattina [2009] FCA 753 (17 July 2009)
defendant strenuously denied the appropriateness of the regulations and argued that the state laws were unconstitutional and an infringement of private property rights. Justice Lloyd dispensed with these claims in four swift paragraphs (paras 59-62 of the judgement) however the views in the community are not so easily erased. Arguments of unjust acquisition have been made by Mr Peter Spencer in the Federal Court where Justice Emmet concluded that:

“...neither the Financial Assistance Act nor the Natural Heritage Act is a law with respect to the acquisition of property. Further, neither of those laws effects or authorises any acquisition of property of Mr Spencer’s that has been identified by him in the statement of claim. Similarly, none of the Inter-Governmental Agreements effects or authorises any such acquisition. It follows, in my opinion, that there is no reasonable prospect that Mr Spencer can obtain the final relief claimed in the proceeding” (Emmet J, para 212, Spencer).

At the same time however Justice Emmet said:

“One cannot but feel the utmost sympathy for Mr Spencer if it be the case that Saarahnlee has been effectively sterilised by the State Statutes, with the effect that he can no longer carry on at Saarahnlee the activities which he was able to carry on prior to the enactment of the State Statutes” (Emmet J, para 211, Spencer).

In late 2009 the farmer undertook a hunger strike to protest against what he described as the unjust restriction in the use of his land. He desisted in early 2010, his demands unmet but he had attracted significant media coverage and support in some sectors of the farming community.

In the recent case of Walker there was an unsuccessful challenge to the ability of officers to enter land for the purposes of inspection. Officers attempting entry to a property in 2003 were blockaded (Lewis, 2003). It may be that the resistance which was ignited by the early cases under SEPP 46 remained dormant while fewer prosecutions were made and has resurfaced with the recent cases. Some may have felt unfairly targeted for prosecution, but in addition the inconsistency in government action may also serve to create disfavour amongst those who would ordinarily be supportive of the regulation.

Implementation and enforcement of earlier land clearance laws was found to have fallen short. The Auditor-General in 2002 found that enforcement action taken was deficient:

“the Department was unable to control illegal clearing under the Native Vegetation Act 1997” (NSW Audit Office, 2002).

The 2002 performance audit found that between 1998 and 2005 not a single contested prosecution had been successful due to exemptions, the need to identify the person responsible for clearing and poor case preparation. The Auditor-General commended the comparative success of Queensland in conducting prosecutions both in total number and in success rates in securing convictions. The Queensland legislation was supported by presumptions of landholder responsibility (as the NSW legislation also now includes) and also agency personnel with enforcement-focused skill-sets. The NSW Department now also includes the latter (Bartel, 2008). Other enforcement activity was found to be minimal and there were “only a small number of other compliance actions – warning letters, restitution orders and stop work orders” (NSW Audit Office, 2006).

While the penalties in the earlier cases were small their effects however were not, although not all consequences were intended. An article in the Sydney Morning Herald from February 1998 remains

25 Walker Corporation Pty Ltd v Director-General of the Department of Environment and Climate Change (No. 2) [2009] NSWLEC 177 (19 October 2009)
headlined on the Agribusiness; news website (“Green Avenger” SMH 11/02/98). In this article several of the earlier SEPP 46 cases are referred to, including Bungle Gully, which was one of a number of cases prosecuted in the Walgett Shire. Two of the most recent cases, Hudson and Rae, are from areas adjacent to the Shire. Several farmers interviewed commented that these prosecutions had severely affected the health of individuals and undermined support for the regulations and for government action more generally. One farmer knew the date of the introduction of SEPP 46 off by heart and said that “We’ve been in trouble ever since that day.”

3.14.2 Narrowing of the gap between the formal and informal order

In October 2006, the Ministerial Review Committee concluded its assessment of land clearing regulation in NSW thus:

“The Committee considers that to date the implementation of the native vegetation reforms have been working, with agencies, Catchment Management Authorities (CMA) and other stakeholders increasingly engaging with this new approach. The Committee particularly notes the good progress in protecting remnant native vegetation from broad scale clearing, the significant take-up of the INS tool, and the welcome delivery of incentive funds at the farm gate” (MRC, 2006).

None of the participants mentioned the INS (invasive native scrub) tool or incentive funding. The INS tool, for invasive native scrub including woody weeds, was designed to assist CMAs to facilitate the clearing of woody weeds by demonstrating when permission should be granted. A scientific investigation of the issue conducted by the immediate antecedent to the current Department explains the rationale behind it:

“Because invasive native scrub is much more extensive and/or much denser than its previous natural condition, clearing it in certain circumstances, and under certain conditions, can improve or maintain environmental outcomes in its own right. This means that proposals to manage invasive native scrub cannot be assessed under the Native Vegetation Act 2003 in the same manner as proposals to clear other native vegetation” (DNR, 2006).

Species complained of in interviews as being protected, such as black roly-poly, Sclerolaena muricata, are listed as invasive native species in all of the CMAs which the Walgett Shire covers (Native Vegetation Information Sheet 9, DECCW). The regulations have further encouraged clearance of woody weeds by listing feral native plant species as Routine Agricultural Management Activities (RAMAs). RAMAs may be conducted without permission having to be obtained (s 22). RAMAs include clearing of feral native plant species as well as noxious weeds and clearing for dams, bores, stockyards, farm roads, fencing, building, construction timber, gardens, firebreaks, firewood, commercial harvesting, stock fodder and “any activity reasonably considered necessary to remove or reduce an imminent risk of serious personal injury or damage to property” (s 11 of the Act and Part 4 of the Regulation).

No one interviewed mentioned this listing and the perception of the legislation was that it was broad-brush and unaccommodating rather than otherwise. There have been significant moves to encourage the intensive management of woody weeds, rather than thwart it. Thus, in an area where the gap has had opportunity to narrow, it has not, and rather the reverse has occurred: resistance has become cemented.

Another area where the gap could have narrowed but has not is in the regulation of land clearance in urban areas. The NSW legislation the subject of discussion by the participants is not applicable to state forests, reserves or national parks and is also not applicable to metropolitan areas. However other regulations do apply in all of these areas. Penalties for land clearing in agriculture compare poorly with penalties for what is essentially the same action in National Parks and in metropolitan areas (Bartel, 2008). Clearance in agricultural areas attracts far lower penalties than clearance in urban settings, where fines of up to $10,000 per tree have been imposed by the Land and
Environment Court (Bartel, 2008). Such a situation could alternatively be seen as a narrowing of the gap between the formal and informal orders: as the formal order of the law is in actual fact more closely aligned to the desires expressed by farmers for people in more densely settled areas to be likewise regulated. They are. Should planning and building regulations and the other constraints of closer settlement be taken into account, then perhaps they are more so. However this is not the perception, therefore, rather than a narrowing of the gap again there appears to be a hardening of this distance between regulated and regulators.

3.15 The informal order in Walgett Shire: Perception is nine-tenths of the law

It used to be said that possession was nine-tenths of the law, but this is strongly perceived to be no longer the case in the Walgett Shire. There is some significant regret expressed by farmers at the perceived acceleration in external intervention into farm management. For some, it is the principle at stake but for most it appears that it is the nature of some incursions that are resisted, rather than incursions themselves. For example, government assistance is appreciated and supported. Incursions by government in farm management are not resisted if farmers can see some value in them. Value chiefly resides in incursions being relevant to farm management and environmental needs as farmers see them. Government pursuit of ideals of farm management which farmers think will not work or are inappropriate or are too costly or unfair to farmers will be resisted. Sentiments that governments, both State and Federal, were out-of-touch with both farming and biophysical realities were commonly expressed. This is one aspect of the informal order at work in the regulated community and is one which is a distance removed from the formal order. The aspects at greatest distance were attitudes towards land clearance legislation, which was derided as counterproductive. The evident commitment to sustainable farming practices and support for the overall objectives of environmental legislation were aspects closer to the formal order. The informal order is enforced by a subtle peer pressure which is disinclined to personal confrontation due to overriding norms of maintaining community cohesion and harmony, and therefore social capital. The informal order is therefore not a negative feature but at present it is working against the achievement of some public policy goals. As one agency officer described it:

>You want people to be all working together and talking their language and if you come in heavy-handed saying ‘this is the regulations and you can’t do this’ - well they’re going to go harder the other way - even more sometimes.

There were several areas of particular concern surrounding land clearance legislation such as woody weed management, whole-farm and whole-landscape management. Among those interviewed, perception is nine-tenths of the law. Neither governments nor legislation appeared to be gaining much legitimacy or support due to reforms which were intended to make laws more locally sympathetic and effective, such as the introduction of catchment management planning, property level planning, invasive native scrub PVPs and feral native species RAMAs. It may be that awareness of the RAMAs and invasive PVPs will increase over time but the PVP system also received some not inconsiderable criticism for being too bureaucratic and intrusive. Disagreements also remain around blanket bans on clearance for expanding production, which farmers point out may need to be more flexible to ensure agricultural production and food security into the future. Therefore there may need to be more fundamental attention paid to the causes of pervasive resistance to the regulations and government in general. Where disagreements reside in legitimate and rational concerns surrounding sustainable land management then the (co-)production of more appropriate public policy goals would be a benefit.

Another significant benefit of a narrowing of the gap between regulated and regulators would be that the informal order would support the formal order, which would realise greater voluntary compliance and therefore achievement of public policy goals, as well as cost savings to government
in reducing the amount of formal monitoring and enforcement required. The formal order can thus benefit, rather than suffer, from the informal order.

Policy attention may need to be paid to the broader attitudinal perspectives underpinning the particular points of disagreement, as treatment of particular points of disagreement may not address the disparities entirely. The responses received in this study suggest that the legitimacy of government (of any level) to operate in land management is compromised by the following:

- Pervasive disagreements with both legislative provisions and agency decision-making which are seen as insufficiently sympathetic to local biophysical conditions and farming realities;
- Deep grievance at bearing the burden of costs of ecosystem service provision and perceived inequity of the few providing for the many and the broader community bearing little responsibility by comparison;
- Regulatory fatigue and disappointment with law reform and public participation processes;
- An abiding distrust of government capacity to manage natural resources due to above reasons as well as perceptions of insufficient skill-sets, knowledge, poor decision-making and also some disagreement with the appropriateness of government to usurp landholder responsibilities;
- Divergence in views of ideal farm management and the balance between production, conservation and other land uses, particularly residential and mining;
- Deep disappointment with a perceived characterisation of farmers in the regulatory approach as well as in the wider community as environmental vandals, and of the undervaluation of agricultural production, sustainable farming practices, and the public benefits thereof by governments and society more broadly.

As well as areas of fundamental disagreement there were also several areas of agreement. These may be able to be used as a starting point for building trust and improvements:

- Environmental objectives and sustainable farming are supported norms and are seen as supportive of, rather than antagonistic to, farm business (for e.g. weeds management);
- Strong commitment to improvement and adoption of more sustainable farming practices;
- Environmentally friendly farming practices are adopted with little government intervention if the benefits are evident (for e.g. no-till farming);
- Government intervention which is seen to improve farm as well as natural resource management is appreciated (for e.g. Cap and Pipe Scheme, grants for fencing of riparian areas);
- There was also high regard for government in specific roles such as CMAs and DPI agronomists (as well as private agronomists);
- Actions which cause material damage and are the result of intentional, negligent or careless practice are recognised as environmental crimes (for e.g. spray drift);
- Actions which cause material damage, including to the environment, are thought to be deserving of prosecution and penalty.

There is thus support for a formal order to deal with ‘cowboy’ activities and support for assistance to build capacity and dissemination of better farm management practices. The informal order is unlikely to be able to deal with the more egregious cases of poor land management and in these cases the formal order is viewed by farmers themselves as appropriate. Formal mechanisms may be improved through policy learning from government interventions which have worked as well as
changes which have occurred without government intervention. The chief characteristic of these which were identified as worthy of commendation by farmers were that they were practical and locally suited as well as equitable and cost-effective. In fact, underpinning both the lists of agreement and disagreement was an overriding rationally-based respect for practical environmentally and economically beneficial and sustainable solutions which were fair, effective and regionally applicable.

There were also significant informal processes which may be supported. Two in particular were identified: community level groups which are organic and spontaneous in response to need and community leaders driving semi-arid farming innovation. Supporting such quasi-autonomous units would concur with Ostrom’s (1990) idea of nested institutions to address the policy challenge of environmental complexity. Issues could be addressed at the scale at which they are evident, thus making solutions more likely to succeed. However significant attention needs to be paid to how different institutions and structures interact and are supported so that they are not counterproductive (Reeve, 2001). This approach however could have significant benefits and be a way of generating greater activity in the informal order so that it may be more proactive to try and deal with environmental damage occurring under its watch.

There are two risks entailed by maintaining the status quo of disparity in formal and informal orders. Both carry the ultimate consequence of a failure to achieve environmental sustainability in rural and regional Australia. The first risk in maintaining the current disparity is that environmental regulations will not work if they are (or are viewed to be) inappropriate. They may not work in practice on the ground to achieve environmental aims and as a result will be perceived as illegitimate by the regulated. Furthermore, if unfair, or perceived to be unfair, they may not work because people will be resistant to their implementation. They will therefore not only attract non-compliance but alienate the regulated further from the regulations, and, by extension, government.

The second risk is even more cross-cutting. Although suffering from drought, due to soil type and innovation the agricultural industry in Walgett is better placed than in other areas. But even here this study has found deep cracks in the social resilience of the community. Social resilience can be defined as “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change” (Adger, 2000). Social resilience mirrors, and is dependent upon, ecological resilience, the ability of ecosystems “to maintain themselves in the face of disturbance” (Adger, 2000). Social resilience in the Walgett Shire may be affected by a number of factors. Rural and regional areas throughout Australia are undergoing social and political change in terms of ageing and declining populations, and therefore electoral power, and declining terms of trade and agricultural restructuring. According to those interviewed, changes to the regulatory environment which position agriculture, and farmers, as problems rather than solutions are contributing to costs which are not just economic but social and psychological. Drought is no doubt partially to blame, but so also are the costs imposed by regulation generally and environmental laws in particular. As one farmer said of land clearance legislation: “I think this issue has stalled the development of our community.” Declining social resilience means that further change may be debilitating, not only for rural people and populations, but for the environment. Just as social viability is dependent upon environmental health, any decline in social resilience may undermine the achievement of environmental sustainability, because people simply do not have the inclination nor the capacity to respond effectively. What capacity there is may be devoted to resistance and promulgation of an alternative order of behaviour. This study is a warning that the consequences of environmental regulations which create, and entrench, social distance between government and the regulated, between the public and farmers, may include, perversely, an undermining of the environmental sustainability outcomes aimed for.

Thus formal orders can be undermined by informal but can also learn from informal. If the latter does not occur then the formal will remain compromised and further intervention will be resisted.
As the formal order is presently strengthening this could be problematic for the achievement of public policy goals. As one agronomist interviewed said:

*Compliance is an issue but again the law is wrong and therefore it is hard to comply with. I would love to see it turned around to encourage landholders to improve environmental outcomes.*

### 3.16 Summary and conclusions

In Walgett Shire the interview data collected paints a picture of highly dedicated and innovative farmers, committed to managing viable and environmentally sustainable properties. They respect community leaders who adopt practices and agency staff who disseminate practical information and advice which is pertinent and relevant to local conditions. They are willing to address the mistakes of the past and are concerned that some current regulations may be creating further errors which will have to be corrected in the future. Some are deeply hurt and others angry that farmers are painted as the problem rather than the solution. Some still hold deeply to an ideal of private property rights but most agree that there are cowboys who should be treated by appropriate regulation and enforcement. They disagree however with micro-management interventions, especially where these are viewed as insensible. Education and persuasion are preferred techniques to be delivered through an assistance-based, rather than antagonistic, relationship with government. They respect expert agency staff with local and farm business knowledge and evidence-based, scientific approaches. They are disappointed when government imposes controls which are demonstrably disconnected from local environmental and socio-economic needs. According to farmers the regulatory approach needs to be less bureaucratic, more customised to particular environments, better targeted to meet production as well as environmental ends, and more inclusive of client needs and knowledge. The structure needs to be more farmer-friendly and farm environment-friendly.

The issue of land clearing in this region typifies the divergence between farmers’ opinions of appropriate property and landscape-level environmental management and the government’s concerns to best manage the environment to provide public benefits. Land clearing in this region is a highly emotive issue with a considerable history of discord between the regulated and regulators. The common ground is that both sides want to manage the environment sustainably. Farmers agree that land clearing needs to be controlled but are very concerned that both conservation and production are being pursued, and supported by government, in the wrong areas.

One possible solution is to narrow the distance between the regulators and their formal order and the regulated and their informal order. The identification of which order needs to move the greatest distance, and in which direction, is a policy decision. However the indications are that the formal order is solidifying its stance and will be strengthening its position in the future in response to the need to address anthropogenic climate change. What this study indicates is required is a regulatory structure which facilitates better land management, rather than, as presently seems to be the case, inciting farmer resistance. This may necessitate law reform (for example to extend objectives to cleared land) but also a reform of approaches and philosophies of implementation so that regulators are working with, rather than against, farmers.
Order with and without the law
4 The Whitsunday Shire

4.1 Introduction

The Whitsunday Regional Shire is situated on the north coast of Queensland approximately 1,100 km north of Brisbane and 620km south of Cairns. The shire covers an area of 23,856 square kilometres. Towns within the shire include Proserpine, the mining town of Collinsville, coastal settlements of Bowen, Cannonvale, Airlie Beach and Shute Harbour and the 74 resort and national parks in the Whitsunday Islands (Figure 4.1).

Figure 4.1: Whitsunday Regional Council area (Source WRC 2009).

The field work concentrated on the towns of Bowen and Proserpine and surrounding districts. Bowen is situated 200km south of Townsville. The town is on a square peninsula, bordered by ocean to the north, east, and south. Bowen is situated mainly in the Proserpine catchment and the agricultural district west of Bowen falls within the catchment of the Don River. The township of
Proserpine is located 68km south of Bowen within the catchment of the Proserpine River. (Figure 4.2).

This region was selected for case study because there has been debate about legislation to protect the adjacent Great Barrier Reef. Both the Don and Proserpine catchment areas are included within the new Reef Water Quality Protection Plan (‘Reef Plan’) requirements active from January 2010 (State of Queensland, 2009). The issue of protecting the adjacent Great Barrier Reef Lagoon area from farm-based pollution was considered an appropriate one to investigate in advance of the reforms, as this would provide a baseline of regulatee perspectives. The locations were chosen also to provide a contrast: between the dry tropic conditions of the Bowen district and the wetter tropics in the Mackay-Whitsunday area around Proserpine. Bowen is a large horticultural producing area while the Proserpine district is primarily cane production. These sites also provided a contrast to the other two case study areas, which at the time of interview were suffering from severe to extreme drought. With more intensive production Bowen provided a useful comparison with Moira in
Victoria and the larger grazing and cropping operations in Proserpine a comparison to Walgett in NSW.

4.2 Population and settlement

The population of the Whitsunday Regional shire as at 30 June 2008 was estimated to be 33,126 (ABS, 2009). The population of the Bowen SLA at the 2006 Census was 12,377, comprised of 9,697 in the town of Bowen, 2,500 in Collinsville/Scottville and the balance in rural areas. The most common industries of employment were mushroom and vegetable growing 13.5%, school education 4.6%, retail 3.1%, residential care services 3.0% and accommodation 2.5%.

The town of Proserpine had a population of 3,316 at the 2006 Census. Indigenous people comprised 5.5% of the total population. The main areas of employment are sugar manufacturing 6.7%, education 6.4%, retail 4.9%, and accommodation 4.2%.

The Whitsunday Regional Shire has a diverse economic base which includes agriculture, coal mining, manufacturing providing infrastructure support to the mining and construction industry and tourism. The region is a popular holiday destination with 768,000 domestic and international tourists in 2008 (Enterprise Whitsundays 2009).

4.3 Agriculture in the region

Agricultural industries in the shire include cattle, sugar, fruit and vegetable crops and aquaculture. In 2006-07, the gross value of agriculture production for the Whitsunday region was estimated at over $335 million per annum. Small crops are the dominant land use around Bowen and grazing in the surrounding district (see Figures 4.3 and 4.4). Horticultural production includes vegetables, fruits, nuts, nursery, turf and cut flowers from approximately 85 establishments producing generating $219 million per annum (Horticulture Australia Ltd, 2009). Vegetables grown include: capsicums and chillies; beans; eggplant; cucumber; tomatoes; zucchini; melons; sweetcorn; pumpkin; and lettuce. Another 85 properties produce mangoes, lemons, limes, oranges, grapefruit, mandarins, pineapples, bananas, and passionfruit and macadamia nuts valued at approximately $7.8 million.

Figure 4.3: Orchard and small crop production near Bowen (Photo: May 2009)
Sugar is the dominant land use around Proserpine (see Figures 4.5 and 4.6) and is a major employer. There are approximately 121 cane growers in the region (ABS 2006). All of the raw sugar produced by the Proserpine Mill each year is exported. The region produces an estimated $278 million in sugar cane, cereal, pasture and fodder crops primarily for domestic use (ABS Agricultural Commodities 2005-06).
More than 2.1 million hectares of the region is devoted to producing beef cattle, mostly Brahman and Brahman-cross breeds (Figure 4.7). An estimated 250,000 head of beef cattle roam more than 200 stations across the region. The Whitsunday region contributes an estimated gross value of beef production of over $49 million to the domestic and international export market.
Other primary industries are pigs producing $7.7 million p.a., poultry ($39,000) and egg production ($853,000) and prawn (ABS Agricultural Commodities 2005-06). Bowen has Australia’s largest marine prawn farm (200 ha of pond based production).

### 4.4 Climate

Bowen has a uniquely dry tropical climate, with a higher than average percentage of sunny days (284 sunny days per year on average), with temperature ranging from an average 23.5°C to 31.5°C in summer and from an average 15.0°C minimum to 24.8°C in winter. There are on average nearly 300 dry days per year, but the summer-dominant rainfall is extremely variable, ranging from 255 to 2358 mm/year.

Proserpine’s climate is humid and tropical with hot wet summers and cool dry winters. Annual rainfall varies significantly from over 3000 mm a year in elevated sections of the coastal ranges to less than 1000 mm in other inland areas.

Forecast climate change projections for this region indicate an increase in temperature of up to 4.2 °C by 2070, with predictions of variations to rainfall ranging from an annual increase of 17 per cent to a decrease of 35 per cent by 2070 (Queensland Government, 2010).

### 4.5 Ecology

Major river systems in the Whitsunday region are the Gregory, Proserpine, Andromache and O’Connell rivers. The Don River irrigation area covers about 220 km² and occupies a valley open-ended to the ocean in the north. Euri Creek lies along the western edge and the Don River lies along the east (Figure 4.8).

There is significant surface water and groundwater resources used intensively for sugarcane cultivation and sugar refining processes, as well as other rural, urban and industrial uses. Most watercourses in the region are fully allocated for water extraction using stream base flows. With
horticulture increasingly replacing grazing on the floodplain, the groundwater resource is under increasing demand, particularly during prolonged dry periods.

The Whitsunday Region’s highly valued natural environment features the Great Barrier Reef World Heritage Area and the Whitsunday Islands. Closed eucalypt forests and rainforests grow in coastal and near-coastal areas, while further west, vegetation communities change to eucalypt and acacia-dominated open forests and woodlands, as well as grasslands.

The Goorganga Plain wetlands are listed in the Directory of Important Wetlands in Australia (DIWA). It provides nursery habitat for many fish species (e.g. Barramundi), contains threatened ecosystems, rare and endangered plant and animal species, provides habitat for migratory bird species and is home to large numbers of resident waterfowl and water-birds. The wetlands are large in size and have important ecological functions like flood water detention and nutrient and sediment retention which reduce impact on the Great Barrier Reef. Identified environmental threats to the wetlands include woody weeds and other weeds, land use change, and feral pigs (MWNRM 2009).

![Figure 4.9: Goorgana Wetlands (MWNRM 2009).](image)

The Mackay-Whitsunday NRM Region is home to a diversity of fauna of which 10% are listed as rare or threatened including the loggerhead turtle (*Caretta caretta*), the Eungella dayfrog (*Taudactylus eungellensis*) and the glossy black cockatoo (*Calyptorhynchus lathami erebus*) and the Proserpine rock wallaby (*Petrogale persephone*). Proserpine rock-wallabies are threatened by land clearing and habitat fragmentation, feral dogs and cats, diseases (toxoplasmosis and hydatids), roads and traffic, and introduced toxic plants (DEWHA 2009).

There are over 2000 plant species. Some of the protected species listed as rare include: the Whitsunday bottle tree (*Brachychiton compactus*); velvet bean tree (*Cassia tormentalla*); lollypop tree (*Atalya rigida*); native gardenia (*Larsenakia jardenii*) and River black butt (*Eucalyptus raveretiana*).

### 4.6 Environmental issues for the Whitsunday Shire

The Whitsunday region is expecting an estimated 2-3% annual population growth over the next 20 years. The challenge for community leaders is to balance the needs of a growing population against
an expanding tourism sector and various agricultural enterprises to protect and enhance the natural resource base (MWNRM 2009). The main concerns are:

- **Water quality issues and the Great Barrier Reef:**

There is particular public and scientific concern about damage to the Great Barrier Reef and adjacent coastal environments. Threats include climate change, crown-of-thorns starfish and harm occasioned by a decline in the water quality in the catchments draining into the Reef lagoon. This is believed to be caused by extensive land development in the catchments adjacent to the reef from urbanisation, agricultural production, and tourism and mining (Brodie 2000; CRC Reef Research Centre 2003). The clearing of vegetation and over-stocking, particularly during times of drought, has led to soil erosion and the transport of eroded material along with nutrients into waterways and eventually the Great Barrier Reef area. Fertilizer use has greatly increased since the 1950s. Most of the discharge occurs during tropical monsoon flood flows (CRC Reef Research 2003; GBRMPA, 2009; Masters et al, 2008). In 2009 the Queensland Government introduced a new Reef Water Quality Protection Plan (‘Reef Plan’) to manage the reef and lagoon areas. The plan has extended the pre-existing Reef Rescue financial assistance and research and development programme and involves tighter legislation to reduce run-off from farming land. One of the goals is to halve the amount of fertiliser and pesticides entering the reef within four years. Landholders who do not comply with necessary changes in practices face fines of up to $30,000. Sugarcane farmers and graziers in both Bowen and Proserpine are regulated by these new provisions which came into force in January 2010. As most cane growers are already following best management practices it is anticipated that few will be disadvantaged directly, apart from some additional record keeping. However, there is resentment amongst farmers that they are being singled out as the primary cause of pollution and eutrophication within the Great Barrier Reef lagoon (O’Brien 2009). Other industries have been prosecuted for reef pollution. In 2007 a Townsville construction company was fined $95,000 under the Environmental Protection Act for releasing sediment into the Ross River (Qld EPA, 2010).

- **Soil erosion**

Erosion is one of the major land degradation issues for agricultural land in the Whitsunday Region. Soil erosion is seen as a source of nutrient and pesticide pollution for downstream environments.

- **Native vegetation:**

In the Don catchment, 92% of native vegetation has been cleared. In the Proserpine catchment the figure is 60% (GBRMPA, 2009). At the time of interview a three month moratorium on the clearing of regrowth was in place. This was replaced in October 2009 with additional restrictions on clearing of riparian regrowth in reef catchments. Legislation to regulate land clearance on private land was first introduced in Queensland in 2000. Under the legislation the maximum penalty for illegal clearing (clearing without a permit) is $166,500 (Vegetation Management Act 1999; Sustainable Planning Act 2009; Penalties and Sentencing Act 1992). The maximum penalty imposed since the introduction of land clearing regulations was $100,000 for over 11,800 ha of clearance. This was in 2004. More recently a Barcaldine grazier was fined $70,000 for clearing more than 10,000 ha (DERM, 2009).

- **Salinity**

Current extraction regimes for the Pioneer and Proserpine groundwater systems have resulted in extensive and ongoing saltwater intrusion and reduced water levels. The major surface water quality issues relate to nutrients and chemical contaminants.

- **Weeds**

There are currently three Class 1 declared weeds, 20 class two weeds, and 10 Class 3 weeds and nine locally declared weeds in the Shire. The main concerns include chinee apple or chonky apple (*Ziziphus muaritiana*), *Hymenachne*, Mesquites, *Mimosa invisa*, *Mimosa pigra*, *Parkinsonia*,
Parramatta grass (*Sporobolus africanus*), *Parthenium*, Prickly Acacia (*Acacia nilotica*), red sesbania (*Sesbania punicea*), Rubervine (*Cryptostegia grandiflora*), Sicklepod (*Senna spp*) and *Thunbergia*.

- **Feral animals:**
  
  Feral dogs, pigs and cats are classified as class two pests. Feral pigs are the main concern.

- **Silverleaf whitefly**

  *Silverleaf whitefly* (*Bemisia tabaci* Biotype B) is a serious pest of many vegetable crops, including tomato, eggplant, cucurbits, melon, sweet potato, brassicas and beans. In the 2008-2009 season, tomato producers incurred crop losses due to whitefly discolouring fruit making it unsaleable. Integrated Pest Management includes the use of insecticides, weed management, pest free seedlings, crop residue management and field sanitation *Growcom* (2005).

### 4.6.1 Participants’ views of environmental issues

Participants in the study were asked what they thought were the main environmental concerns for the area. A horticultural advisor reported that environmental risk analysis workshops held with farmers six years earlier had identified water quality and quantity as the main problems. At that time the district was in drought and the aquifer had become depleted, resulting in water restrictions. Soil salinity and sodicity, pests, weeds and disease, and pesticide pollution were other concerns. Soil erosion, native vegetation management, waste and other pollution were identified as secondary issues. Participants in the present study nominated all of these, particularly weeds and pest management, and in addition damage to the reef through runoff, disposal of plastic mulch and urban encroachment. Reef management however was the most topical. Concerns about the health of the Great Barrier Reef and associated coastal areas of eastern Queensland due to pollution from sediments, nutrients and chemicals from cropping (mainly sugarcane) and grazing land were considerations.

- **Damage to the reef**

  Management of the Great Barrier Reef and water quality issues were aspects frequently discussed by participants, who included cattle graziers, cane farmers and horticultural croppers. The policy imperative of protecting the sensitive reef environment from damage due to excessive nutrient run-off from the mainland had been prominently aired in the media at the time of interview in May 2009. Proposed regulatory responses were also receiving ample coverage. In March 2009 the Bligh Labour Government had been re-elected on a platform to control farm-based pollution of the reef (*Phelps* 2009). Participants appreciated the importance of the issue but were doubtful about the links between agriculture and reef damage. They were proud of sustainable farming practices that had already been adopted and resentful that blame was being unduly attributed to the farming community. A cane industry leader identified the health of the Great Barrier Reef lagoon as the main environmental issue in the region and described the disparity between broader public perceptions and those of farmers:

  *Most people are concerned about the reef, the way it has been looked after by the coastal communities. I think the general impression is that the growers here think they are doing a fairly good job - they’re trying as much as they can to introduce new practices. Unfortunately that’s not the way the media see it so there’s a bit of backlash from that.*

Less commonly there was concern expressed that not enough change was occurring. One participant, a representative of a local agribusiness raised concerns about run-off from the use of mill mud as a fertiliser on cane farms. Mill mud is produced during the sugarcane milling process and is distributed to surrounding cane fields. It is recognised as a source of soil ameliorants and plant nutrients. Relatively high application rates have resulted in a build-up of phosphorus levels in...
the soil above those needed for effective crop growth. This has increased the risk of nutrient run-off. The product also contains trace amounts of some heavy metals (CRC Sugar 2000).

Other by-products of milling are also of concern. Biodunder is a liquid by-product of ethanol from sugar milling used as a liquid fertiliser as it is potassium rich and used in place of potash.

There is a product a lot of them use which is called “Biodunder”, which comes from the CSR as a by-product of the mill. Its use in this region is a huge environmental issue because it is put on top of the crop. It goes in a lot of areas that are flood irrigated so the minute they put it on they then flood it and it floods the soil away. For some reason no-one is questioning it because they keep putting the price down (it is subsidised by the mill that produces it because they need to get rid of this by-product). As a product it is not environmentally sound and that has been proven. I know the government likes it because comes under the guise of ’an environmental recycled product’. That is a concern and that product is used widely. Residents hate the smell of it but it is mainly the fact that it washes away. It is not cost effective for the farmer either because the product is going down the creek. I think something should be done about it.

- Pest management

Silverleaf Whitefly was a problem for several of the horticulturalists interviewed. A cane grower reported cane grub was a pest that caused problems for cane crops along with other diseases such as rust and smut that needed constant monitoring. Weeds in the tropical environment are a major concern for landholders. A grazier reported the extent of the management responsibility and consequences of poor control:

The big issue for us is noxious weeds. They threaten to chase us out. It’s always been a big concern but we’ve always had better profitability than we have now. Main ones here are rubber vine, chinee apple, lantana, prickly acacia, thunbergia, devils feet, devils thorn, and bellyache bush. Bellyache bush just takes over areas that are under stress - particularly creek banks. It’s a different kind type of weed to deal with because it seeds prolifically very early in the season. Rubber vine and the like you can get on top of those with a concerted effort. Another major one we have is Acacia salicina or Sally Wattle, which grows in big clumps and drops enormous amounts of leaf so under these big clumps you get so much litter it grows nothing. They’re very, very aggressive, and very expansive to get rid of. They don’t have any tap roots, they have all laterals. So they only last about 10 years and then fall over - but we have to deal with it because it’s a visual obstacle. When we used to have lots of Sally Wattles out in the paddock, we put four riders in there and got them all.

This grazier has identified weeds in addition to those already listed at 4.6 above, including Devil’s thorn (*Tribulus terrestris*) and Bellyache bush (*Jatropha gossypiifolia*). Invasives and management will vary from property to property and position in the landscape. A cane grower described the expense incurred in having a property downstream of others:

We’ve got a lot of weeds. Because it’s flood plain you get everyone’s’ problems because all the seeds come down in the water. The water is very slow flowing and seeds settle out you get sickle pod, devils feet, nagura burr, mother of millions. We’ve spent a lot of money on chemical trying to control it.

A mixed farmer reported that unmanaged weeds on neighbouring properties were costly problems and that little was being done by government agencies to combat it:

Our immediate neighbour is now attempting to do something but the previous owners for the last thirty years did nothing about weeds. It’s an absolute mess. The department does nothing. Council does nothing and downstream everybody else is impacted with costs for weed control. It costs at least $10,000 a year trying to keep it clean, up to $20,000 by the time you pay wages and chemicals and fees and we haven’t got it to spend. But I’ve done it constantly now for about four
years and have got it back to a reasonable level but it is a constant battle because every time we have a wet season and a flood all the seed comes down.

- Plastic Mulch

The use of plastic in the horticultural industry was identified by several farmers in Bowen as a particular impediment to sustainable farming. Plastic mulch is a layer of thin black polyethylene laid down in strip rows prior to planting (Figure 4.10). It impedes weed growth and improves water efficiency.

![Figure 4.10: Plastic Mulch used in small crop production (Photo: May 2009)](image)

However until an affordable alternative can be sought the disposal of plastic mulch is a major issue for the industry. Regulations have effectively stopped all previous avenues for disposal such as burning and dumping, as this farmer outlined:

One of the big issues in this area is the whole horticulture industry is based on plastic mulch and trickle tape, is actually disposing of that. They used to burn it but EPA stopped that a long time ago. They used to dump it in the gullies and the EPA stopped that. Then they use to dump it in the old unused mines and the EPA stopped that. Then they were using it as backdrop at the rifle range, the EPA stopped that. And now, it’s a real drama because what do you do with it? The biodegradable mulch is the alternative, but it’s the cost.

In the meantime one farmer suggested that the manufacturers should devise a way of more appropriate disposal:

It would be good if a couple of the companies that sell the plastic mulch could find some environmentally friendly way of burning it. They could come up with a shredder to shred the plastic and then be able to recycle it. That would be advantageous.

- Peri-urban development and land use mix

Urban encroachment on agricultural land created several problems for farmers including neighbour disputes and concerns about food security. In Proserpine, as in many other sugar cane towns
throughout Queensland, the sugar mill is located in the central business district and can cause problems with emissions although the mill is addressing this issue. In Bowen there are horticultural operations inside the town limits. Fortunately, not a lot of aerial spraying is conducted in the area and there is a reliance on ground rigs, which confines spray to a particular area. However, odour and dust from farming activities cause difficulties for people living in the town. Increasing conversion of agricultural land to residential use exacerbates the extent of the problem as an agronomist explained:

> In Bowen the urban sprawl has an impact on farms. A lot of people that live in the town environment find some of the farming operations a bit offensive like cultivating, dust, spraying chemicals.

Overall the issues relate to appropriate land management. A financial advisor stated that land use should be tied to capability:

> New regulations that have come in regarding land usage, urban, peri urban, and what they are basically saying is you can’t subdivide land anymore, you have got minimum sizes, which won’t allow you to put some land into residential development. The problem with that is that it is not separating out the non-viable farming areas; it’s across the board. Some of those areas would be far better off going into residential than they would be for agricultural land. So because there is previous existing subdivisions, arable land is going under houses while non-arable land now can’t be broken up because they are saying it is farming land but it is not viable. It has been a broad-brush approach rather than a strategic one.

This sentiment was echoed in comments from farmers that prime arable land needed to be distinguished through capability and suitability assessment and preserved. Others however were keen to retain the option of subdividing their own property.

### 4.7 Farm management: environmental conservation and innovation

Sustainable farming practices were being adopted by many farmers in cane, cattle and horticulture. More intensive cropping however precluded many smaller landholders from preserving areas solely for conservation. Those with greater opportunity, such as graziers and farmers with watercourses on their properties, identified both deliberate and unintentional retention of conservation areas. Areas unintentionally preserved were mainly unsuitable for farming. Two farmers noted that hills and the surrounding area on their property were left unfarmed because the land was not commercially viable. One complained that it was costly to maintain. He described these 500 acres however as “a delightful waste of ground”:

> It all comes down to dollars, you pay rates and you’ve got to keep it clean of your vermin and weeds and all the other stuff and it all costs money.

A mixed farmer identified benefits from such areas and was adamant that they needed to be actively managed for conservation rather than be “locked” away:

> There are areas of vegetation which we never intend farming - it is not really suitable. I have fenced the areas so that I can control when the cattle go in there - when it suits the climatic conditions. I don’t accept locking up creek areas and not utilising them as a practical way of managing weeds and animals. It just becomes over grown and you have no environmental control. You just breed vermin. I am happy to sensibly manage those sensitive areas so they have the least damage to creek banks, water quality, and outflows to the reef. It is something I wanted to do as a practical thing for my own on-farm management.

The owner of a large grazing property agreed that there were benefits to conservation practices.

> We do preserve but not consciously. In our pasture management that we use now we see a lot more environmental activities. We have country locked up as part of our spelling regime. We like that fact that when we go in there, there’s lots of spiders and ants and worm activity and stuff like
that. We’re happy to own that mountain over there for all sorts of things to live there. We go right down to the coast and there’s about 1700 ha there that does have some grazing value but we choose not to use it. It has scrub turkeys and short billed curlews. And we’ve got another 2000 acres that we just fenced out because it’s more trouble than it’s worth. It would probably be 600 ha there and we just leave that to whatever lives there.

Other participants reported that they maintained environmental areas intentionally and described the intensive, and sensitive, management required. Regrowth within 20m of watercourses is now protected under new legislation. One mixed farmer referred to riparian areas on his land:

*We have 4,000 acres that has about 10ks of river frontage, and we just don’t touch it. It’s fenced off. Stock were there previously, and we might run stock there in the future, but we have had the property for 10 years and we haven’t run stock there yet. It’s an extensive area to manage. It’s a little contentious in that people don’t want you mucking around with river banks as there could be flood damage and everyone will point the finger at you. I think river banks are generally treated as a bit of a sanctuary and a corridor for wildlife.*

A cane grower also preserved river banks for their aesthetic appeal as well as the benefit for local flora and fauna and believed this was a trend within the community:

*We've got beautiful riverbanks ... Everyone’s getting a bit that way now, making somewhere special.*

One large property owner identified commercial benefits from conservation of the rivers. The property was used for ecotours:

*We have a fellow that has a tractor with four trailers and he takes people to the wetlands to look at birds and reptiles. He has a boat and he takes them down the Proserpine River looking at crocodiles. The Proserpine River has got more crocodiles than any other river on east Queensland and they say you’ll see more than what you’ll get at Kakadu. They could see up to 15 crocodiles just on this short trip they do on the river.*

### Innovation in cane

Cane farming has changed dramatically in recent decades. Cane is no longer burnt but harvested green with no-till and mulching is now standard practice. Green cane harvesting has been widely adopted which has effectively protected 80% of sugarcane land. The other 20% of land that is replanted each year requires erosion control measures depending on slope conditions and farming methods. In recent years a minimum tillage plant cane system has been developed involving a new planter, permanent beds, controlled traffic and higher plant density. Legume crops are also grown during the fallow to prevent soil erosion and improve soil health (Whitsunday Regional Council 2009). The sugar industry has also developed generic best management practices using a four-stage A, B, C, or D classification system that address soil management, nutrient management and herbicide management. Each class indicates an overall improvement in farm management and progress towards target area goals, rather than the adoption of specific practices. An industry representative explained that the Reef Rescue funding was facilitating the progress of this initiative:

*Our growers are moving into the A & B area and the Reef Rescue funding is enabling our growers to do that. Obviously we still have some in D but generally they’re growers ready to exit the industry. A large proportion of them are in C class which is current code of practice, or are willing to try something but probably can’t financially at the moment or there are some other mitigating factors. By classifying them we are able to see how different areas fare, and how different techniques work, and then try to introduce new techniques.*
• **Innovation in grazing**

A grazier noted that engaging private farm consultants had changed the way he farmed and managed the environment. This appears to be a growing trend in many rural areas:

>The biggest change in our thinking in the last 10 or 15 years has just been working with an agricultural consultant. That has had a profound effect on how we go about things. They do grazing for profit, and they come up with lots of new things; they cover nutrition, people management, and cattle management, pasture etc. For example, cattle only use 3% of what they eat, they re-cycle the rest. They load up their belly with grass and they come into the water and camp. So we’re shifting nutrition from here to there so that first area becomes impoverished because the plants in Northern Australia haven’t evolved in a low fertility environment. So if we put in systems that take water out to all sorts of places so that the cow picks up the nutrition there and then she urinates and defecated there, we keep the nutrition there and over time that has beneficial effects.

• **Innovation in horticulture**

Few participants reported any radically different environmental conservation practices in horticulture in the district. This appeared to be because best practice was already seen as the norm. However a state grower group representative noted that care had to be taken with promoting new practices lest they be seen as too left-field to be adopted:

>There is a huge biological movement, soil health and all that sort of stuff. I don’t think it is radically different but there is some experimentation. There always will be people doing different things but our extension knowledge is that it’s good to engage with those guys but don’t hold them up as being the guys that other growers should follow because usually they are seen as fringe. If you promote that grower to other conventional growers they won’t take any notice anyway. Unless it’s becoming a more mainstream thing and is done by a respected grower you are wasting your energy. It is good to know who is out there doing that sort of thing but you need to wait until there is some other guys that are seen as more credible.

One farm advisor added: ‘It is good having innovators, they absorb all the costs’. As in most farming areas, local farmers learnt new things by looking over the fence and adopting what they could see had worked. The farm advisor noted that younger more educated farmers were driving change.

>There are a number of farmers here doing a lot of different things and a lot of good things. There’s been a generational change since I have been here. Younger farmers who are well educated are putting a lot of different things. I know of one that has an environmental management plan in place. FreshCare has developed an environmental module and they were one of the test cases. A lot of the stuff that farmers came up with in our workshops fed into that developing those modules. I suspect there’s a lot more reduced tillage going on in horticulture. In the Burdekin one farmer has managed to have semi-permanent beds working in horticulture in the tropics. We’ve all been under trickle irrigation now for 20 odd years so that has got to have a huge impact as far as water use efficiency and nutrient use efficiency goes. Plastic mulch is a bit of a problem but we are working on that one. Integrated pest management has been around for a while.

FreshCare is an industry owned on-farm quality assurance program for fresh produce. It includes codes of practice which cover food safety as well as care for the environment. The horticulturalist who had developed the Environmental Management System acknowledged that early uptake had entailed costs as well as benefits and that the drivers for change included consumer pressure:

>We worked very closely with FreshCare to develop an Environmental Management System. We were the first ones to be audited through FreshCare. The problems identified were plastic mulch, soil erosion and water quality. We spent two million dollars on our farm getting it to a stage where we can recycle all the run-off water on our farm and also recharge our irrigation bores locally rather than worry on rivers having to recharge them. Now the Refresh package has come out and we’d be able to get assistance but it’s too late – it is done. We grow tomatoes as our main
crop and we rotate our land with sugar cane because it puts a lot of organic matter back into our soil. Basically we have our farm under full production all the time.

Other landholders that I know around have environmental management systems; others are putting things in place to eventually have a system in place. Most of us here supply southern markets for people like McDonald’s and those sort of customers pressure us to have those things in place too so their customers have got products as environmentally friendly as possible.

Another horticulturist observed that “I suppose we are always looking for new ways to do things better and be kinder to the environment” and reported on a number of other innovations:

The storage and disposal of chemicals, the requirements can be a bit onerous, like having to bund around things and so forth but DrumMuster is a good thing because you can get rid of all your chemical drums. Once a month throughout the season they advertise through the local paper and the council gives a ring around to make sure you are aware you can do that.

The disposal of our black plastic - the local tip stopped taking that. That caused a few dramas but then the gun club decided to make these mounds with it but I don’t know what is going to happen when they finish - but Bowen District Growers is working together with the DPI on some biodegradable plastic mulch that would be fantastic. We trialled some here last year and it worked really well. Lasted the length of our crop and then we just pulled the trickle tape out and the rest just ploughed in and disintegrated. It was really good. The plastic tubing can be recycled. They did try to recycle the mulch but just didn’t work, too much dirt and stuff left on it.

It is costly but it’s also good management practice. New technologies like where we wash the tomatoes as they come into the farm we used to have a chlorine based dip. A few years ago we changed to an iodine system which works just as effectively but the system actually strips all the excess iodine out of the water and stores it, which then goes back to the company for recycling. So you are not putting that out into the environment, before we used to just let the water go.

Growers appear to be particularly interested in best management practice chemical management and water quality and efficiency. A Department (Primary Industries) representative explained:

A lot of growers have gone from aerial spraying to controlled droplet or targeted droplet sprays. Nozzles on their spray equipment direct spray on the leaf so it doesn’t touch the ground. They are also putting in a lot of water quality practices on farms such as silt traps and run off catchment areas so they can recycle the water instead of it just running straight into the local catchment area.

Fertiliser use has also changed as one agribusiness consultant stated:

Growers have changed from putting granular fertiliser on top of the row which is the normal practice to putting it in the ground so it goes where it needs to go. No chances of it being washed away and going into the environment.

Trickle irrigation and fertilizer application were identified as major innovations with obvious benefit to growers:

The Dulwan area would be probably one of the leading areas with regards to water conservation. We have been using trickle irrigation for a long time. You can use the trickle irrigation to feed your plants with fertiliser. So, it’s a better way of growing.

A state grower organisation representative added that the horticulture industry was addressing water quality issues generally:

Water quality has definitely been affecting our industry in the last few years. So as an industry group we have been developing a risk assessment process which is part of our local on-farm management systems program. If you get water use efficiency right, it fixes a lot of the off-farm impacts as well. With an integrated system, you can have some major impacts by just changing one thing.

Farmers have voluntarily invested in silt traps and catchment dams on farms. One small crop farmer explained:
We have spent a lot of money on levelling and silt traps so when we get a good lot of water it will run to where we want it – to a low point that we have dug out and it works like a silt trap. Every few years we dig it out and spread it back onto the country again.

Asked if he had any reaction from neighbours regarding these changes made on the property, he responded:

No – everything we have done has improved it enormously and it has helped them too. We spent a lot of money and fixed up the sides of the road on our property and all the drainage is better around the property. Even the council wouldn’t do that. Now the water runs where it should run. I spend money fixing other people’s stuff up! At the end of the day it benefits us too.

A corporate farmer had inadvertently found a way to improve water quality:

We’ve got some naturally saline bore holes upstream and when we put dams in and those dams fill up and leak down over two or three months they actually improve the water quality. That’s happened by accident but that to me is a good thing. But you mention that at the local water committee meetings and they don’t want to know. The Government doesn’t want to know about that. So that’s a case where an individual could do that and it might actually improve the water downstream of the neighbour.

Horticulturalists in the area also appear to benefit from strong community-based initiatives discussed in the next section.

4.7.1 Conservation on farms: community initiatives

Most of the horticulturalists in the Bowen area are members of the Bowen District Growers Association, a local organisation proactive in lobbying, meeting the needs of local growers and developing sustainable management practices for horticulture operations in the district. For example, the Association has been working with Queensland Primary Industries and Fisheries to find alternatives to using plastic mulch and have been testing the suitability of biodegradable mulch in tomato, capsicum, melons, cucumber, eggplant and chilli crops on farms in the district. This mulch can be ploughed in where it biodegrades under the soil and adds carbon. Biodegradable mulch based on corn starch and biodegradable polyester were first trialled at the Bowen Research Station in the late 1990s, including a product called Mater-Bi which originated in Italy, but is produced in Australia from imported resin. This allows it to be more price-competitive with polyethylene. A representative of the Bowen District Growers Association added that the global financial crisis had been a barrier:

This is our third year of trials now and if the price comes down a bit (it’s quite expensive at the moment), we will use it a lot more. The take up rate at this stage is quite good because Bowen District Growers Association gets behind those things and pushes them for growers. As far as recycling goes there was a ‘mob’ came round and who rolled up the plastic that we used on the ground and recycled it because they can use it to make things like electrical conduits, etc. At one point they were looking at putting a plant in here – but with the world economic crisis, recycled goods are worth nothing. Everyone is trying to make these things happen but they have been held back by world events.

Local government initiatives

The Whitsunday Regional Council has worked with and supported local volunteer groups towards several key environmental conservation projects in the region including:

- **Revegetation**: assisting local Landcare groups with activities such as seed collecting, plant propagation, and revegetation projects. In 2008 4,200 local native plants were supplied to landholders for revegetation, public tree planting days and promotion of local species.
Order with and without the law

- **Weed management**: providing landholders with essential information, training and assistance for weed management.
- **Feral pig control**: with Landcare, Queensland Parks & Wildlife and landholders managing feral pigs across 150,000 ha through land manager training, trapping programs, aerial and ground baiting.
- **Beach Restoration**: with volunteer community groups restoring several beaches in the Bowen area through dune stabilisation, pedestrian access ways, weed control and revegetation with native beach scrub species (Whitsunday Regional Council 2009).

### 4.8 Pressures to improve farm management

Participants were asked whether there was any pressure on farmers in the area to undertake more environmentally sustainable practices on their land. A grower said that with regard to chemical usage farmers were feeling pressure from everyone. Some responsibility needed to be taken by the chemical companies themselves:

> It’s coming from everyone. Fair enough farmers are using chemical products and but the chemical company has a bit of responsibility too because they want to sell you a product but they can’t tell how you get rid of them. A lot of the harsher chemicals they are taking off the market.

Consumer as well as general societal pressures were identified by other participants.

- **Consumer demand and self-imposed pressures**

Consumer pressures were often noted and appeared to be pulling in two different directions. One pressure was for cheaper produce and the other for more environmentally-friendly produce. One cane farmer stated that he has made constant improvements in best management practice over the past 30 years. The biggest barrier was cost of production and the most important driver meeting consumer demand for cheaper produce:

> I can show you a big heap of farm machinery that over the last 20 or 30 years that we’ve been bought and trialled and it becomes obsolete and its all sitting there rusting. There’s nothing wrong with it but we progress from one thing to the next. We’ve gone from burning cane to cutting green, to zero cultivation and that is all designed to reduce the bad chemicals that we use but it all comes back to cost. Now if everyone was prepared to pay twice as much for their sugar we’d go back to not using chemicals. It’s only economics that we’ve gone on to using chemicals. We don’t like them. They don’t smell like they’d do you any good but we’ve got to use them. Price is everything today. Highest it’s ever been.

A large agribusiness noted the increasing consumer pressure for organically grown produce:

> Commercially there is pressure on us as producers to produce in a sustainable way which is not related to red tape or Government. It’s related to consumer and customer pressure. The customer pays all the bills. Certainly they have a right to have what they want. If some customer wants to have organically grown sweet corn for example well they will all be done that way. That’s the way the world works.

A cane farmer acknowledged that input costs created problems for best management practice.

> It’s not in yet but the government is trying to bring in fertiliser that you put under the ground and we run it on top. It will be a hell of expense to put it under the ground because it’s all done by contractors. That would cut business by a third I’d say. We farm by ourselves. It’s easier to put a contractor on it saves time. The last four or five years I’ve been cutting a lot of corners not doing what you’re supposed to do. You’re not getting enough money to put a man on, and you just got to do it yourself. You put one man on and you’re actually going backwards. They say you’ll make
up the wages from cane in price but you don’t. Some of these prices for inputs are getting a bit ridiculous… I paid $1850 last year for DAP for one tonne, this year its $900. That’s just for planting. That’s one ton of fertiliser.

A horticulturalist noted that there was some external pressure from consumers but that the main driver was internal motivation within farmers themselves:

There are a lot of guidelines and voluntary codes of practice that growers are undertaking because we are dealing with perishable food products and if they are supplied to the central market they have all got hazard control programs in place. The products we recommend have to be grown within those sorts of guidelines. A lot of growers have been self motivated before they are pressured.

Others agreed that enlightened self-interest was the main driver. A cane grower said:

We are under pressure from ourselves – we are doing a program for water sampling for nitrates and chemicals and testing our soils – we do an environmental footprint on ourselves. If we find something wrong we can then fix it before it becomes a problem.

A financial advisor observed that ultimately every decision was a financial one:

What drives what farmers do is financial: what they can afford to do and whether there is any incentive in doing it or whether there is a cost. It varies across the different industries.

One industry representative agreed input costs were placing the greatest pressure on farmers but argued that environmentally sustainable practices would reduce costs over time:

Pressure is coming from the price of fertiliser and sprays and everything are all going through the roof. Growers want to cut costs but if they use more environmentally friendly ways farming then they are obviously going to save money, and it is better for the environment in the long run.

A horticulturalist agreed:

It’s not economic to be environmentally unfriendly. If anyone out there sprays or fertilises more than they need to they are going to go broke. You give the crop what it needs and what is left behind is just enough to grow grass and that’s about it. Whereas years ago what was left behind was probably enough to grow another crop, because it was cheap. Even with running tractors, fuel is expensive. We have bought new fuel-efficient/time efficient tractors. You can see how much fuel you are using an hour and your can adjust your revs and gears and maybe save yourself 4 or 5 litres an hour. It’s a lot of money to save. All these small things, which probably weren’t relevant years ago, are now the difference between making a profit or not making a profit. I wish the state and federal government would realise that most farmers aren’t environmental vandals....

I think farmers try to do the best by the environment all the time because it’s their living. If we stuff it up it hurts us more than anyone else. You don’t want to do anything that’s going to ‘hit you in the hip pocket’. Farming is a generational thing; we want to pass it on to our kids – so we need to care for the environment more than anyone else.

Another horticulturalist described the cost of being environmentally friendly as insurance:

Oh it is always a cost, but it’s a cost of making a business sustainable. I mean we spent $2 million making our business sustainable but hopefully that return is there against 30-40-50 years. In ten years time and we won’t have gone out the back door because we weren’t sustainable.

- Public opinion and government pressure

A landholder on a main road was very conscious of public opinion. This pressure was counterproductive as fear of public reporting was inhibiting better land management:

You’ve got to be careful what you do, because a barrister the other day said that 90% of vegetation management charges are from people dobbing other people in. Over there on that hill
I have a lot of suckers and lantana and rubbish. It looks untidy but I wasn’t game enough to touch it because we’re on this main road and there’s a lot of people go down there. I’ve got a PMAV on this land and last year I went and cleaned it up and I had a lot of people say what a good job, so people notice. But if I go in and do something and someone drives past and doesn’t like it they ring the DNR and they’ve got to investigate and that’s when you get into trouble if you’re not doing the right thing.

A PMAV is a Property Map of Assessable Vegetation which is a Department-certified property plan identifying areas of vegetation which must be preserved and areas which may be cleared.

A grazier reported that as his property was situated on the main highway he was often subject to misinformed pressure from passers-by. The complexities of environmental management however are difficult to communicate:

I’m very lucky. I’m the best grazier around because I have the combined wisdom of everyone who drives through. People say: ‘Oh I went through your place the other day. That creek area is looking a bit dry. I see some of your cattle looking a bit poor.’ They go through at 110ks an hour. I just let it go straight by. Oh it’s not that I don’t care but I can’t allow it to become an issue otherwise I’d go crazy. Mostly we get fairly favourable reviews from the inspectors. One bloke always says that ours is the only place on the east coast where the grass outside is the same height as the grass on the inside of the fence. So he sees that we’re not beating our country up.

The public have so much going on in their lives they don’t have much time to devote to understanding something else. So unless we can put our messages in a 20 second grab, it’s very difficult to get a message through. The conservationists run with planting a tree. That’s a nice simple message that people can relate to. If we tried to talk to people about the paddock spelling system that we are using in a very frail nutritional system like we have in northern Australia, you’re working pretty hard because you’ve only got 20 seconds.

One farming couple thought media reporting increased the pressure exerted by government policy. At the time of interview the state government had not yet enacted the new Reef Plan but reform was imminent.

A state grower organisation representative said that pressure was also coming from the education system:

Farmers are feeling it. It’s not so much coming from the market but the community, it’s society, it’s unrealistic expectations by green groups amongst us. And the growers just get sick of that. And there was also a lot coming through local schools and the kids getting negative messages about farming just from the school teachers and that environment. A lot of growers really like to be involved in some of these incentive programs to publically demonstrate that they are doing the right thing.

An industry leader described the focus on cane growers and the herbicide Atrazine:

It’s coming from Government at the moment, State Government. It’s been covered in the press particularly in the lead-up to the Government elections. The media if they see a story they’ll pursue it. The Atrazine in the waterways is seen to be a problem. There are various causes for this but the finger gets pointed at the cane farmers. We don’t think it’s used irresponsibly and we are questioning the research that’s been done on that and again, the media jumping on it before the tests have been completed.

The links between farm management and reef pollution was viewed as tenuous by a number of participants and this aspect is revisited later.

4.9 Order without law: Managing problems within the community

Participants were asked how they managed environmental problems within the community, particularly those problems caused by land use changes or poor land management on neighbouring
properties. Most of the issues were the same environmental and farm management problems already discussed: weed management, urban encroachment, pollution and waste management. Participants here were prepared to confront their neighbours for major issues but they were also sympathetic to factors which were seen to mitigate blame, such as financial constraints. They also valued community cohesion and would not want to damage this for minor incursions. Participants appeared to be reluctant to confront neighbours about weeds, even when the problem was significant. Participants were asked if they had any thoughts on the best way to manage these types of situations and maintain peace within the community. An approach which was seen as cooperative, “a quiet word” was the preferred technique. A farmer explained:

*It depends how badly it is affecting me. If it is affecting us badly enough I would say something to them. I wouldn’t want to make an enemy of them – I would like us to work together. We get together with our neighbour and we spray his stuff and he comes up and helps us. Community spirit and working together is a good thing.*

People also used intermediaries to deal with problems and here industry self-regulation appeared to be particularly helpful. A cane industry representative stated:

*When we get to know about a problem we generally have a quiet word with people or through our extension office we make some subtle changes. It’s generally through industry pressure – even pressure from neighbours because neighbours are pretty quick to report. Some of its self interest. You get somebody whose neighbour has sicklepod on their property and they don’t want it on their property. If somebody is clearing riparian areas that they shouldn’t be, they don’t want to be seen to be involved or implicated in any way. So there is a lot of self-regulation and I think that’s sort of because this is a tight community. Proserpine survives almost entirely on sugar. The mill is very proactive too - making sure people are doing things according to current regulations.*

A farmer identified that this third party approach was effective:

*There hasn’t been too many neighbour – v neighbour sorts of situations. What has happened is someone has complained to the cane growers or written to the local paper about cane fire burning has or mill emissions. The mill stopped cane fire burning particularly close to town. When we get complaints it goes to the cane growers first then they ring up to find out what’s going on. We cannot spray here – it’s too close to town. The helicopter applicators often won’t do the job, so the farmer has to manually do it himself. It is self-regulating.*

Another farmer noted the reputation of the industry as a whole suffered when people did not do the right thing:

*If somebody is not responsible in disposing of their plastic or chemical or something happens to some wildlife, it’s not just that individual person that is ridiculed, it’s the whole industry.*

Another horticulturalist said that people would be more inclined to be proactive than in times past because the damage would be material to their business:

*I think people would say things now more than they would have 20 or 30 years ago. People are conscious of the fact that if they don’t clean up their place it is going to hurt them too. Once it wouldn’t have mattered but the impact of not doing the right thing has built up insects and diseases to the level they are now and we are trying to get them under control.*

Reef pollution and water quality were major issues, with one farmer saying that “we’ll have to be watchdogs of one another”:

*We are careful in the sense that we watch ourselves and our neighbours with environmental dumping. We had a problem with a bloke nearby who was dumping stuff into the creek. He thinks that’s OK but those types of things can impact on the test samples of streams and rivers and they trace it back to where it happened. Years ago it was fine to dig a hole and throw your rubbish in it. Everyone did it. When it was full you dug another hole. Now everyone uses industrial waste bins and it goes to the dump. There are so many good ways to dispose of rubbish (like DrumMusters) that there is no excuse now for digging a hole or burning your rubbish or doing*
something that’s really environmentally unfriendly. There was a chemical scare here two years ago when they found a chemical in the water and it was at a level that rang bells and they couldn’t find the source of it (and still haven’t). It could have been from an old dump site – we had heavy flooding that year and the water could have washed into the dump and washed the drums out and it went through the system.

However, situations involving intractable issues or difficult personalities might also be handled defensively to avoid further problems. The cane representative described one example:

I’ve got one grower who borders on a fruit grower and his use of chemicals is different from the other’s use of chemicals. That’s a sticky situation that you’ll never overcome. You just have to try to work together. We just make sure our member who is the sugar grower is properly accredited to use chemicals, has all his accreditation up to date. We talk to him about those sorts of issues. That’s how we try to manage it but how that neighbour manages it I guess is entirely up to the individual.

Further problems could include legal action, although this horticulturalist’s fight with a neighbour about weeds ended with the neighbour going broke:

I told them that they had white fly which was getting into my crops and I offered to give them a hand to clean it up because it was costing me money. They said ‘how dare you, we know what we’re doing and those things won’t affect your crops’. They paid a consultant to do a full write-up to say that there was nothing that could cause me any problems from their neglect of weeds. They didn’t talk to us for about five years and they tried to sue me for defamation – and they have gone broke. They didn’t have good farming practices.

Weed mismanagement was the main source of trouble between neighbours.

- **Weed and pest management**

A common approach preferred over personal contact was to make an official complaint, perhaps to keep the complainant at arm’s length from the culprit. A corporate farmer stated that people would use official channels to try and get weeds managed:

I think it’s an issue you face wherever you are - be it in the suburbs or in the country - you just have a percentage of people that don’t do it right or they just don’t care or they don’t have the money to do what they need to do. I think the community relies on the Government to manage that. Some little bloke has his weeds out of control he’ll get a knock on his door every six months from the weed inspector saying; ‘By the way clean up your chinee apple’26. But they might say; ‘Yeah what about Joe, why hasn’t he fixed his weed problem up. I’ll do the same as him and just not spray it. Every time he comes I’ll say g’day mate, I’m going to get onto it next week but never get to it. So I guess it’s council’s job to do that. You can put a certain amount of peer pressure on people to do that but at the end of the day they’re probably limited by their resources. You probably wouldn’t approach him to have a go at him, but you would say something at some point if the opportunity came up.

One farmer acknowledged that neighbours who had been negatively impacted by weeds from his property had contacted council:

---

26 Chinee Apple or Chonky Apple, *Ziziphus mauritiana*, is a thorny tree originating from Africa and southern Asia where it is a popular ornamental. It was introduced into Queensland in the late 1800s/early 1900s by Chinese gold miners and is now the dominant vegetation of many old gold mining areas. It is fast growing, fire and chain-saw resistant, forms pure monocultured stands and can reproduce rapidly. A single tree can produce 8-10,000 seeds a year which can be spread by floods, cattle or by wildlife. It is declared a P3 category weed in Queensland but eradication can be an extremely expensive process.
The main problem is the chonky apples\textsuperscript{27} that are on my property seeding if it rains or animals cross contaminate and take seed onto the neighbouring properties. A couple of them have rung the council.

A lack of response from government agencies to address weed problems in the district was a frequent criticism.

At the moment we have got tree croppers beside us and they aren’t controlling their sicklepod and we are impacted by that. I had to spray into their place along the creeks to keep it out off the creek. I really haven’t said anything to them. I spoke to Council. Council did very little. Lantana is another problem. We are in the process of starting a major program to maintain it. On one property where a road goes through we have had illegal rubbish dumping and in that gully we have Mother of Millions come up which Council did come and spray.

A representative of a state grower group noted that official channels were the most appropriate, if frustrating, approach, although there may also be good reasons why a landholder failed to do the right thing:

It’s not a one size fits all, you need to know what is going on, there could be financial reasons or health reasons or family reasons why they are not able to pull their weight. As a community we have to be open to all the ways we can help someone. Maybe you just need to give them some help, but if they are really are recalcitrant, they are the ones you regulate. Farmers seem to know who doesn’t do the right thing. Growers get very frustrated with people who are just totally ignorant: they buy some land and just let it grow wild. Some are absentee landowners. They could be on a mine site or only turn up once in a blue moon. They let the pigs go, the lantana go and that’s where the growers think that it should be the councils and governments role to get onto them. They feel quite helpless and they do report such things to authorities and quite often they see nothing done.

A grazier had a lot of problems with weeds from neighbours and said that economic factors were a barrier for weed management on neighbouring properties:

We’ve got eight neighbours and only one runs an effective weed program. We’re now getting more and more weeds coming from our neighbours and that’s a real issue for us. Our weed control costs are going through the roof. We like to have good neighbourly relations, so what do we do? They all nod their head and would like to do something but they haven’t got any money. We’ve got one neighbour who runs a very good program. We appreciate that. Another property, the manager understands what our situation is. He does what he can but his boss says it’s not an issue. If you can show him that it’s a commercial proposition to clear weeds off he’ll clear them all. It’s disappointing.

A financial advisor observed that finances were the main issue:

The local vegetable farmers have issues in terms of crop hygiene and not growing out of season because of build up of pests and they self regulate that. But up in the Burdekin, because land costs are so high, they were trying to double crop. They were growing maize over the dry season, and cotton and soya beans are grown over the wet season and there is this massive problem with white fly. It loves soya beans, it decimates vegetable crops and one of our management processes for white fly is having a break in the crop over the wet season so you don’t have the build up in numbers. Horticulture blokes are blaming the cotton growers and they are saying it’s not us; it’s you blokes. So there is a big bun fight. But that is going to fix itself simply because the cotton prices are terrible.

\textsuperscript{27} ibid.
Confusion about vegetation management and land clearing restrictions was also mentioned as inhibiting action.

- **Peri-urban neighbours**

An industry representative noted there were problems arising with urban encroachment:

> The Whitsundays has grown from a real estate and investment perspective and tourism destination over the last 15 – 20 years. That’s created a need for more residential land. So we have a real issue with prime agricultural land being given up to developers and that does impact on the environment and it raises issues of the farmers right to farm using chemicals and sprays and heavy industry haul-out vehicles on public roads. The cane fires of yesteryear have disappeared. They cut the cane green – that then impacts on the pests and that means that they need to use products to counteract them. Also the types of chemicals that they use to control the weeds.

A farmer confirmed these concerns:

> We are very close to town and there is a sporting complex across the road from us and a racecourse so we have to be very careful when we spray and generally be careful about what we do. We have never had complaints but we could. We live in a small community and we don’t want to ruffle anybody’s feathers.

As a result of complaints one farmer concerned had taken some land out of production to ensure there were no problems:

> Some of our property borders housing developments. Five years ago we made a conscious decision to stop farming one block of land mainly because there were complaints about spraying. However, when the complaints were investigated it wasn’t us at all, it was somebody else. But we recognised the fact that where your properties are adjacent to housing developments, you do open yourself up for complaints, so we just stay away from those areas.

A grazier raised another concern with incompatible neighbouring land uses:

> The fish farm built on a big salt pan area where creeks flood. They built their inlet channel about 4 or 5 metres high and put some pipes underneath but the pipes are too small to take the big floods and they’ve pushed water back into our country. It causes a lot of water erosion and drowned a lot of pastures. I consider that’s environmental vandalism. The issue for me is that every time we get a big flood and we’ve had two this year, its cost me about probably $1000 in wages to reinstate the fencing gets washed down. The biggest cost is that it then holds water back over our pastures and just literally drowns them. I’ve been to Sun Water, I’ve been to DMR, I’ve been to their regulatory group, their compliance group, and they all listen intently and I send them maps and GPS readings and photos and then they all come back and say because this water goes out on the salt pan that’s out of our jurisdiction. No one is interested, no one cares. So we will probably have to mount civil action shortly. It’s so expensive. It’s something I’m not looking forward to because it will be very time consuming. All I want is for them to drain the water, it just pours into this country of ours. There’s an area down there where it comes through about 250m wide 1.2m deep - just enormous bodies of water.

Peri-urban encroachment also affected responses to pollution.

- **Pollution and waste**

An industry representative noted the influence of complaints in keeping order:

> I think the only issue we have had is where some growers in the past have burnt their black plastic at the end of the season, which is an environmental issue, but pretty much everyone is doing the right thing on farm now. If they do, there is a whole stack of phone calls saying so and so is burning plastic and there is smoke everywhere. Also with the aerial sprayers and sometimes even...
with controlled droplet spraying you will get someone renting a house near a property and they can smell the spray and complain.

One farmer added that farmers were proactive in controlling the activities of contractors who did the spraying:

On odd occasions there are spray drift issues on to a neighbouring farm and that is when they have used the wrong application (the wrong nozzles are used or they have sprayed when they shouldn’t). That has been resolved between the contractors and the farmers. Generally the same applicator is used here and therefore he has the knowledge and he is professional. You only get problems when someone new comes to tow for quick, money and get out.

4.10 Environmental crime: participants’ perceptions

Participants were asked their views on what they considered was environmental crime and how the community responded to these incidents. One farmer noted problems in the district with trespassing, rubbish dumping, property theft and ever increasing crop theft, particularly of mangoes. He believed the offenders were local people rather than backpackers or tourists. Another participant disagreed:

You often hear that mango growers had their crop raided at night time. There is a lot of tourists come through in the winter time, sometimes you see them stopping and helping themselves which isn’t good. But on the whole, the crime is minimal.

A grazier raised concerns about tourists camping on properties and dumping rubbish:

People pull up on the side of the road and camp for the night. In the morning you’ll be going past they’ll have the plastic bag with all their rubbish in and its all nicely tied up with a bow and its sitting at the base of a tree. I suppose that sort of absolves their conscience.

Travellers and truck drivers were also blamed for fires being both deliberately and accidentally lit. Trespassing by pig hunters was also identified. One interviewee maintained that the only way to address these problems was to grin and bear it and put up a bigger fence.

Police have been involved in serious incidents of alleged deliberate poisoning of waterways and industrial sabotage in this region. The contamination of an aerial spraying tank with glyphosate (Roundup) in the Bowen region saw several growers incur losses of over $1 million (ABC, 2006; Growcom 2006). One participant explained:

Over the last six years there has been some deliberate industrial vandalism. We have had someone contaminating application equipment to stop some of the growers producing. First it was aimed at a nursery and then about 3 or 4 granary application equipment places. We were involved in those investigations and we worked out what the products were but we never caught the culprit because they used two herbicides - one herbicide to mask the other. It was an environmental crime. With food and safety programs these horticultural producers have so many rules and regulations with regard to spraying, withholding periods and not picking when you want to. There is too much at risk.

An agronomist stated:

We have had a couple of sabotage incidents in recent years. I don’t think any of them have been conclusively solved, the police were involved. Farmers have had Roundup put into their insecticide spray tank and they unknowingly sprayed their crop with Roundup. The local spray contractor had Roundup dumped into his main water source. And the seedling nursery had chemical put into irrigation water. It raised peoples’ awareness of farm security; security of sheds, security of watering points, awareness of unknown persons around the place. Our department got together with police and local industry, and came up with a brochure on what to do or how to determine if sabotage has occurred.
Referring to the incident when chemical drums were found in the river, a farmer asked:

Was there a perpetrator or was it just a drum thrown in the river or was the drum just above river height before the flood? I don’t know if I would call it a crime although the environment has been wronged.

Pollution, rubbish dumping and chemical misuse formed the core of what was described as environmental crime, as well as other acts of wilful damage such as littering. Weed mismanagement by government was also described as an environmental crime.

4.10.1 Defining crime

A grazier described rubbish which detrimentally affected stock as environmental vandalism:

The rubbish causes me problems because it blows out in my paddock and for some reason cattle eat plastic. Bowen is notorious for heavy sou’easters. We continually pick up rubbish. It just depends on what you class as environmental vandalism.

The same participant identified dumping and disposal of tyres as an environmental crime. The acts may be illegal but this has little consequence and the problem had been exacerbated by counterproductive government regulation:

The other thing that occurs, is because the Government have an environmental levy on disposable tyres I could probably find you at least 200 tyres on the 16ks of road that we front….So if people have got to get some new tyres, instead of paying $6 for a car tyre or $10 or $12 for a truck tyre they’ll just dump them. For every pull off there’ll be 20 tyres. They built a big overpass for the railway, and there’s an area of the road where they store road making materials and people go in there and camp. I was up there the other day and there was about 90 tyres. We continually get fires off the road. Last year we had 40. There will be great plumes of black smoke from the tyres. So if we accept that that’s environmentally irresponsible then it is probably an environmental crime.

One participant defined environmental crime as ‘anything that contradicts the current state laws’, such as the indiscriminate dumping of chemicals. One farming couple considered rubbish dumping as more of a misdemeanour than a serious crime. Another participant observed:

Things such as rubbish dumping, pollution and pest issues. Well they are a crime to the environment aren’t they because they are messing it up.

Another participant agreed that environmental harm should be a criterion. Asked if trespassing should be considered an environmental crime they responded:

It depends on how serious it is - like if someone is camping down the paddock there is no toilet or bath, - that can have environmental consequences.

Intent was also identified as a factor. A state grower group representative stated:

Crime has to be really deliberate doesn’t it, like deliberately putting something in a waterway. Sometimes it’s ignorance. Well, dumping is a crime, because that is deliberate. The trespass issue is a confusing one because one council encouraged people to wander and explore the countryside, but we have major biosecurity issues and work place health and safety issues. It’s an industrial worksite really, you can’t have people just wandering onto a farm, it’s unacceptable. Some people are just unaware and I think farmers should have big signs out the front like, ‘this is an industrial worksite’, like you would have in a building site because that is what it is.

If spray drift was intentional it was generally thought to be a serious environmental crime. Others were unsure about spray drift because losses were identified to be private:

I don’t know whether spray drift is an environmental crime –it is more of a malpractice or unprofessionalism. Not an environmental crime because what it is affecting is the crops of the neighbouring person so it is loss of production.
A farmer agreed that intent was relevant:

People dumping weeds on your property I would say would be an environmental crime. Knowingly; definitely. Well, the onus is on you to keep your property clean. So the cost becomes yours and the control and all that sort of thing is your expense.

A mixed farmer also identified weeds as an environmental crime and singled out government mismanagement as the cause:

I think it is environmental vandalism because it has destroyed beautiful country, and I think the landholder, NRM, council are all responsible. NRM claims ownership from high marking your creek and you need permits to touch everything but they do nothing about control and that incenses me no end. I was told it was the landholders’ responsibility. But I can’t even get a bucket of sand out of the creek or remove the timber for better access without permits, and now I can’t touch anything because there is a moratorium. I can control the weeds. You put in a plan and you get 50-50 funding from council for the chemical which is fair enough. But I just don’t want the hassle with the paperwork and the bureaucrats and it is not policed and it is not managed. And I have to do all the work. So we do it as we get time and money allows to keep it under control.

Attitudes towards government also influenced attitudes towards environmental laws, discussed next.

4.11 Attitudes to Environmental Laws

Participants here, as in Walgett and Moira, were convinced that sound environmental management went hand in hand with farm business. They were concerned by laws and approaches which did not appear to appreciate that farmers were in the main self-interested in, and had a good understanding of, the environment. A good farm meant a financially well-managed farm which was synonymous with an environmentally sound operation. A horticulturalist described the linkages:

The majority of farmers have changed their practices and the farmers that aren’t ‘clean’ farmers have gone broke. Unless you have a good product and run a good farm these days you can’t make money because the margins are so small. Forty years ago farmers could double their money every year - if you could grow it you could sell it. Now growing it is the easy part - it’s difficult to sell products to make a profit. The average person doesn’t know what the risk factor is in farming. We risk hundreds of thousands of dollars a year on our ability to grow it, market it and make money out of it. Not many industries put out a product on the off-chance that they are going to sell it. That’s what we do in this industry. This year could be a disaster. Many farmers would have lost a million or two last year. It’s a game we play. When we win, we win big and when we lose, we lose big. We try to minimise the losses and maximise the gains.

Another farmer identified cost pressures as a big influence:

I don’t think it is in the grower’s interests to waste fertiliser or pesticides. Pesticide spraying isn’t a pleasant experience. It costs money.

A cane grower agreed:

It’s not economical to waste water, fertilisers, pesticides or herbicides. The by-product of us becoming greener is to save money.

There was concern that regulations were going to go too far and stretched beyond their bounds of legitimacy. A mixed farmer summed up general opinion very well:

I think laws have to be in place to stop the environmental vandal from just having a free for all and wrecking everything. But it also needs to be free enough to allow people to properly manage their farms and utilise their natural resources in a practical way.

Another agreed:
There are some farmers who need straightening up; there are some cowboys out there as in every industry. They over stock their country, they flog their country. A lot of times that is because of economic circumstance. But in general, most people are on the land just need a lot less regulation and the Governments to get off their back and let them do what they do well.

A farm advisor believed that some regulation was necessary to expose the benefits of continuous improvement to those who were wedded to more traditional practices:

I think it gets people thinking about some practices. Just because you have done something forever or your dad did it doesn’t mean it is a good thing to do. If we get everybody thinking a bit more about actually what goes on and what they do and what might be acceptable and what might not be.

A representative of an agribusiness agreed:

I do think laws are necessary if they are done properly. The cane farmer in this area is historically unfortunately more of a tradition than a business (what dad did, we do) and as time goes by it can’t continue both economically and environmentally – there are lots of new products that come onto the market that aren’t embraced that could help their environment – it could cut down some of the usage of certain things. I think what the environmental movement has done is forced them to be responsible and look at what they are doing in their practices and understand that they are not getting the best results and actually it would make their farms more economical. I don’t think it is there yet but that may be the outcome. I think that will make the farmer look at his farm as a business rather than just a way of life. In most cases they actually do understand and undertake those practices already. I think the demand for recording and responsibility is a necessary part of it. I do think they are fair because I think it is human nature that people have to be forced to do these things. I think it needed to be done for the safety of the cane farmer and their future.

Most agreed that some laws were necessary but that the approach in many cases was sub-standard. A consultant stated:

I believe that environmental regulations are necessary but at times I think there is too much heavy-handedness on the part of the government regulators. They don’t really give the rural person the respect and consideration that they deserve. There make bland statements that affect peoples’ lives. They fine people and walk away.

4.11.1 Good laws indentified by participants

Participants were asked to identify laws and regulations that they really liked. An agribusiness representative believed laws regarding safe handling of chemicals were essential but needed to be better enforced:

I think there should be greater focus on safety on farms in the application of chemicals and the transporting of products. We are governed by huge legislature as to how we store, handle and transport our products. Then the farmer comes in, buys the product and throws it in the back of his ute and it’s up to us to convince him that he has to tie it down properly. They also often come in and don’t wear shoes! It’s about being a professional. I don’t know how you go about enforcing those regulations though.

A mixed farmer agreed that there needed to be stronger enforcement against the most blameworthy and that this would generate greater respect for government:

I would like to see them apply the rules to the ones that are causing the problems. People burning plastic mulch in places that caused nuisance to others, they were never ever prosecuted even though the EPA threatened us all the time. Chemical drums that are pushed over creek fence, never seen a prosecution. So I’d like to see, on one hand free things up to make it more practical and let us sensibly management them ourselves without all the red tape - but with good guidelines behind it so that we don’t rape and pillage for the want of a better word. But then enforce the laws on those that have blatant disregard for environmental management... So it’s just total irrational environmental management within the department, important things are
missed and trivial things are over regulated, which gives us no faith in their ability or respect for the rules that are there. We are frustrated with their inaction or inadequacies.

A grazier identified that weed management requirements should be enforced more, and complied with, by government:

I would like them to enforce their regulations that say their utilities like main roads and railway comply with a weed management program.

When asked about laws he approved of, one farmer named several:

Chemical controls - there is a benefit. Tree clearing regulations in the right places are beneficial too but if there was more of an open mind towards the practice it would be better. Water conservation is beneficial. Soil conservation is definitely a big thing and we have changed our practices – you can see the improvement in the soil.

Other regulations that participants approved of included restrictions on the disposal of plastic mulch. One participant explained:

When growers were able to burn it – it was serious, the smoke was quite toxic. It was good when it was regulated against.

Another farmer agreed with occupational health and safety regulations:

We employ 3 or 400 people so we’re obviously going to be accountable and I think that’s all positive stuff - we don’t want to be losing people at work and that’s the way it’s got to be. There’s a cost for that but that’s fine.

A farmer approved of the new regulations regarding water meters:

Water metering is a great thing because it makes sure the resource is not being over used and people stick to the allocations and we work really hard to limit ourselves.

However water regulation was also heavily criticised and was one of the bad laws identified.

4.11.2 Bad laws identified by participants

A major area of law disapproved of was reef regulation, although respondents were generally in favour of regulations to improve land management practices towards raising water quality and reducing runoff to waterways because of the benefits to the environment as well as farm productivity. Another industry representative stated:

Water quality and the runoff to the reef is our specific issue in Bowen. We do have a lot of things in place to stop runoff, so we are doing the right thing. But maybe some north or south of us that aren’t. So that’s why it is really good to do these tests so we can say in our area there isn’t any issue because we don’t really have a lot of cane in our area. But if legislation comes in it affects all of us, and growers in our area if they are doing the right thing will get upset because these regulations would just make a lot more work.

A mixed farmer provided the following examples of frustrating legislation:

On farm is over regulated to death, it is just ridiculous, you are unable to utilise resources like sand within our creeks. It just flows freely every wet season and you just get massive build-up but we are not allowed to use anything on your property. It restricts your farm management, like say for irrigation with your underground mainlines. It’s a better practice when you do a mainline to have a trench, a bed of sand, lay your pipe, another layer of sand over the top of it. It is much easier when it comes to repairs, less likelihood of breakages because you don’t have the hard soil around to restrict and move the pipe. We have to purchase the sand at a ridiculous price but you have got it on your property already but we are not allowed to use it. If you wanted to build a shed and use a bit of sand in your footings you are not allowed to use it.
In creek areas there is no access. You cannot remove trees. And you try and manoeuvre machines that are 13-15 metres wide down through one property to another; machines worth a quarter of a million dollars and you smack that into a tree, it’s just not appropriate.

Trees are a risk for my employees and my machinery. It’s one or two trees on a creek bank of a species that is almost a weed and I have to do a property veg management plan to and try and get a permit to clear. And they are the sorts of things that can cause injury and tens of thousands worth of damage if one of my employees got hurt, so I have to put the machinery through myself.

Land management as far as timber goes is too tight. It needs to be freed up to where you can clear x amount of your hectares or management of the property without permits. I’m not talking about open slather but there is just no ability to manage things as you need to on a day to day basis without a lot of paperwork and at risk of putting yourself in a legally vulnerable position. But government departments won’t allow us to do these basic management things but they don’t deal with people that do stupid things like dump plastic mulch and chemical drums in creek banks.

An agricultural consultant provided a further example of outdated law to manage fruit fly:

In our industry we have to comply with interstate export regulations. One of the products that we have to apply to eliminate fruit fly (for 75% of the year we can’t even find fruit fly) is not environmentally friendly to people or to consumption or to integrated pest management products. There is nothing to replace these projects and we are trying to find alternatives. The DPI are involved as well. The legislation has been in place for years (it was probably put there when there wasn’t a lot of interstate export) – now there is a lot of interstate export of produce and it really needs to be reviewed. It is just farcical that we don’t even have the insect but we still have to spray for it. There should be more environmentally friendly legislation in place.

- **Reef regulation: Disconnect from reality**

At the time of interview new laws to protect the reef had only just been proposed:

... it worries me when our Premier states that they are going to ridicule people for poisoning the reef. Because they want the green vote they make these statements they know nothing about rather than consulting with the industry. And all that good publicity we try and promote through our industry it’s shot in the foot by one statement by the Premier.
One cane grower was proud of the innovation in the industry and as a result was disappointed that this had not been recognised in a more sympathetic and supportive approach from government. They disputed the argument that farmers were responsible for reef pollution:

*The state government’s inadequacy to realise that their goals are political and not based on reality— if they came to the area and talked to us and saw what we did they would realise that. In this district, we are probably the most environmentally friendly farmers you will ever find because we chase new technologies to minimise the use of water, minimise the use of fertiliser, minimise the use of chemicals. We put in cover crops at the end of the season to minimise erosion because it is economically viable to do that.*

I read about when we had the floods and a government jet flew over – they were worried about all the fertiliser they saw running into the reef – it’s coming out of the rivers and has been for years. If you look at the figures and you work out how much fertiliser is going onto the reef and divide it up to where it is going - it is almost nothing. The farmers in the past – with flood irrigation did wash the water into the rivers and streams but now you wouldn’t see water running down the roadways here. We don’t waste water. Growers are moving towards having pits so the water runs into a pit and they pump the water back out and reuse it – then nitrates are not getting into rivers and streams.

A lot of the chemicals that the state government uses itself on parks and reserves are more dangerous than what we use on the farm. I pay a contractor and he checks my crops twice a week and tells me what I should and shouldn’t use. That way we use less chemical and more people friendly chemicals. Some of the chemicals we use have got a 1-day withholding period. You wouldn’t find many people using 7, 14 and 21-day withholding period chemicals.

Although only cane growers and graziers were going to be caught by the new reef regulation all farmers, including horticulturalists, thought that the new approach to reef management was inappropriate. An industry representative said:

*I believe that laws are necessary. I don’t believe that self-regulation is the answer. The Reef is a very emotive issue here in Queensland particularly in this area from Rockhampton through to Cairns. But we don’t believe that one industry should be singled out.*

Another agreed that the reef regulation was totally inappropriate:

*The way in which the government has gone about the whole reef thing, I don’t think is justifiable as I don’t think there is any proof. We are all just surmising and listening to statements from the worldwide fund for nature and everyone is feeling they have to do something. There is a lot of development in this region that causes sediment to go into the water and then there is a huge boating industry (every family has two boats) – they are all in the water! There is a lot of flooding. You get a huge rainfall in 48 hours where does the rain go? We have lots of rivers and creeks and it all runs down there.*

A cane grower observed that there was much scientific uncertainty and that the issue had become politicised. Another cane grower found the scientific evidence difficult to believe:

*The thing that gets me is all this stuff saying that the cane farmers are the cause of nutrients going into the sea. In the floods in the last three years, which probably lasted for 3 weeks, there’s probably 20,000 [acres] in the wetlands that all goes under water. There are some places where it could be 8 or 10 feet deep when the Proserpine River and its tributaries and all the other creeks that flows down into this wetland floods. And it floods from this country out through acres of mangroves and then it’s got to go out to sea and to the reef and then you’ll get these scientists get up and say about polluting the reef. We’ve got to accept that they can measure it but how do they measure that much water? The reef here is 70 odd kms off the coast and wouldn’t you think that by the time it went out through the mangroves and then diluted again out of the sea. And if there is so much chemical in the water why isn’t it affecting the mangroves? The mangroves are getting thicker and thicker and they encroach on our land. We just have to take their word that this is happening - and we’re the ones that are causing it.*
Farmers felt that reef protection policies were disconnected from reality because they were already very environmentally responsible and the focus on farming practice meant that erosion caused by wild pigs was being overlooked:

*The wild pigs along the river bank are doing more damage than anything – they are digging the banks to pieces and when it floods then erosion is caused plus silt loss – which all washes out to the reef.*

A Bowen horticulturalist observed that any anthropogenic effects locally would be outweighed by larger systems such as the Burdekin, which has a catchment many times the size of the Don River at Bowen:

*The Burdekin River ran a kilometre wide by 11 metres, 10 metres deep by for 3 months this year and you’d have seen it spew into the ocean from outer space. Well I just don’t connect this with this little river here – it’s nothing compared to that. How are you going to stop stuff running out into the reef when you get such huge natural events? Mother Nature’s a fairly big thing and when you’re out in these broad acres you can’t control it...you’ve got to work with it.*

An agronomist thought that there was far more research required and evidence needed to establish the connections:

*I know there is some sediment and a little bit of nitrate going out into the reef. We don’t quite know where it comes from - that is one of the things. Is it sewerage that is coming out of the urban areas? Is it sediment coming off grazing farms? Are we despite our trickle irrigation, washing the nitrates all the way into the aquifer, which then goes out to the reef? It’s measured so none of that is pinpointed. If there is a little bit out there, then how big a problem is it? What is it killing and how hard would it be to fix? And what would that mean to our food production? We all need to eat. I find it hard to imagine why you would put a law into place if you don’t know whether there is actually a problem. I think farmers in general would want to know if their pesticides run out to the reef because it is not in their interests to have that happen.*

Like reef regulation, land clearance regulation was also perceived to be disconnected to the reality of the environment, particularly when it came to weed management.

- **Land clearance laws: impediment to good farm management**

Vegetation laws were almost universally identified as a law most disliked by farmers. Even a government representative described them as “a bit over the top”. As in Walgett, the management of woody weeds was the main issue. A cane grower blamed native vegetation laws for restricting their ability to manage regrowth and thickening:

*The tree clearing thing is the big thing for us because the timber country is getting thicker all the time and there is no control over it. So it is going to be unusable and you get a lot more erosion because there is no ground cover.*

Another participant agreed that clearing for improved grass cover prevented erosion:

*They are claiming that trees stop erosion. I can show you evidence on the ground where that is absolute rubbish. What stops erosion is grass cover and you can’t get a good grass cover with trees. We have got instances of severe broken gully systems - and that prior to clearing. And since we’ve cleared them and grassed them up it has almost completely stopped bad erosion. In our country, all our subsoils are sodic so when you get rainfall, your sodic sub-soils, if they are exposed, melt into the water like chocolate and wash away. You have to have grass cover to hold it to stop severe erosion. I have never had any researchers come to me and say show me. I could show them heaps of instances where this has occurred. It’s a shame that over the years we haven’t taken photos of these areas and had dates on them. Photographic evidence is what you would really need to back up what you are saying.*

One participant observed that the laws had originally been counterproductive in causing panic clearance and were now counterproductive in interfering with necessary weed management:
There were tracts of country that had been cleared and may not have been cleared for many years but they thought that if they didn’t clear it now they may never be able to do it. Instead of clearing a sensible amount they cleared thousands of acres and that was the worst thing the government did. Now the moratorium on tree clearing is rubbish because you can’t even knock down suckers or new growth. It’s not helping the environment. Sensible land management is sensible tree clearing. Keep it to the level that is sustainable for the trees – if you have too much scrub you are making them fight against each other and they are not going to grow properly. You have probably got thousands of acres of land that have gone into scrubland and it is unsustainable.

A farmer described that the laws had arrested the development of land management which was counterproductive. Extension was required:

*We have a PMAV on this land which means this moratorium can’t touch you. You can still go ahead and clear or do whatever because it’s been cleared before or if it hasn’t reached a certain height. But because of the ecotours and people that come there looking at birds and wildlife, I don’t want to destroy it but because there is thickening I want to thin it out and make it more presentable. Surely there is someone in the Department who can come out and give me an idea of how to do it all and so we can work together and do the right thing. But they won’t come near me. I’d rather work with them than have them watching me and waiting for me to do something wrong. I’ve been frightened to do anything. I had this Department fellow inspect it and he said there are five different species of fig tree. Well I don’t want to go in there clear it and clear all of one species, I would rather someone come and say ‘let’s do this’.*

A PMAV is a Property Map of Assessable Vegetation outlining where clearance can and cannot occur.

- **Surface Water management**

Regulations regarding water were another area of concern. A mixed farmer thought that monitoring water harvesting was unreasonable considering the quantity of water during high rainfall events in the monsoon:

*Water harvest here is an issue that is has to be considered in its local context. We are right on the coast. We have fast flowing rivers that have a massive amount of water available for a short amount of time, yet they want to meter the harvest and make it difficult for us to get permits for water harvest. If every farmer who had land on a creek in this area built a water harvest dam it would have zero impact on the outflow to the reef because the flow is massive. Anybody who comes here in the wet season would understand that. But it is another case of over regulation and stuffing up a farmer’s ability to manage water that is available and going to waste. And to make a farmer spend money putting in a water meter where you might use it for a week a year is of no benefit to anybody.*

A farmer stated that the government had become deaf to landholders concerns and therefore laws no longer reflected local conditions. Another farmer had problems with water sharing plans:

*There is a problem with the way they allow different areas of water to be used. We have two blocks of land which both have different allocations. But they treat it as one aquifer. Hence even though we weren’t short on water on the first block we were on a restriction because further down the aquifer was. I can’t take water from this block to our mango orchard just down the road. So I’ve got massive allocation here unused. That is legislation which is totally unrealistic and gets in the road of managing water efficiently.*

A corporate farmer was strongly against moratoriums on building off-stream storage and identified conflict between agencies as problematic:

*I think 90% of laws are on the mark but I question the common sense of a moratorium on anything. We don’t want the runoff so why no dam building? What’s that all about? You get a*
department here that is concerned about the reef and another department over here that is operating against that and are concerned about the dams or water issues.

The moratorium was designed to secure the long term sustainability of water resources within the Whitsunday Water Resource Plan area and placed restrictions on the taking of, or interference with, overland flow water. One farmer referred to a past program for dam building that was most beneficial but had been discontinued:

I can name some programs that were tremendously helpful that have all ceased. A few years ago we had a water resource engineer come around to design farm dams, water conservation for properties with minimal cost and it was a tremendous service. They retired him and never replaced him and closed that department down. You’d ring him up and say ‘I want to build a dam’ and he’d come and have a look and say ‘that is an excellent site’ or do a bit of a survey and find another site and ‘we can get you this and that’. He’d design the dam for you and everything for minimal cost and he would supervise the construction of it. It was a big plus. But now you can’t even build a dam. The moratorium in this area just doesn’t add up because for the amount of wet season rainfall we get here, we get massive run off.

Some further examples of bad laws and approaches were identified due to the costs imposed.

### 4.11.3 Costs identified by participants

Many farmers identified unnecessary costs associated with regulation and compliance, which compounded the cost-price squeeze which many were already experiencing.

An industry representative highlighted the time involved in compliance:

> The different regulations in place; even quality assurance and testing for residue on a product for example, there is a lot of stuff that takes a lot of time and effort. Growers are doing the right thing because if they don’t it affects them down the line in their markets. But when government adds extra regulation it makes it a lot more work and they were doing the right thing anyway. It increases the cost of running their business. And in the last few years grower’s costs have gone through the roof and they are not receiving any more for their product. And on top of that the transport industry has a whole set of regulations in place which means growers can’t get their product to market as quickly as they could before, so some of them have to plough in their crops.

Time is money, as one grower pointed out:

> We had to buy a spray rig that has droppers down so that the spray is much less. It costs in time and time is money. Even things like having to get rid of our mulch in an environmentally friendly way is quite expensive. It’s hard to put a monetary figure on the costs. You just have to do it as part of your business.

One farmer resented the mandating of water meters which were deemed superfluous:

> Last year we have to put new water meters on every bore. We have about 14 bores. That was an extra $1500-$2000 a bore and we already had a meter on that worked.

Another farmer had a similar complaint:

> We had to put on water meters. We’ve had water meters always. We used to pay $4 a mega litre for water. A little bit for the licence. Now every water meter has just cost the Government $4,000 plus. It’s also cost the land holder an additional $3 or $4 thousand dollars to set up and put the water meter in. And their $4,000 water meter growers will pay for over the next 10, 20 years $500 a year. On top of the water costs the consumption which is essentially riparian. We’re not talking big volumes in this area we’re talking about a mega litre to the hectare. Not like down on the Murray in Victoria.

Another farmer stated that land clearance laws had been costly in terms of lost production:
Order with and without the law

Tree clearing has affected our bottom line. We are losing a productive area. I don’t know what will happen with the regrowth – a moratorium is only here for a short time, afterwards will be our biggest concern because any country that is locked up with that is lost – the regrowth will be ten times thicker than it was originally. Our earning capacity through not being able to clear is probably a tenth of what it would be if we could clear it.

One couple reported that land-clearing laws had caused problems for their farm business due to Silverleaf Whitefly using native vegetation as habitat which they were unable to clear. They identified that there would be a greater cost if they did not comply than the pest damage, which was estimated to be low-medium impact. A state grower group representative reported that pests were a major issue:

The big problem for our growers at the moment is birds and bats. The government without any consultation with the industry just took off permits last year for shooting of bats and we think it might happen with birds too soon. And without doing any research on alternative methods now that industry has a major problem, there was major bat damage in some regions last year. We can understand people don’t want things shot, but it can be a group control method so you don’t have the build up. If you can shoot the first few scouts it’s better. But just taking out a thing like that without any consultation and without any proven alternative is really not good policy for us.

A vegetable grower observed that compliance was making Australian produce uncompetitive in a global marketplace. The example of overly stringent health and safety regulations was provided:

Food imports from China are making it impossible for us to compete. It costs $20kilo to produce our product. Our labour costs are $17.60 per hour. There are new laws regarding double time for working on a Sunday. The alternative is to shut the farm for one day a week. The Philippines can afford to produce because their labour costs are far less. The occupational health and safety regulations state we have to show that people don’t go to the toilet in the paddock. They are supposed to walk to the end of the paddock get in the truck, drive back to the sheds to go to the toilet. It’s impossible. Yet the overseas food that we import is grown in grey water!

Participants therefore had many examples of costly laws and of bad laws. There were far fewer good laws which were identified, although participants could identify some government activities they thought worthy of commendation.

4.11.4 Good government activities identified by participants

As in the two other cases study areas farmers were appreciative of government support. When asked if there been any instances of ‘good’ government activity and what they liked about it farmers identified field days as a good way of gathering information and networking with other farmers and local agronomists. Assistance packages were also supported. An industry representative maintained that the Reef Rescue program was successful because it was more consultative than directive. The package had been embraced because it involved collaboration between the Government and the community. It involved consultation not just with stakeholder groups and representatives but growers at the grass roots level. A corporate farmer believed that government Reef Rescue funding was assisting farmers to achieve environmental as well as financial goals, although one which perhaps had been too generous:

Our customers are saying they want their corn at a price and they also want it in a way that will not destroy the reef. So the policy actually helps that. In the last five years I’ve never got so many handouts for help be that flood damage or whatever. You want to build something that shows how you are saving the reef – they will give you money for that. I don’t think it is necessarily an efficient way of doing something.

A horticulturalist however valued the assistance received to improve water efficiency:

When we had the big flood last year we had a lot of soil erosion and they gave us a $10,000 grant to help rectify the situation and try to minimise it if it happened again. That was very helpful.
Occasionally we get a couple of government grants to update our irrigation facility to make sure that it is minimising the use of water and run-off.

Another farmer said that incentives were necessary to bring everyone on board and said that even leading farmers had improved their practices as a result:

I think there have been some quite good projects. The Rural Water Use Efficiency Scheme, the Reef have been effective in helping farmers who haven’t found out what is going on with their fertiliser on their farm. The financial assistance may help some become viable because they are not wasting stuff. Even the better farmers have learnt something. So those types of projects, nutrient management, on farm management, sediment trap building and getting some expert help to come and have a look at a farm and give some advice; projects that actually give feedback, like the best place to build, and have a sensible time frame to be implemented, those programs are going to have the most positive effect. Rather than being beaten over the head to do it when it puts the whole viability of properties at risk. But unfortunately until there is a bit of pressure put on farmers some of us won’t spend, won’t change unless we are forced to or are shown a very good reason why we need to change. The good thing about this industry in Bowen is that, when we see something that’s worthwhile, we are quick to change and are willing to spend the dollars if there is a real benefit.

The Rural Water Use Efficiency Scheme was a Queensland government initiative first introduced in 1999 to improve irrigation efficiency in the fruit and vegetable industry. It was implemented by the Queensland Fruit & Vegetable Growers Ltd under the banner ‘Water for Profit’. It was commended as a model. A state grower identified the essential aspects of an ideal programme: effective outcomes; knowledge-based extension; targeted and rapid response delivery of advice and incentives.

The best extension program and best outcomes from an environmental point of view has been that water use efficiency program ‘Water for Profit’. For the $1 investment that the government put in, there were 23 types of the community benefit, and water was used much more efficiently. You need to have extension people that understand the industry and we are very much into this, fund us and we can do it. The models of water use efficiency had all the right components in it and if you really want to model an extension program to get the outcomes you want, that is the one. They had some science back up so that the guys in the field could ring and get an answer straight away. We can’t wait until someone has produced a paper. We want to ring someone now. It should be an integrated thing, the science guys should be following our guys in the field. They should be developing things as the needs arise not put it all on a website later and you can get it then. I hate that. The other part I really loved about that model was there was a benchmarking exercise, a reward system and an incentive program. It has all of those really great elements that really work.

Similar aspects were identified as required to improve environmental laws.

### 4.12 Participants’ suggestions for improving environmental laws

Suggestions to improve environmental laws largely echoed those provided in Moira and in Walgett. Participants thought that improvement could be achieved through simplification and rationalisation of the many pieces of existing legislation, both state and Federal, as well as better integration and articulation between different agencies and their responsibilities and approaches. On the latter, participants were hungry for more extension and were resentful of adversarial approaches. Participants were also fatigued by poor public participation processes and laws which had not materially delivered. They were keen to see more evidence-based policy, especially evidence which was collected locally and therefore was geographically relevant, as well as more meaningful public participation and consultation. The underpinning principle appeared to be pragmatism: laws which worked to achieve sensible aims was the preferred goal and if laws were insufficiently well targeted
and/or implemented then they would be ineffective. An extension officer described the essential ingredients of a good law:

> Well, laws have got to have some common sense behind them. There has got to be some real reason for why that might be a problem. And then they have got to be clear. And if there are some ideas on how to actually avoid getting caught by the regulations by having some other options for dealing with whatever they are trying to regulate.

- **Rationalisation and simplification**

An industry representative stated that there were too many laws and too much conflict between laws:

> Growers think that we have stacks and stacks of regulation and a lot of them are conflicting so we have been asking the government to sort it out and they can’t. At a meeting the other day someone went through environmental regulations and got up to 900 Acts and stopped counting. It is so confusing; we just say we’ve got enough.

A farm advisor agreed that the sheer numbers of laws created confusion and made compliance problematic:

> It’s just so complex. Just streamline things, so you don’t have like 20 different acts. If I were a farmer I would find it very difficult to actually work out whether I am doing something wrong or not.

A farmer agreed:

> Like water licences, you need a QC to understand it. One water licence now has six pages and there are that many ‘wherefores’ and ‘there ifs’, and to wade through it you have got to sit down and take a couple of hours and read it through a few times and work out what it all really means. And if someone is deliberately doing something against the rules you can fine them but you have got to make sure that they have understood all the rules and regulations to start with.

One couple thought that it would be easy to find oneself unknowingly in contravention, citing a case where a neighbour, who was passionate about the environment, had been fined for clearing without even knowing he was breaking the law. A mixed farmer said that farmers were afraid of assistance packages due to the red tape and risks attached:

> The other day I was at a lantana field day. They are telling us that there is all this money available for reef rescue and what you can get it for and what you can’t. And I said, your problem is that landholders that scared of getting Government fellows come onto our place for fear that we are going to get pinged for something. So consequently, we don’t want anything to do with them. And afterwards about half a dozen people said I am glad you said that. That reef rescue money, well the hoops you had to jump through. I am better off doing it on my own.

A representative of a large agribusiness suggested that compliance would be assisted if all states had uniform environmental regulations:

> The State Government policies are all heading to the same place with a slightly different twist. For example in Queensland we’ve got land and water management plans as best practice on how you manage your farm, Victoria’s got this whole farm planning approach, and it would benefit by managing it Federally at least by having it consistent.

A farmer agreed that problems arise with differences between state and commonwealth regulation, and advised that the Federal government should take control over some issues to minimize border-induced transaction costs:

> State and Federal laws and regulations are all different. It’s often duplication and fighting between departments. I think the Federal government needs to have one controlling body that is fed by community and subsidiary groups. With trucks – you can drive from Queensland to Victoria and states have all got different load limits – so you can be overloaded in Qld but ok in NSW and
overloaded in Victoria again. States and governments need to work through some of these things and be sensible about it.

A state grower representative identified that there was great potential risk attached to landholders for riparian area management because of the ambiguity in who was responsible:

*The main one for me is - who owns the waterway?* We are asking guys to go and clean out weeds in a waterway or to do some riparian work, and we keep on asking the question, if someone dies in a waterway where is the liability? We need to get that sorted and I can’t seem to get anyone to address it. It’s really really important. Growers cannot risk people working on an area where they don’t know what the legal liabilities are. Growers do take care of our waterways and keep the weeds out. There are a lot of restrictions on them; they can’t just let it go. Landcare groups can register and do works and are covered by insurance. Now whether we need to be registered or work out an arrangement with them, we could do that, it’s just that we can’t get a straight answer from anyone. I know some growers still do work on their riparian areas but others won’t until they get this sorted out.

Many felt that laws could be improved if they were more evidence-based, including evidence sourced from the local community.

- **Evidence-based policy, including consultation and meaningful public participation**

Consultation with farmers was widely considered essential for the development of regulations to build an understanding of the necessity of such laws and ensure compliance. There was also support for greater expert and scientific consultation. There appears to be significant respect amongst farmers in this region for the role that science plays in environmental management.

One participant noted that public participation was usually only window-dressing:

*They should really value consultation with growers instead of just saying in their report that they held consultations. They should say this is exactly what came out of it so this is why we are putting this regulation in place. The problem is that they don’t listen to growers’ views and make changes.*

An industry representative agreed that there was regulatory and participation fatigue due to poor consultation in the past:

*The problem with the legislation is that somebody makes a decision but they haven’t done the appropriate research. They haven’t gone out and talked to the growers. So they are bringing in something and it is totally unworkable for growers. And in a lot of cases when they do talk to growers they don’t listen. We have the horticulture code of conduct, and they did a lot of talking to growers and what they came out with was nothing like what growers had said. So there is a lot of angst because nothing has happened, no changes, they have just done what they wanted to do anyway.*

Another participant said better consultation was sorely needed to redress the balance against more vocal and powerful lobby groups:

*You can’t put in environmental laws without proper consultation with rural people. With some of these issues governments always seem to pick on the rural community; not the townships or businesses. I believe certain consumer and green groups have far too much power.*

One farmer however suggested that government should draft legislation with stakeholder committees made up exclusively of landholders:

*It is difficult to do the right thing if they make the laws before consulting the man on the land. I would like to see laws written by committees with a cross section of landholders from all the agricultural industries because farmers are quite different to graziers and people who own forests.*

A grower thought that the grower groups had been captured by government and therefore were not getting the right story across:
The government talks to grower groups way too much and they forget about talking to the people on the ground. Most of these groups tell the government what they want to hear so they keep getting funding.

A cane grower thought that if consultation was undertaken properly there would be less need for the ‘big stick’:

It would be nicer if we could have more input into the regulations. Our farming group (cane growers) have representatives that turn up and we show them what we are doing and they learn from us as much as we learn from them. It seems that when it comes to more regulative bodies they see it as something that they read in a book – there is no on-ground consultation. There needs to be a lot of science involved in it and practical solutions as to how you would put them in place. Instead of bringing a big stick out, talk to people and find out the best way to implement them. Talk to farm groups and work out a solution.

A preference for a greater focus on education, extension and incentives was also widely expressed.

- Persuasion: extension, education and incentives

A grazier claimed that education should be the main focus for intervention:

If we want the environment to be cared for, the best thing we can do is get knowledge out there to this army of people who are intent on doing the right thing. We just need to have them educated in what the right thing is. I think we’ve got to go back to our scientists. Someone comes along and challenges what we’ve all been doing and we know it’s the right thing because we all stand around the bar at the sales and we all agree, so it must be right. These scientists come along and challenge that and immediately everyone is on the defensive and they go home and think about it. I always find that’s a great personal challenge when you question the whole thing all the time – but not to a point where you can’t reach a decision. Generally I find blokes get it pretty right. It just might take a little while.

A farm advisor however believed that incentives were the key to behavioural change, and in this he appeared to be in the majority:

I question how you police the legislation. There will always people that will abide by the law if they think they are going to get caught. There’s incentives which I think in some ways could be a lot more effective. I remember talking to the EPA about the plastics problem what do we do about it. And they basically just oh well that is not our problem. We’ll make the law but we won’t think about how to solve the problem. There need to be some solutions to get around some things. There are no herbicides you can use on a few crops so it again it comes back to what is available and what gets through the system. So, if you are out using herbicides and you can’t use plastics then what do you use? There is biodegradable mulch that looks like it is going to work but it costs. So maybe that’s where the incentives come in.

Economic factors were also viewed as key in persuading farmers that abiding by legislation was worthwhile:

Legislation needs to be backed up by facts and it has to be proven results and also make it so that the person that is being regulated or restricted can see an economic benefit to it.

An agribusiness representative agreed that this was essential, especially for the non-compliant farmers:

I think farmers think they are over-regulated because the economic determination hasn’t been sold to them. If you sit on the fence you can see both sides. The more professional, educated farmer will agree he needs to do it better. There will be some farmers out there that won’t do it – they will be the people that flood irrigate because it is easier, etc. – there will be people that will cut corners.

Making farmers understand the benefits is the key. Dictating doesn’t work. Also recognising that the people that are selling the products to the farmers are the ones that are in a position to assist
with those laws. We have the ability to tell them how to put them on properly and we calibrate our tanks. We do a lot more for the farmers than a lot of people probably understand.

They try to get farmers onto farming management practices and following a program of reporting because it is a benefit to the sugar mill to get the reporting. My concern is if they are not paying farmers to do it that they are not getting it done. I do think they need to be sold on the economic benefits as to what it could do for them. The government has stepped in said what must and must not be done. They should be saying that if farmers do ‘this’ they will not only be helping them but helping themselves. I think if they were sold on that economic benefit then you may see a greater embrace of the concepts.

Another farmer thought however that education was also essential, and should pave the way for incentives to consolidate change:

Incentives like tax breaks with water conservation or soil conservation. Educate people as to the right way to do things and the incentives should follow. I think one of the biggest problems is that the farming population is getting older and the older farmers don’t like changing their ways. We are in partnership with my father and his two brothers (all well over 65) and they can’t see the sense in doing new things. It’s the way they made money but times change and you need to change with the times and work within new guidelines.

One farmer agreed that younger farmers were more accepting of regulations:

I suppose for us being younger we are used to regulations. If you ask someone 50 or 60 the same question they would say there is a lot of legislation they don’t like.

An agency representative agreed that economic messages were the best means and worked as effective self regulatory tools:

I tend to think if you can get those regulations in the form of self regulation rather than having to put a stick to someone then it’s going to happen. Nothing really happens until it starts to burn a hole in the growers’ pockets – then you get self regulation. We have tried to do different extension projects but unless it’s going to benefit their income they won’t do it.

A farmer suggested incentives be rolled out through the tax system:

They should offer more tax incentives for people to change to new technology like for example this biodegradable mulch. At the moment it’s like four times the cost of the regular mulch. So it is sort of cost prohibitive for us to use it but you might if you got a tax break, which would then enable that company to produce more which in turn should bring the cost down.

- **Locally relevant, flexible and responsive controls**

A corporate farmer said that customisation of controls to conditions was essential:

There is one thing about the environmental management system; it has to be customised for each individual area like Bowen which makes it hard when someone has to audit it. With our quality assurance system we had someone from Victoria come up here but if they don’t know our ecosystem in Bowen it is hard to audit it properly.

Another farmer summarised a common view that local biophysical knowledge was an essential ingredients to make laws work, and what better way of accessing this knowledge than asking local landholders who were the experts:

Just blanketing laws for everything just doesn’t work. Every area is totally different. And there is no person who knows our land better than a person farming it. You have been working the land for 40-50 years; you have got a fair idea, better than anybody else at what is going on.

Several farmers argued that the loss of local knowledge within government departments due to funding cuts meant greater losses in the long-term:
The DPI is poorly funded. DPI used to have people in the district helping farmers. You could ask for help and there would be someone that would come out and give you advice and also if you were having trouble with a neighbour they would give them a call. It doesn’t happen anymore as there is no funding to have the person on the ground who can talk to the farmers and give that ‘on the ground’ feedback. I think the DPI should have more control and more men on the ground to look at pests and diseases and give farmers advice. Most of us now employ private consultants but you don’t get that interaction of farmer with farmer. I think that has been lost and that costs money long term.

Participants were also asked their views on who should have responsibility for regulating. These responses are discussed next.

4.12.1 Environmental Management: co-regulation

Participants were asked who should take the lead on natural resource management. Some thought farmers should be the lead players. Two farmers maintained that all players should have a part but that government should take the lead. Of those that thought government should take the lead; an industry representative maintained:

I think NRM management is always going to be the role of Government but I think that more and more farmers are becoming involved. Some farmers are very green in their outlook, not just politically, but in their whole the way they do things. There could be some collaboration between the growers and Government but I think Government will always take the lead role on it. Organisation industry bodies like Cane Growers, BSES [Bureau of Sugar Experiment Stations] and CSIRO I don’t think they want to see the regulation all they want to do is make sure that the industry remains viable within the context of those regulations.

However, most participants argued that industry bodies should lead because they are comprised of local farmers. One Bowen District Growers Association (BDGA) member explained:

We have an active association and over 60% of the growers in this area belong to the association. Most of the people in the association realise that there has to be a structure and system – we are trying to plan ahead with a five year plan which is updated every year. We are being more proactive with our lobbying and we are pushing one of our employees onto committees so she can express our views and collate information.

No-one wants to stand up and say anything but often a bad idea generates more conversation than a good idea. It’s important for people to say something even if it sounds ridiculous. We start the meeting and say whatever we do in this meeting is purely business and not personal. If we have a disagreement it doesn’t matter.

A farmer agreed:

The BDGA get their nose into everything. The manager organises grants for anything that is happening. Since she has been doing the job we had one of the highest grants received in Queensland.

An agronomist identified the strengths and weaknesses of different groups in the district:

I think probably a role for both farmers and industry bodies. I think the way it is going it will end up being more the industry bodies because they are already active. The government seems to be sort of stepping away. The government will probably go more into actual regulation and monitoring or regulating but industry bodies will have more of a role in NRM management. Probably the growers would prefer it that way. The Bowen District Growers seem to be doing really well, a good strong group. They got funding for a development officer, they seem to have a good fairly strong voice. Their chairman seems to be in the media a little bit. As far as the graziers go, their industry body or representation seems to be almost non-existent in this area.
A corporate farmer thought that the groups needed to join forces to have sufficient political weight:

> It’s certainly up to farmers. Farmers are a minority group. They’ve made that transition from a voting power to a minority group over the last twenty years. I think farmers really struggle with the concept of how they have a voice as a minority group. The Bowen Growers Group is good for dissemination of information and growers having a common voice but I think politically you need a larger group than that. What you’ve got to do is combine veggies and beef. Farmers collectively: Agforce, the Farmers’ Federation. Horticulture’s a little lost. I don’t think our industry groups have enough pull.

A grazier said that industry groups were sometimes hamstrung by inadequate leadership and representation:

> I think industry groups should be party to any decisions that are made that affect their members. It’s fine for Government to make a decision, but the ramifications of that decision affects people. Sometimes the blokes that you want in these groups don’t want to be part of it because too much bullshit goes on. So, you get the would bes if they could bes, in grower rep positions because nobody else wants it. And some of them aren’t quick enough thinkers and the bureaucrats pull the wool over their eyes. I guess that happens everywhere. It’s happening in Canegrowers and even in Agforce. I suppose it is apathy in primary producers … you will go to a meeting or something and they will just sit there and won’t say anything. But afterwards when everyone has downed a few beers they complain instead of getting up and having their two bobs worth at the right forum when they can. People are scared to even ask questions. You go to field days and people will just sit back. Sometimes they may be stupid questions so what, well how else do you learn. Not everyone will come to field days but they need some sort of a forum where you can network with each other and throw ideas around, see what other people are doing, techniques that they use etc..

A farm advisor agreed:

> I think farmers probably have more of an idea of what they are up against than I do because they are at risk or have to make changes to adapt. And I don’t think the general community have a very good understanding of what is out there …. unless they are really interested or are involved in some of those community groups like NRM Boards, Land Care. There are big regional NRM groups everywhere around Australia. Like anything, it depends on who is involved in those groups and who sits on those groups on how well they function. I don’t think all of them function all that well. There is a lot if vested interests. Perhaps that would be there rather than setting up another lot or something else over the top of that. That would be a good way to have things work providing that they work properly. And they have good representation they aren’t just hijacked by certain minority groups. There is a role for industry bodies providing the industry body is representative. And that’s the hardest, to get industry wide representation.

An agribusiness representative said that industry groups needed to become more effective as a means for farmers to exert greater control. Others thought there should be a mix of stakeholders, including government. An industry representative stated:

> I think they all need to work together because if they are not, how can they produce legislation that is covering every issue in every area. The government has a role to play with growers and organisations like ours. It’s all about that communication process: sitting down and talking to the growers and taking those issues back and doing something about it. I don’t think it is one person or one area’s responsibility; everybody needs to be involved in the process.

A farmer agreed:

> You are always going to need somebody from outside the industry, I think someone from DPI, somebody from the government, somebody from the green party for instance. The wider range of people and ideas we have the better it is because we can all do things and think we are the right person and way but until somebody else thinks outside the square, so, individual farmers, industry bodies, DPI and government representative I think you would have a good mix of people.
The next two sections examine natural resource management and reef regulation and discuss the formal and informal orders operating in the Whitsunday shire.

4.13 Talking point: Reef management and land clearance

The most often talked about issues was regulation of farm management in the interests of reef preservation, including of water quality and chemical usage but also land clearance. The Great Barrier Reef was listed as a World Heritage Area in 1981. The Great Barrier Reef Marine Park, with which the World Heritage Area roughly equates, is managed by the Great Barrier Reef Marine Park Authority (GBRMPA), a state body. State and Federal legislation also operates in the area and on the mainland adjacent.

There has been increasing demand for tougher regulatory solutions to preserve the reef in response to concerns that the Great Barrier Reef and lagoon may be under threat from a number of causes, including natural damage such as cyclones and outbreaks in populations of the crown-of-thorns starfish, as well as anthropogenic damage from climate change, and also run-off from adjacent catchments (Fabricius, 2005). The run-off transports sediment and soluble inputs to the reef through normal stream flow and also in pulses after high rainfall events during cyclones and the monsoon experienced in wet tropical regions during the summer (Masters et al, 2008).

Since European settlement land use on the mainland catchments adjacent to the reef has altered markedly. The Great Barrier Reef Outlook Report (2009) observes that “over the past 150 years sediment inflow onto the Great Barrier Reef has increased four to five times, and five to 10-fold for some catchments.” Sediment loads in run-off escalated following the removal of native vegetation and the introduction of agriculture. This has been exacerbated in grazing areas which have been overstocked, as this reduces groundcover and accelerates erosion still further. Sediment loss also occurs from cropping areas. Sediment plumes travel from river mouths into the ocean and most sediment is deposited within 10 km of the coast (Brodie, 2000). It is therefore in the inner shelf, rather than in the mid and outer parts of the reef where the effects are thought to be most felt. Increased turbidity and eutrophication is associated with reef decline. Cropping, including sugar cane, has involved the application of artificial nitrogen rich fertilizers since the 1950s. It has been estimated that prior to 1850 approximately 20,000 tonnes of nitrogen reached the reef each year, increasing to 77,000 tonnes at the end of last century (Brodie, 2000). About 80,000 tonnes of nitrogen is applied to sugarcane each year (Brodie, 2000). The crown-of-thorns starfish feeds on algae (phytoplankton), the populations of which are believed to increase in response to increase nutrient load in the water (eutrophication). Nutrients, particularly nitrogen and phosphorus, act as fertilizers for algae. Eutrophication is also thought to act as a fertilizer for seagrass which then out-competes the coral. Increased turbidity and greater numbers of algae reduce water clarity and inhibits sunlight reaching the corals. Sediment settling on the seabed may stifle coral formation and fertilizer may cause chemical damage.

However the degree of impact of sediment and nutrient pollution to the reef can be difficult to ascertain, primarily due to the lack of longitudinal data and multiple causes of reef damage, including natural impacts such as cyclones but also the complexity of ecological relationships on the reef. There have been several studies performed within the Whitsunday Shire. A eutrophication gradient from Proserpine, where the Proserpine River has its mouth, has been found to be correlated with reduced coral cover, species richness and abundance (van Woesik et al, 1999 in Brodie, 2000). In 2008 a group of scientists were commissioned by the Queensland government to review the available evidence and their conclusions appear in Table 4.1. They concluded that there was “strengthened evidence of the causal relationship between water quality and coastal and marine ecosystem health” and that “current management interventions are not solving the problem” (State of Queensland, 2008).
Table 4.1: Chief conclusions of the Scientific Consensus Statement on Water Quality in the Great Barrier Reef (State of Queensland, 2008)

<table>
<thead>
<tr>
<th>Main conclusions</th>
<th>Conclusions as to linkages between catchment run-off and coral reef decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water discharged from rivers to the GBR continues to be of poor quality in many locations.</td>
<td>Macroalgae increase and coral species richness decline with increasing turbidity and chlorophyll</td>
</tr>
<tr>
<td>Land derived contaminants, including suspended sediments, nutrients and pesticides are present in the reef at concentrations likely to cause environmental harm.</td>
<td>Links between nutrient enrichment and crown-of-thorns starfish population outbreaks are now well supported.</td>
</tr>
<tr>
<td>There is strengthened evidence of the causal relationship between water quality and coastal and marine ecosystem health</td>
<td>Coral reef development diminishes along a water quality gradient in the Whitsunday Islands.</td>
</tr>
<tr>
<td>The health of freshwater ecosystems is impaired by agricultural land use, hydrological change, riparian degradation and weed infestation</td>
<td>Coral cores from reefs off Mackay show that increasing exposure to nitrogen from the Pioneer River is correlated with poor reef condition and high macroalgal cover.</td>
</tr>
<tr>
<td>Current management interventions are not effectively solving the problem.</td>
<td>Stress and mortality in corals exposed to sedimentation increases with increasing organic content of the sediment.</td>
</tr>
<tr>
<td>Climate change and major land use change will have confounding influences on reef health.</td>
<td>The presence of muddy marine snow increases sedimentation stress and mortality in coral recruits.</td>
</tr>
<tr>
<td>Effective science coordination to collate, synthesise and integrate disparate knowledge across disciplines is urgently needed.</td>
<td>Various pesticides exert detrimental effects on zooxanthellae, photosynthesis and coral reproduction at trace concentrations.</td>
</tr>
<tr>
<td></td>
<td>There are synergistic effects between herbicides and sediments on crustose coralline algae.</td>
</tr>
</tbody>
</table>

In late 2009 a new Reef Water Quality Protection Plan (‘Reef Plan’) was introduced (State of Queensland, 2009). This Plan includes legislation imposing positive obligations on farmers. Previously, action had been voluntary. The plan is a co-production of the Queensland State and Federal governments. Federally, assistance and control is being effected through Reef Rescue and Caring for Country.

An explanation of the major pieces of legislation and policy is in Table 4.2.
Table 4.2: Major Instruments in Queensland to protect the Great Barrier Reef

<table>
<thead>
<tr>
<th>State regulation</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reef Water Quality Protection Plan 2009 (‘Reef Plan’) involving amendments to Great Barrier Marine Park Act 1975; Environment Protection Act 1994; Integrated Planning Act 1997 (now Sustainable Planning Act 2009) via the Great Barrier Reef Protection Amendment Act 2009</td>
<td>New focus on regulating farming activities in catchments adjacent to reef, including offence provisions for failing to implement changes to chemical application and management in order to minimize nutrient run-off into reef</td>
</tr>
<tr>
<td>Vegetation Management Act 1999 (as amended) and Vegetation Management Regulation 2000 (for freehold land) Land Act 1994 (for leasehold land) State Policy for Vegetation Management, May 2004, amended Nov 2006 and Oct 2009 (State Policy version 2)</td>
<td>Stopping broadscale clearance of native vegetation, recent changes include an offsets policy and clamp down on clearing of regrowth vegetation in reef catchments, including in the Whitsundays, in order to minimize sediment run-off into reef</td>
</tr>
<tr>
<td>Environment Protection Act 1994 (And precursor legislation: Clean Waters Act)</td>
<td>Licensing of point source pollution, including industry and sewage. Additional recent amendments also to Chemical Usage Act have been made as part of the Reef Plan for reef protection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regional Plans</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitsundays Plan of Management 2008 (GBRMPA, 2008)</td>
<td>Regulates marine activities and activities in the reef and lagoon areas</td>
</tr>
<tr>
<td>Whitsunday Hinterland &amp; Mackay Regional Plan (Department of Local Government, Planning, Sport and Recreation, 2006)</td>
<td>Regulates land use in the adjacent catchments</td>
</tr>
</tbody>
</table>

The goals of the new Reef Plan are to reduce the nitrogen, phosphorus and pesticide load in the water by at least 50% by 2013 and sediment load by at least 20% by 2020 (State of Queensland, 2009). The goals for land management on the mainland in order to realize this improvement in water quality is to retain at least 50% of ground cover on grazing land in the dry season and that by 2013 80% of farmers and 50% of graziers will have adopted improved farm management practices such as better soil, nutrient, chemical, pasture and riparian management practices (State of Queensland, 2009). Improvements in ecosystem health aimed for are to ensure that by 2020 the quality of water entering the Reef from adjacent catchments has no detrimental impact on the health and resilience of the Reef, that there will have been no net loss or degradation of natural wetlands and that the condition and extent of riparian areas will have improved (State of Queensland, 2009).

One way in which these goals are intended to be achieved is through direct regulation of non-point source pollution from broad acre agriculture. In the reasons for the Great Barrier Reef Protection
Amendment Bill, the Scientific Consensus Statement on Water Quality in the Great Barrier Reef was cited as the rationale, with the explanation that “water discharge from rivers into the Great Barrier Reef continues to be of poor quality in many locations and that land derived contaminants, including suspended sediments, nutrients and pesticides are present in Great Barrier Reef waters at concentrations likely to cause environmental harm. Adopting certain farm management practices are known to reduce the amount of contaminants leaving the farm. As a result, regulation is needed to ensure that farm management practices that impact on water quality are improved.” The focus of the legislation is cattle and sugarcane production as these industries are responsible for 90% of the fertiliser, pesticide and sediment runoff (ReefWisefarming 2009). The explanatory notes describe cane farming in the wet tropics and cattle grazing in the dry tropics as particularly to blame however the net of the Act is cast wider. It requires minimum standards to be met by cane growers and cattle graziers in three high priority catchments: Burdekin Dry Tropics (including the Don sub-catchment and town of Bowen), the Mackay Whitsunday (including the Proserpine sub-catchment and town of Proserpine) and the Wet Tropics (north from Ingham to the Daintree and including Cairns). In particular it redefines “environmentally relevant activities” caught by the Environmental Protection Act to include sugar cane and cattle operations above a certain property size in the three catchments.

The Bill estimated that 4,500 landholders would be affected by the amendments, with 1,000 having to prepare Environmental Risk Management Plans (ERMPs). From 1 January 2010 all cane growers and cattle graziers with properties greater than 2000ha are required to keep detailed records of chemical use, including herbicides, fertilizers and soil conditioners (including mill mud but not lime/gypsum or molasses). Cane growers with more than 70 ha under production and cattle graziers with properties greater than 2000ha must prepare ERMPs of their properties to identify potential hazards and management of these.

Offence provisions include failing to keep adequate records of chemical use; failing to follow chemical usage conditions or calculating appropriate amounts of fertiliser; applying inappropriate amounts. For those required to have an ERMP there are further penalties attached for failure to submit an annual report, amend a plan if required or failure to comply with a direction notice. The most severe penalties of up to $30,000 are attached for failure to produce an ERMP.

Another way in which the Reef Plan goals are intended to be achieved is through increased direct regulation of land clearance. Worldwide reefs considered most at risk are those with significant land clearing occurring in neighbouring catchments (Fabricius, 2005). The land clearance rate in the catchments was 1,368/year in 2007-2008 (SLATS, 2009). This rate has been steady for a number of years but it has been lower, as well as much higher in the past (see Figure 4.11).
Clearing in recent years has been mainly for pasture rather than cropping. Land clearance legislation has long been contentious in Queensland and was frequently criticised by participants in this study for similar reasons that the New South Wales’ land clearance restrictions were complained of in the Walgett Shire. Namely for lack of flexibility, poor alliance with local conditions, and impeding good weeds management. In the Whitsundays the two areas of regulation held in lowest regard are linked by the environmental consequences to the reef alleged by land clearance in the catchments.

A moratorium on clearing of regrowth imposed in April 2009 by the Vegetation Management (Regrowth Clearing Moratorium) Act 2009 was
replaced in October 2009 with restrictions on clearance of regrowth in riparian zones (within 50 m of water courses) in the three priority reef catchments, including in the Whitsundays (DERM, 2009).

4.13.1 Widening of the gap between the formal and informal orders

The 2009 Reef Plan was produced to address past policy failures and to respond to the deepening threat of climate change. The first plan had been put in place in 2003. The 2009 plan stated that the earlier plan had failed: “Latest available evidence indicates that water discharged from rivers to the Reef continues to be of poor quality in many locations and current management interventions are not working” (State of Queensland, 2009).

However the 2009 plan also suggests that nitrogen loads have fallen to pre 1950 levels. The Great Barrier Reef outlook report (2009) notes that “recent advances in agricultural practices and the uptake of additional government programs, there has been a reduction in sediment and nutrient inputs into some coastal river systems.” The farmers interviewed said they were not the problem. There is also evidence that change has been due to innovations in production practices as much as regulation. Sugar cane is the largest land use adjacent to the reef. Traditional sugar cane cultivation, which involves harvesting after burning, has been observed to involve soil loss of 500 tonnes/ha/yr (Brodie, 2000). However conversion to green cane harvesting/trash blanketing and minimum till production practices has reduced this by an order of magnitude. Losses are now around 10 tonnes/ha/yr (Brodie, 2000). In the Proserpine Catchment nitrogen and phosphorus targets for 2014 and 2050 require reductions but some measures, particularly for ambient conditions, are close to being met (Table 4.3). Others require significant improvement.

Table 4.3: Pollutant targets for the Proserpine River (Drewry et al, 2008)

<table>
<thead>
<tr>
<th>Key Pollutant</th>
<th>Ambient Freshwater Quality Values</th>
<th>Event Freshwater Quality Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Inorganic Nitrogen μg/L</td>
<td>30</td>
<td>350</td>
</tr>
<tr>
<td>Particulate Nitrogen μg/L</td>
<td>150</td>
<td>420</td>
</tr>
<tr>
<td>Filterable Reactive Phosphorus μg/L</td>
<td>25</td>
<td>190</td>
</tr>
<tr>
<td>Particulate Phosphorus μg/L</td>
<td>20</td>
<td>120</td>
</tr>
<tr>
<td>Total Suspended Sediment mg/L</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Ametyn μg/L</td>
<td>CC</td>
<td>0.04</td>
</tr>
<tr>
<td>Atrazine μg/L</td>
<td>CC</td>
<td>0.11</td>
</tr>
<tr>
<td>Glirion μg/L</td>
<td>CC</td>
<td>0.11</td>
</tr>
<tr>
<td>Hexazinone μg/L</td>
<td>CC</td>
<td>&lt;LOD</td>
</tr>
<tr>
<td>Tebuhiuron μg/L</td>
<td>CC</td>
<td>&lt;LOD</td>
</tr>
<tr>
<td>Dissolved Oxygen % saturation</td>
<td>85-120</td>
<td>52-77</td>
</tr>
<tr>
<td>pH</td>
<td>CC</td>
<td>270</td>
</tr>
</tbody>
</table>

CC = Current condition; LOD is Limit of detection
The Scientific Consensus report does not identify cause-effect relationships but correlations between land use changes, run-off to the reef and likely biological effects. The lack of scientific uncertainty appears to have hampered support within the farming community for the reforms. However for most improvement in practice will have already been achieved or will not be a disincentive to comply. What irks farmers is the feeling that they are being unfairly targeted and singled out for blame and responsibility. This undermines trust in government, and this is felt beyond those directly impacted. Cane growers are impacted most by the regulations but both cane farmers and horticulturalists in this study were resistant to the plan.

It may be that if the cause-effect linkages cannot be established with greater surety and communicated to farmers then compliance to both policies will be difficult to obtain as the legitimacy of law will be low and non-compliance rationalised. Smith and Anderson (2004) undertook a study of compliance in the marine environment, including from land based run-off. They found that legitimacy of regulations was challenged and that this was a factor in non-compliance: “Individuals may be motivated to breach regulations if they are thought to be unfair or unnecessary, or go too far in limiting profits. Farmers subject to land care controls, or commercial fishers who are prohibited from fishing in certain zones, may believe that the regulations imposed are unnecessary or too onerous, and simply ignore them” (Smith and Anderson, 2004). Cummins and Barclay (2007) found Queensland farmers responded to scientists adopting a shared fate approach to managing damage to the environment of the Great Barrier Reef through nutrient run-off. Farmers maintained that if there was less blame placed on farmers and more diligence by all sectors within the community to safeguard the reef, more farmers would adopt recommended practices to reduce runoff from farmland.

What regulations with low legitimacy may also engender is (even) lower regard for government. It is not the effect of the laws which may be an issue, but the implication that farmers are the problem and that government is positioning them as a problem. An alternative way of describing this is to say that is that farmers are being placed at a great distance from government, and that government is responsible for this distancing. This is perhaps counterproductive when the regulatory research suggests that in order to raise compliance governments need to close the distance between them and regulates, rather than widening it (Braithwaite, 1995; Braithwaite et al, 2007). This could be compounded in this area by the lack of confidence and trust in government and the great social distance between regulatees and government, which is discussed in the next section.

4.14 The informal order in Whitsunday Shire: widening gulf from government

In a news items following the introduction of the new Reef Plan, Grant Maudsley, from Agforce, was quoted as saying that monitoring runoff and recording the use of chemicals was already taking place and that a command and control approach was unnecessary: “I don’t think it’s appropriate those sort of fines and charges be applied.” (Harper, 2009). In the same article Canegrowers chairman Alf Cristaudo was reported to have said that farmers were being unfairly persecuted and that farmers had been adopting best management practices and were not “environmental vandals.” Similar sentiments were expressed by those interviewed for this study. The feelings however were not limited to the Reef Plan legislation, or to other more topical concerns such as land clearing. They were pervasive in regards to nearly all government action. There is a growing distance between government and agriculture which farmers in the Whitsunday Shire felt positioned them unfairly as problem-generators rather than problem-solvers. In turn, government generally was described as increasingly removed from the on-the-ground concerns of farmers. A grazier said that the culture in all state agencies had changed to the extent that workmen for public utilities could no longer be
trusted even to close gates on his property. There appeared to be an almost complete disconnect between government officers and landholders in rural areas, which as this farmer put it, translated directly into disrespect:

...an emerging issue is the public utilities and here we have main roads, railways, Ergon energy, in the good old days ... if there was an issue on the railway I would find the ganger or the inspector, and he’d been in that job for 10 years and you’d get to know him, and so they were like your neighbour, and I’d say I’ve got an issue about this and they’d do something about it. Now with the new corporate system you can’t find out who is in charge of anything because mostly they contract out maintenance and construction and things like that. So when we had a main roads inspector that was in charge of this he had something to lose and that was usually my cooperation with him, mutual respect.

... Now the guys turn up and they’re just here to get a job done and then bugger off. We find that the whole tone of things changed. Now it’s almost combative ... Now the new guys are out of Brisbane or Sydney and their job is to fly through here and put these poles up and bugger off and that’s what they usually do ... so we find gates are left open, ... It’s just unbelievable ... they sent guys in with trucks and they run all over stuff and nobody knows anything, nobody fixes anything.

The next contractor who comes in here will have to post a good behaviour bond.... If you come on to here to do contract work you’ll post a bond and I’ll give you it back when we’ve fixed all the stuff you’ve stuffed up. It’s a bugger of a way to do business but seems like that’s how it has to be ... So that’ll be our new policy.

This extended example is provided as it exemplifies well the sentiment commonly expressed, and frequently supported by anecdote, of the increasing distance between government and the regulated. The distance is becoming entrenched and inciting antagonistic responses from farmers, including in some cases wilful non-compliance and in compromising the ability of agencies to implement legislation, as this grazier identifies:

I think it’s really sad because there was a time when the local DPI man and those sort of people, and your bank manager, they were a part of your community and they were sort of confidantes in what you’re doing. DPI have now just become more and more a regulatory group. Once the DPI were involved in discovering what was going on.

One landholder noted that when farmers attended a recent field day on weed management, few mixed with DPI staff:

Probably 20/25 people from the area came but no-one said anything. They are all sort of standoffish with Government departments. Twenty years ago, Government departments like DMR, DPI I never ever used to hesitate if I had a problem to ring them or I’d go and see them and talked to them to ask what is the best thing for me to do, what do they recommend. The only reason they are here now is to try and catch you for doing something that’s not right and you know everyone feels the same. But I know it’s probably unfounded because there are still a lot of good people in those Government departments that want to help people.

A farmer argued that local knowledge and practical experience were necessary for extension:

Within the DPI and those Government Departments, the old fellows with the knowledge are all gone and we are getting a whole lot of university trained graduates and if they make a mistake people on the land wear that cost. All that is needed is knowledge and practical experience that is built up over the years. They are the fellows that landholders respect. They have little respect for these Government blokes anymore because they have lost the good blokes that they could respect.

Respect and legitimacy is accorded to government where government policy is seen to be created through consultation with people on the ground and is evidence-based, including strong evidence of local conditions and impacts and cause-effect relationships.
4.15 Summary and conclusions

The Whitsunday region experiences great diversity; in community, in geography, land use, climate, and in ecology. Management of water quality in the Great Barrier Reef Lagoon is the main environmental concern. Farmers are pressured to ensure they comply with best management practices to reduce the amount of nitrates flowing to the reef lagoon. The various agricultural industries have responded with establishing industry relevant standards of best practice and are sure that their members are meeting requirements. There is a strong resentment amongst farmers that agriculture is singled out as the primary cause of damage to the reef particularly within a high tropical rainfall area where flooding is common.

Industry pressure and consumer pressure, self regulation and peer pressure have been the driving force for improvements in sustainable practices. Bowen horticulturalists have formed an informal industry lobby group which is very effective in supporting growers, lobbying government, securing grants, and working with government agencies to improve productivity and best practice. More formal organisations are considered by local growers to be less effective.

The mail survey highlighted that weed management is the primary concern for Australian farmers but landowners in this region with its tropical climate and abundant rainfall struggle to control a number of noxious weeds. Weeds mismanagement was the source of conflict between neighbouring farmers. The small size of holdings and the close proximity of farm operations to urban areas means spraying to control weeds is difficult.

Participants identified a number of environmental laws that were contradictory and those that complicated farming as a business. Moratoriums on dams and tree clearing were seen as ill informed political measures. Participants maintained that simplification and rationalisation of state and Federal laws, as well as better integration and articulation between different agencies and their responsibilities and approaches would greatly improve compliance. Participants were hungry for more extension services that might benefit communication between government, extension services and producers. Participants keen to see more evidence-based policy, especially evidence which was collected locally and therefore was geographically relevant, as well as more meaningful public participation and consultation.
5 Conclusions and Implications

5.1 Introduction

The aim of this second stage of this research was to conduct field work in three diverse agricultural regions to examine more closely the social nuances surrounding natural resource management in rural communities. In particular, the study examined the way residents manage land use conflicts and respond to regulation. The field work enabled an in-depth investigation of community attitudes, social norms and sanctions regarding natural resource management, environmental crime, and environmental laws and regulations. In this concluding chapter, the main findings of the field work are summarised and the implications are integrated with the findings of Stage One of this research to provide a final discussion. In conclusion some possible solutions are offered for improving natural resource management within rural communities as well as for encouraging compliance with environmental laws and regulations.

5.2 Summary of the findings

In the Victorian shire of Moira, water is the primary environmental concern. Drought and low water availability have decimated local irrigation industries and many farmers are leaving farming. The rain which has fallen in late 2009 and 2010 in the northern parts of the Murray Darling Basin may alleviate the drought in the Walgett Shire (the second case study area) but at the time of writing the Moira Shire continues to be severely drought affected. However if the drought is broken, as in the northern basin, then a number of other environmental issues may re-emerge, in particular salinity.

The legacy of closer settlement has meant that this district is fully developed and natural resource management focuses on maintaining and re-establishing vegetation and habitat on private farm land and within the Barmah forest and wetlands. Landholders are very proactive in conservation and were quite welcoming of laws and policies with environmental aims, so long as they are effective and locally relevant and practicable. Farmers were also proactive in adopting innovations, such as saltbush lamb and had taken full advantage of funding offered for improving irrigation efficiency. They desired greater acknowledgement by government of local natural resource management knowledge and capacity. They were resistant to decisions which appeared to be ignorant of flow-on effects and consequences.
Order with and without the law

Water trading is reluctantly accepted as an efficient way to distribute a scarce resource, although uncertainty surrounding constantly changing regulations cause angst within irrigation communities. With the advent of the Commonwealth buyback of entitlements, there are concerns for social sustainability and food security, agricultural viability, and for environmental damage caused by water scarcity and for degradation to land abandoned by farmers.

Weeds are a common problem and herbicide resistance in the area is of concern. Restructuring grants have facilitated problems with pest management on farm land that has been abandoned. Poor land management on farms is approached cautiously in order to maintain peace and to be mindful that landowners may be financially stressed and unable to address problems. Many problems were tolerated but subtle social pressure was effective in some cases. Appealing to an intermediary such as local weed officers was another way to manage issues and still sustain community harmony. There was less concern for new landholders to the community, who often lacked knowledge and understanding of social norms for required land management. Poor pest management on public land was a contentious issue for many landholders. With bushfire an ever present risk in Victoria, managing undergrowth and woody weeds in national parks is a primary concern.

In the NSW Shire of Walgett, agriculture is primarily cropping and grazing. The management of woody weeds which is affected by current land clearing legislation is the main environmental issue. Walgett farmers are renowned for their innovation in successfully farming this semi arid region and were proud of their leadership in no-till, cell grazing, direct drilling and the generation of Mitchell grass pastures and seed which benefitted the environment and production and accelerated adoption through ‘over-the-fence’ learning. They respect local agronomists who disseminate practical information and advice which is pertinent and relevant to local conditions.

Land clearing in this region is a highly emotive issue with a considerable history of discord between the regulated and regulators. The common ground is that both sides want to manage the environment sustainably. Local farmers are willing to address the mistakes of the past and are concerned that some current regulations may be creating further errors which will have to be corrected in the future. They rail against farmers being painted as the problem rather than the solution. Many still adhere to an ideal of private property rights and the rights of farmers to manage as they see fit but most agree that there are some ‘cowboys’ who should be treated by appropriate regulation and enforcement. Privately, poor land managers are reproached through social disapproval, gossip and ostracism. There is little tolerance for the illegal damming of water ways which have reduced water access to users downstream and impacted on the health of the Macquarie Marshes. Government inaction in this regard is resented.

They are disappointed when government imposes controls which are demonstrably disconnected from local environmental and socio-economic needs. According to farmers the regulatory approach needs to be less bureaucratic, more customised to particular environments, better targeted to meet production as well as environmental ends, and more inclusive of client needs and knowledge. In short, the structure needs to be more farmer-friendly and farm environment–friendly.

In Queensland, the Whitsunday shire is a highly diverse region, physically, climatically, environmentally economically and socially. The management of water quality in the Great Barrier Reef Lagoon is the main focus of environmental concern. Farmers are pressured to comply with best management practices to reduce the amount of nitrates flowing to the reef lagoon. The various agricultural industries which range from sugar cane production, horticulture, aquaculture and cattle grazing have responded with establishing industry relevant standards of best practice to ensure that their members are meeting requirements. There is a strong resentment amongst farmers that agriculture is singled out as the primary cause of damage to the reef particularly within a high tropical rainfall area where flooding is common.
Industry pressure and consumer pressure, self regulation and peer pressure have been the driving force for improvements in sustainable practices. Bowen horticulturalists have formed an informal industry lobby group which is very effective in supporting growers, lobbying government, securing grants, and working with government agencies to improve productivity and best practice. More formal organisations are considered by local growers to be less effective.

Landowners struggle to control a number of noxious weeds in this region with its tropical climate and abundant rainfall. Weeds mismanagement was the source of conflict between neighbouring farmers. As in other communities, poor land management is treated cautiously with a “quiet word” or reported to authorities or industry bodies who outside of the community. Spraying to control weeds is difficult given the small size of holdings and the close proximity of farm operations to urban areas which are rapidly spreading as the population of the shire increases. Local farmers are very willing to curtail their activities out of respect for the urban community.

Participants identified a number of environmental laws that were contradictory and those that complicated farming as a business. Moratoriums on dams and tree clearing were seen as ill informed political measures. Participants maintained that simplification and rationalisation of state and Federal laws, as well as better integration and articulation between different agencies and their responsibilities and approaches would greatly improve compliance. Participants were hungry for more extension services that might benefit communication between government, extension services and producers. Participants are keen to see more evidence-based policy, especially evidence which was collected locally and therefore was geographically relevant, as well as more meaningful public participation and consultation.

5.3 Comparisons and contrasts

The study has highlighted the heterogeneity of rural communities in ecology, climate, geography, industry base and in their experience of environmental problems. However, there were some clear similarities. These were regardless of the different environmental conditions and particular policies in place. For example, in all shires there was distress expressed by farmers at being placed at a distance from government and being treated as environmental vandals. There was also frustration and resistance towards regulations which were felt to be informed by politics rather than an understanding of conditions or by any real desire to improve the environment on the ground. The latter is expressed as one closer to farmer’s intentions than governments and one which is closely allied to business needs. Environmental intentions and farm business intentions were seldom seen as separate. Financial pressures rather than lack of education or willingness were everywhere identified as the major barrier to change. In Moira this was exacerbated by lack of water which was itself a significant barrier to change.

Farmers were proud of the advancements they had made and consequently there was disappointment that they felt they were being blamed for damage when farming practices had improved. In Walgett for example, minimum till is a dominant practice, in the Whitsundays, cane farmers employ green harvesting, mulching and only grow on flat land rather than on steep slopes and in Moira, water efficiencies are continually improved. There is better chemical application and usage in all areas. Production in all areas was also becoming more professionalised along business model lines and with the increasing use of external expertise such as agronomists.

There were common environmental challenges for farmers. Weeds were identified as a major issue requiring costly and intensive management in all areas. Pest animals, while varying in type across the regions, were also difficult to manage effectively. While encroaching urban development and conflicts between incompatible land uses, including residential but also tourism, was perhaps most pressing in the Whitsundays farmers in all study areas were concerned for food security and the preservation of viable agricultural land. New neighbours with limited knowledge were also identified
as compromising the ability of the land to provide food and ecosystem services, and mining was identified as problematic in Walgett. Management of public lands was particularly an issue in Moira, as it was in the Whitsundays, if the Great Barrier Reef can be described as a neighbouring public land management issue.

Environmentally the Whitsundays was, at the time of interview, perhaps the most favourable for production, with drought impacting in Walgett and severely impacting in Moira. Irrespective of conditions, management by government was everywhere decried. Moira farmers were not as critical of government as farmers in the other shires, although they did identify water trading as a cause for concern as well as conflicts between state and Federal laws. Farmers in Walgett and the Whitsundays were most concerned about land clearance laws and, in the Whitsundays, the Reef Plan. Everywhere there was agreement with the aims and intentions of environmental laws but the appropriateness of their content and implementation was hotly disputed.

Fairness and effectiveness were identified as the major barriers to better environmental laws and better management by government. The primary causes for concern were a perceived disconnect between the legislation and the biophysical realities of the local region. This has translated into a lack of confidence in government and undermining of government legitimacy. In Walgett both law and government came under attack for lack of efficacy. In the Whitsunday, activities now required by law had in many cases already been adopted. However the mere act of legislating had distanced farmers further. In Moira there was more confidence in government but particular laws and decisions were attacked. In Walgett woody weeds and the artificial preference for their preservation in the landscape was strongly felt to be undermining environmental gains and in the Whitsundays there was doubt that farmers are to blame for reef damage due to run-off. In both areas farmers feel that they are unfairly being blamed for environmental harm and bearing the costs of the provision of public goods inequitably.

In all shires there was a desire for agricultural production to be more highly valued as a land use in its own right. There was a desire for a return to the days of extension and assistance. Governments were seen as either abdicating responsibility by not dealing with issues, particularly on public lands, or dealing with them inappropriately and without consultation with those on the ground. Closing the distance to work with farmers more closely was seen as the solution for government to learn what works and why current laws were not working. There was a desire for greater science to determine whether land clearance regulations were effective and, in the Whitsundays, where actual run off is coming from and from whom so that allocation of blame and cost-bearing is fairer.

Farmers in the Whitsundays were perhaps least able to identify good government activities, although those which were identified were in similar areas as those in other study sites: chemicals management and water efficiency measures. Each of these were felt to have had demonstrable benefit to farm business and production as well as to the environment. The bolder and more radical moves to improve water efficiency in Moira via water trading were resisted however because, as with the majority of government initiatives in all the case studies, these were seen to be unsympathetic to environmental and social conditions locally and therefore seen also as likely to be unsuccessful and worse still, counter-productive.

5.4 Implications from the field work

In all case study areas community members and farmers expressed great commitment to environmental conservation and objectives, although there were significant caveats attached to the ways in which such aims may be achieved and by whom, on both public and on private land. Management of national parks, for example, was often criticized and management of private land attempted by government decried as poor. As in the national survey, money, time and drought were identified as barriers to doing more for the environment and regulation as impeding productivity
and also in many cases conservation. Part 1 also indicated that there may be some forces of social
suasion acting against practices of innovation. In the case studies this was also apparent, taking the
form of dismissive comment and occasional disparagement. On the whole however there was great
pride in innovation in the communities interviewed, as most innovations had seen demonstrable
improvement to the properties concerned.

There was also recognition that there were farmers who were managing their land inexpertly, at
great detriment to their neighbours, the environment, as well as themselves. The forces of social
suasion here were muted, with the maintenance of community harmony seen as a higher priority.
Poor land management, particularly weed and pest animal management, was a major concern for
landholders in each region as it often impacts upon neighbouring properties. Keeping the peace
within the community was a strong norm requiring discrete management of these situations. Much
of the time this meant ‘put up and shut up’ but with weed and pest management being a costly and
time consuming task, mismanagement often reached a point where confrontation was deemed
necessary. A ‘quiet word’ to the neighbour was the preferred option. Sometimes subtle social
pressure is applied through gossip or innuendo to encourage change. In other situations, there are
appeals to relevant authorities or industry organisations who can act as ‘middle men’ to address the
issue. Confrontation was viewed as inappropriate in situations where all were in the same boat, or
people were alternatively culpable for an equivalent action, or where there were mitigating factors.
In all communities it was thought that farmers could not be held responsible where choices were
limited by financial capacity rather than lack of will.

Less tolerance was afforded newcomers to the area who lacked knowledge and understanding of
good farm management. The norm requiring landholders to be responsible for land management
means that newcomers are expected to know. Confronting newcomers such as hobby farmers was
seen as justifiable as it had an educative function, and with fewer of the social costs attached to
approaching long-term neighbours. While local farmers are willing to assist in this regard, they are
frustrated when their efforts are ignored and newcomers become further alienated from the
community. Social change is increasing in rural areas and social change reduces social capital which
has implications for natural resource management.

Governments could work within this framework of social norms to improve compliance with
environmental laws and regulations. This means there must be more responsibility taken for weed
and pest management on public lands. Order could also be encouraged by ready response to
requests by landholders to address concerns about poor land management on neighbouring
properties. As noted on the conclusions of Part One, there is a need for government intervention to
ensure new landholders are aware of sustainable practices.

### 5.4.1 Defining environmental crime

In part one of this research it was revealed that environmental crime was a concern for 47% of
landholders across Australia. While legally defined crimes that have environmental consequences
such as trespassing and unauthorised hunting and fishing comprised 40% of the reported incidents,
the remainder were strictly offences of environmental nature. Weeds and pest animal
mismanagement were labelled as a crime because of the costly impact on landholders who are
victimised. In the field work, the definition of environmental crime as it occurs on farms was
explored.

Intent or wilful negligence were often cited as essential ingredients of what should be defined as
criminal. There was recognition that acts causative of environmental harm could be considered
criminal but there was regard also for intent and mitigating factors. Acts which were accidental were
generally not considered criminal but wilful or negligent acts occasioning evident harm, especially
affecting the productive capacity of other farms, were considered to be crimes.
Specifically, spray drift was more often seen to be accidental and therefore was not a criminal act. Rubbish dumping is a concern for farmers as it can injure or kill livestock and wildlife, cause pollution and impede biodiversity and revegetation, alter drainage courses and increase susceptibility to flooding and erosion, increase fire risk, and encourage pests. Tyres dumped on road sides were a particular threat for fire. Council charges for rubbish tips were the common reason cited for illegal dumping and this is an issue that could be addressed.

Participants acknowledged the necessity for laws and regulations to cover the handling and use of chemicals and in many areas there was appreciation of programs such as Drum Muster. However, not all chemical containers are included in this program. Several participants called for chemical companies to take more responsibility for the disposal of the chemicals they produce and sell.

Water loss to properties downstream as a result of dams or structures erected to harvest water from waterways or from overland flows, was clearly defined as crime and participants urged governments to effect greater control in this regard. However, participants’ discussions of the direct theft of water were not as clear. In the mail survey, participants’ responses to the attitude statement regarding water theft uniformly displayed moral outrage at this crime. While water policy was criticised, water theft was little mentioned in the mail survey and in the field work and rarely complained of. “Doesn’t happen around here” was a common response although some participants acknowledged they had heard of problems ‘in other areas’. However reports of theft in Victoria have led Goulburn Murray Water to increase enforcement activity to address the issue. The authors were also aware of water theft in the Bowen area but no reports were offered by participants. The relative silence on this issue amongst participants is curious. It may reflect a number of things: a lack of awareness of thefts, a general or particular disinclination to comment, a refusal to acknowledge theft occurs when water is such a scarce resource, a recognition that some financially stressed farmers have no other choice, or a relative prioritisation of this issue as lower in the order of issues of concern. Yet in Victoria, many of the investigations undertaken by Goulburn Murray Water have been undertaken in response to public reports (Goulburn Murray Water, 2009a). This is an interesting issue that requires further research.

5.4.2 Improving Natural resource management

Consistent with the findings of the first study, field work participants maintained farmers should take the lead in natural resource management but with support from government, science and industry. There was a general call for more consultation with landholders in the development of environmental policy. In most areas, the growing social distance between government and landholders has led to a rise in informal community groups to address local environmental needs. In Moira there was much more participation and support for Landcare than elsewhere. Landcare could be seen as effective co-management including both government and farmers. However there were also informal groups to manage habitat for the Superb Parrot. In Walgett there was more CMA activity and farmers were by-and-large ambivalent of the CMAs themselves, although appreciative of assistance and funding that they facilitated. Informal groups such as the Lower Plan/Pagan Creek Conservation group were also prevalent. In the Whitsundays, the Bowen District Growers Association is a community and industry-based initiative, which appears to be highly successful in engaging with producers and engineering change for the benefit of both environment and production. It is an example of the kind of nested institution which could be helpful to maximise environmental gains as well as raise social capacity within rural communities (Ostrom, 1990; Ostrom et al 1999).

As noted in the Introduction, governments worldwide have realised the limitations of traditional ‘top-down’ models of centralised natural resource management and have turned to community-based models that are now expressed as regional bodies responsible for particular geographical areas with local residents directly engaged in policy developments and implementation. This model
is considered to be more democratic, transparent and accountable, providing greater local understanding and more immediate and effective solutions (Lane 2006; Marshall 2008). However, as this study has demonstrated no two groups or communities are the same and groups vary in levels of knowledge, management capacity, and adaptability and the degree of integration of the natural resource management system across national, state and regional levels. In particular, natural resource management bodies walk a tightrope between the legitimacy conferred on them by governments and the perceived need to be seen as independent of government to ensure acceptance within their local communities (Lockwood et al., 2007). Furthermore, no two environmental regions are the same and participants in all case study areas complained that a “one size does not fit all” approach to environmental policy overlooked the disparity in environmental conditions between geographical regions. Disenchantment with formal institutions can lead to greater reliance on informal groups within communities for natural resource management. It was somewhat troubling therefore to find that some farmers in this study felt that informal groups had been undermined by the formal interventions of government and furthermore that community capacity had been eroded by the continual pressure exerted by external agencies and legal constraints.

Governments face the impossible task of trying to please all. One solution is to implement a nested collective decision-making approach that encompasses the perceptions and needs and values of local towns and communities in addressing a particular local natural resource management issue which is linked to district, regional, state and federal institutions. The basic idea is that any group of individuals should be able to address that issue in the manner that they best see fit, provided other groups are not disadvantaged as a result. This may mean working through the existing system of public authorities, or alternatively organising one or more new governance units to streamline the problem of ensuring compliance amongst group members with their agreed common goals (McGinnis 2005). Given a range of choices, communities will develop networks of organisational units within their own, and in collaboration with other, communities. Previous Australian work on nested institutions (eg. Marshall 2004; 2008) suggests that there is a place for such a structure to improve the flow of information between governments and regulatory bodies and farmers and their communities to raise awareness of the issues of importance of stakeholders at either end of the spectrum. Design of nested institutions founded on efficient community- or industry-based organisations will enhance government efforts towards better stewardship of NRM resources, by lowering the transaction costs. In many communities, nested institutions already exist and are working well. For example the Bowen District Growers is seen as more effective than local industry bodies or farmer associations and has been successful in obtaining government funding for various local initiatives. This model is working and government has wisely recognised this and supported the concept. This model could be applied to other locally relevant institutions in other rural areas.

Unlike conventional hierarchies which tend to develop from the top down, nested hierarchies grow more organically from the bottom up. In this way, rural grassroots organisations whether they be Landcare groups and other informal local action groups can become voluntarily part of, and participate actively in decision making by a larger system of locally legitimate institutions sufficiently sophisticated to handle the complexities of natural resource management that are beyond the capacities of smaller groups. Grassroots participation increases the legitimacy of decisions made at higher levels of community-based organisation, and thus the likelihood of local cooperation with those decisions (thus reducing the transaction costs of sanctioning and enforcing them) (Marshall 2009).

Nested institutions will provide increased capacity for communities to meet expectations regarding accountability at the regional level without sacrificing grassroots ownership and cooperation. Associated outcomes will include increased adoption of nested multi-level governance arrangements in appropriate circumstances (Brunckhorst and Reeve 2006); greater coherence between government and community processes; community organisations that are better equipped to
circumvent the barriers they face in engaging their members; and the development of better strategies for supporting the policy community in learning about innovative organisational arrangements, such as nested multi-levelled governance systems (or “polycentric” resource governance (McGinnis 1999). Greater awareness and acceptance of local knowledge amongst policy makers will improve efficiencies. The more that institutional arrangements are tailored to local circumstances, the more local people can be expected to cooperate with those arrangements. Passive resistance, civil disobedience, foot-dragging, etc. can make institutional arrangements unworkable. If institutional arrangements for dealing with third party effects and other externalities can be tailored to local circumstances through processes consistent with local norms, the greater the cooperation with these arrangements can be expected (Marshall 2008).

5.4.3 Extension

One clear message that resonated throughout the findings from the mail survey and in every case study area was farmers’ lamenting of the loss of extension officers who remained in a district, knew the area and the environmental problems, and knew the people. These agents were trusted and reliable sources of information for farmers. Farmers appreciated their visits to their farm and the locally relevant advice that they provided. Extension officers within the case study areas were interviewed in the course of the field work and demonstrated a genuine dedication to their work and to their community. However the officers also noted they were limited in what they could offer due to a lack of resources. In one community, only one officer remained.

Farmers maintained that reduced resources for Departments of Primary Industry had led to the demise of this model of extension and they were disparaging about the current lack of services and information provided by government agencies. Many farmers rejected advice received from agents based in cities or regional centres who had limited understanding of local needs. In many areas, private agronomists have stepped in to fill this gap.

There was a strong call for a return to the earlier model. Extension officers can be an important conduit of government information and can be a link between the sometimes polarised views of farmers and policymakers on environmental issues. For example, Barclay (2005) found local vets (government and private) were a highly valued and trusted source of information on bio-security matters for farmers and preferred over any other government sources of information. However, extension officers may find themselves compromised by their allegiance to their local community and the need to represent government policy. Police services also face the difficult choice between long term placement of officers in rural areas where they become part of the community and are better able to gather information on crime but at the same time, find it difficult to prosecute offenders with whom they socialise versus short term placements where officers live within but operate “outside” of the community. Rural communities prefer the former option.

The ever widening gap between farmers and government approaches to natural resource management must be addressed to improve compliance and environmental outcomes. Extension officers would play a major facilitator role in any model of nested institutions for natural resource management. To this end, it is recommended that more resources be provided to re-establish extension officers in long term placements in rural areas to re-establish this link to the farming community.

5.4.4 Environmental laws and regulations

Social norms have their limits and participants agreed that formal laws have their place. However, farmers viewed many laws and regulations as a barrier not only to production but to effective conservation, and not only for the reason that impeding production circumscribed economic capacity to do more. Government action was viewed as hamstrung by the lack of appropriate
knowledge of biophysical factors necessary to frame appropriate regulation. In some cases governments were not even viewed as well-intentioned, as environmental policies were described as political rather than practical. Indeed they were described as impractical and government efforts to implement them as also ineffective.

The study has found that one of the major characteristics impeding the formal order is the deep ambivalence towards government, government regulation and agency activities. Low trust and regard were exhibited in each case study community. It is apparent that there are different views about what environmental sustainability is and how it should be achieved but also about governmental capacity and suitability to be involved in land management. Areas of agreed need could be a fruitful path for government to pursue in order to raise legitimacy. In all case studies and nationally the management of pests and weeds were seen as issues of critical importance. These problems are cross-cutting of both private and public land management and if pests and weeds were made an even higher priority in public land management then government would gain greater approval as a land manager as well as a regulator. Also of assistance may be an agreed philosophical approach. For the farmers in both Part 1 and Part 2 an appreciation of the multi-functional nature of land is key. Farmers thought that establishing which (multi-)functions a land can support, the types and degree, was dependent on land capability and that both land management and environmental regulation should be tailored to land capability. Application of the same laws to all properties was seen as problematic since it incorrectly assumes that the environment is uniform and responds to intervention uniformly in all cases. Application of laws to some but not all properties, industries and jurisdictions was also seen as problematic however, as this causes inequity in the bearing of responsibility for the provision of environmental goods. Mining and residential uses were of particular concern. While there was agreement that production and conservation were mutually beneficial aims there was disagreement that the aims of other industries were as, or also, supportive of the environment. The degree of convergence between environmental health and productive capacity in agriculture was explicitly made but was not felt to be as evident in other land uses. This was also apparent in Part 1. Newcomers with shorter histories in farming or in local land management were similarly seen as less knowledgeable of environmental factors and therefore prone to make mistakes. Government was viewed likewise. Like newcomers and newer industries also, government was viewed as a threat to social capital, and several times government was also identified as having undermined informal networks with the consequence of incapacitating local community initiatives rather than supporting and promoting them. Government was instead resented for having positioned farmers as problems rather than solutions and as social pariahs rather than contributing a valuable service to society.

If government was held in greater regard there may be greater reliance on government in terms of public reporting and defending of the environment. There may also be greater agreement amongst the community that action may also be taken within the community in response to transgressions. It may also be that the latter is not an effective or appropriate function of communities. Informal networks and orders were seen as effective in fostering beyond compliant activity, but not punishing for below compliant activity. Alternatives to government were also generally appreciated in the community, particularly where these were assistance focused. Industry support was valued in one case study area but with less support in the others and such support was also less evident nationally. There was support for government activities which worked with farmers towards agreed goals. This was the exception to the general rule of dismissing a role for government in environmental management. It could also be used as a yardstick for future government action.

### 5.5 Limitations of the field work

As in all case study qualitative research there are a number of limitations. First is the cross sectional nature of the fieldwork and the inability to extend the findings beyond the communities involved.
Yet one of the important outcomes of this research was the demonstration of the heterogeneity of rural communities in the environmental problems they confront and the way they respond to them which therefore limits the relevance and effectiveness of universal laws and regulations governing natural resource management. However the case studies provided the opportunity to explore in depth some of the key findings of the quantitative mail survey and some clear findings were common to all three case studies.

5.6 Further research

The field work has identified some additional areas for future research. It would be useful to conduct similar qualitative studies of natural resource management by other agribusinesses or types of industries that operate within rural areas. Further examination is needed into ‘nested institutions’ for natural resource management to develop frameworks that will incorporate the idiosyncratic nature of institutions within small communities that are effectively engaging people within their local community to managing natural resources and address local environmental problems. Finally, more investigation is needed of the mystery surrounding the commission of water theft within rural communities.

5.7 Conclusions

This research has demonstrated that Australian farmers are not the environmental vandals they are often reported to be. The majority are deeply concerned about environmental degradation and most have adopted sustainable farming practices and are actively involved in conservation projects on their land and in their local communities. Greater recognition of their efforts is needed by government and the public generally. Governments also need to recognise the effectiveness of informal social norms for encouraging best practice land management to work within this framework to encourage compliance with regulations governing natural resource management. With less blame and a more shared fates approach, desired outcomes may be achieved. As Ellickson (1991,p 286) concluded, lawmakers who do not appreciate the social conditions that foster informal cooperation will create a world where there is more law and less order.
References


DSE State of Victoria Department of Sustainability and Environment, (2009), *Northern Region Sustainable Water Strategy.*


Order with and without the law


Learmonth, R., Whitehead, R., Boyd, W.E. and Fletcher, S., (2007), Living and working in rural areas: a handbook for managing land use conflict issues on the NSW North Coast, NSW Department of Primary Industries, Wollongbar, NSW.


[online: http://www.thecommonsjournal.org/index.php/ijc/article/viewFile/50/19]


McGinnis, M. D.,(1999), Polycentric governance and development; Readings from the workshop in political theory and policy analysis, University of Michigan Press, Ann Arbor.


Order with and without the law


Siegal, L. (2002). Criminology the core, Wadsworth, Belmont CA


Order with and without the law