



## ***Natural Resource Governance In the Cotton Industry***

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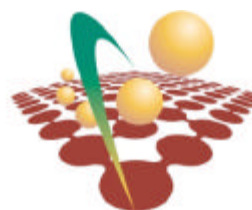
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## Acronyms

AELERT	Australian Environmental Law Enforcement and Regulators Network
BMP	Best Management Practise (refers to Cotton BMP Manual)
BMP L&W	Best Management Practise Land and Water Module
CCCCRC	Cotton Catchment Communities Cooperative Research Centre
CI	Cotton Industry
COAG	Coalition of Australian Governments
CMA	Catchment Management Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEC	Department of Environment and Conservation
DNR	Department of Natural Resources
DNRMW	Department of Natural Resources, Mines and Water
DPI	Department of Primary Industries
DPI&F	Department of Primary Industries and Fisheries
LG	Local Government
NGO	Non government Organisation
NHT	National Heritage Trust
NRM	Natural Resource Management
NRMA	Natural Resource Management Authority
NSW	New South Wales
MOA	Memorandum of Understanding
QFF	Queensland Farmers Federation

## Executive Summary

This research scopes the current state of play of natural resource governance in the cotton industry in order to formulate sound parameters for a larger research proposal. It examines the potential for coordination between the NRM policies promulgated by the cotton industry, local government, state governments and NRMA sectors.

Water is the most important natural resource management issue facing the cotton industry at the moment and is likely to remain the most important NRM issue in ten years time according to the interviewees.

Most interviewees believed that past policy regarding agriculture and natural resource management had been inadequate because of: the high degree of politicisation of NRM issues which has encouraged aggressive stakeholder lobbying; the lack of policy integration; and poor stakeholder consultation over policy design. Most of the interviewees believed that this history will compromise the effectiveness of future NRM policy by lowering the cooperativeness of landholders.

The cotton industry sector, made up of multiple small organisations, is the most highly integrated sector in terms of NRM policy. NRMAs demonstrated a common policy purpose and implementation methodologies (that is driven by the logic of federal funding) but are yet to profit from experience. The local government sector is driven by the logic of planning legislation and do not have an organisational view on NRM per se. The state agency sector is uniform across NSW and Qld in the sense that there is a clear division of responsibility between the compliance mandate of environmental and NRM departments and the subsidiary role of Departments of Primary Industry to facilitate economic development within the terms of an environmental imperative.

There is deep polarisation evident in the interviewees' comments regarding the current policy set that revolves around whether or not it is appropriate to characterise growers as pursuing exclusively private benefits through the use of natural resources. Competing definitions of the relationship between public and private benefits reflect the structural biases of the sectors.

There was general agreement that local governments do not currently have a significant role in NRM. Most interviewees would not assess NRMA policies as they are too new. From outside the cotton sector, the cotton industry was viewed as proactive in responding to external criticism. State agency interviewees viewed the cotton industry as a role model for other agricultural industries. In the main, opinions of the state agency sector were offered by the cotton industry and the Qld NRMAs. The NSW and Qld state departmental informants did not provide commentary on the policies of their counterparts. Neither did local government interviewees comment on state agency policies.

The majority of interviewees were cautiously optimistic that the current NRM policy mix will ultimately be successful. The informants agreed across most sectors (excluding the cotton industry sector) that the water sharing planning process, however painful for all involved, had to be done. Seven comments were made across the sectors that the NRM policy challenge now is to integrate landholder practices with the new state based NRM compliance regimes using the industry bodies as the interface. There was agreement across sectors that scientific monitoring of environmental condition change is crucial to future NRM policy success.

Coordination via dialogue (regular meetings, discussions, forums etc) was the dominant method within sectors, and between the LG, NRMA and cotton industry sectors. This suggests that like-mindedness of people in neighbourly organisations (co-located in regions) assist successful informal (naturalised) coordination of policy and its implementation. Coordination across sectors was also taking place through more formal mechanisms such as co-funded positions, memorandums of understanding and integrated research, development and extension programs such as BMP and the water use efficiency program. There is

noticeably more coordination effort taking place in the state agency sector in Queensland compared to New South Wales.

There was agreement across sectors (excluding NSW state agencies) that the primary reason for poor coordination in NRM policy and its implementation was the progression of policy through agency silos that fail to foster inter-agency communication. An aspect of poor governance due to policy/implementation silos was the instability of the silos themselves. Agency churning is viewed as being exacerbated by the prevalence of short term funding arrangements. Inter-state tension, the inadequacy of centralised decision making and a business model of government were also nominated as contributing to poor NRM policy coordination. Five cotton industry interviewees pointed to the poorer prospects of coordination between the government's environmental compliance regime and the cotton industry's BMP L&W module in New South Wales

An emphasis in Qld is apparent on *assessing* how well the environmental compliance regulatory regime is being implemented and *responding proactively* to landholder perceptions and concerns about that new regime. An attempt has been made to meet the accusation of inaccurate remnant vegetation mapping with the PMap process whereby landholders may put forward their view of what constitutes worthwhile remnant vegetation of their property, negotiate with the Department once on what should be left, and then be left to manage the rest of the property as they see fit.

There has been inter-agency coordination and cooperation to address the on-farm implications of reducing availability of irrigation. The highly integrated Rural Water Use Efficiency Program seeks expertise concerning increasing the production benefits of limited irrigation water within regional economies so that they will live beyond the program's funding. The program is funded by the Qld DNR&W and delivered by the Qld DPI&F. By being integrated with the cotton industry it spans the state divide. This program has been independently evaluated and judged to be highly successful.

A tentative finding of this scoping study is that there may well be a significant difference between public and private opinions among landholders over the new compliance regime and that the regime itself is changing the pre-existing social norms silencing private opinions. State agency sector interviewees report that landholders themselves are worried about over exploitation of finite shared resources, and that the *political* debates concerning property rights do not necessarily capture grower sentiment.

One informant from the cotton industry sector cautioned that the relationship between social scientific investigation, the cotton industry and policy should be clarified as a first step. Two interviewees suggested it would be worthwhile to examine the effect on diffusion of NRM Practises among cotton growers (namely, uptake of the BMP L&W module) of the new state NRM compliance regimes. Six interviewees focused on BMP L&W module as the basis for co-regulation in conjunction with state governments as part of the new compliance regimes (one of these comments concerned the module's utility in furthering NRMA objectives).

## 1. Introduction

This research scopes the current state of play of natural resource governance in the cotton industry in order to formulate sound parameters for a larger research proposal. The term governance refers to the notion that public policy and its implementation would be more effective if it took place in an integrated and collaborative manner. Integration refers to the need for a whole of government approach where departments and agencies go beyond the silos formed by their particular concerns to consider how their programs interact, overlap and duplicate. Integration is the answer to administrative fragmentation. Collaboration refers to the need to draw relevant non-government stakeholders into policy and implementation design such as industry bodies, experts and those on whom a policy impacts. Collaborative policy formulation and implementation methodologies seek to avoid grievances by including all those affected by policy change from the outset. The interviewees for this report responded to the question of how well NRM policy is currently coordinated with strong reference to the collaborative policy processes currently being employed to re-negotiate the balance between ecological and production use of water. Some prefatory comments regarding the COAG water policy reforms that were initiated in 1994 are thus in order.

These reforms responded to the declining health of the Murrey-Darling waterways symbolised by a 100km long blue-green algae bloom in the Darling River in the summer of 1991-92. The outcome of an intersection between environmental awareness, political will and neo-liberal policy ideals (Pusey, 1991; Fenna, 1998), the 1994 COAG water reforms made payment of Commonwealth funds to the States contingent upon the adoption of a range of policy principles by the States. These principles included:

- Full cost recovery and the removal of cross-subsidies;
- Comprehensive systems of water entitlements which included environmental entitlements;
- Structural separation of water service providers from water resource management, regulation and enforcement;
- Two-part tariffs for urban water supplies;
- Separation of water entitlements from land ownership and the establishment of markets for trading the former; and
- Further investment in infrastructure to be made only if it could be demonstrated to be economically viable and ecologically sustainable (National Competition Council, 1998).

Each of the Murrey-Darling River Basin States have initiated regional water resource planning processes and legislative reform (see Tan, 2000 and 2003 on Qld and NSW water reform). Deliberative regional committees were established that represented both agricultural and environmental interests. Craig and Vanclay comment that this foray into collaborative NRM policy formulation failed: “[I]n NSW stakeholder groups have appealed 12 out of 36 Water Sharing Plans in the Land and Environment Court ... [and] many of the Water Sharing Plans were accompanied by dissenting reports from committee members” (2005:3). Unresolved tension between the power of the minister and his department, and the power of regional committees (Craig and Lawrence, 2005) fed the cynicism regarding the use of consultative processes evident in the interviewee’s comments.

Similar tensions are evident in the interviewee’s remarks regarding the States’ legislative efforts to arrest the clearing of native vegetation for agricultural production which have been progressed through regional vegetation committees and regional vegetation plans (Prior, 2003).

## 1.2 Research Objectives

This report examines the potential for coordination between the natural resource management (NRM) policies promulgated by the cotton industry, local, state and federal governments and regional natural resource management authorities (NRMAs). As cotton is currently grown only in Queensland and New South Wales, only the NRM policies and implementation strategies of these two state governments are relevant to this study. The purpose of the research is to assist private cotton industry and public NRM stakeholders to avoid duplication and mutual cancellation of effort in their implementation of natural resource management policies. The research aims are:

- To identify how the existing range of NRM policies and implementation methodologies affect the cotton industry;
- Identify opportunities for improving NRM policies and implementation methodologies relevant to the cotton industry, with an emphasis on coordination across organisations, policy approaches and resource issues;
- Develop a research strategy that will identify and prioritise options for more effective and equitable deployment of NRM policies and practices relevant to the cotton industry;
- Establish the relevance of research concerning incentive, market-based NRM instruments to the cotton industry.

The cotton community has a successful track record of addressing NRM issues (such as the use of pesticides) using cooperative, “bottom up” approaches, namely extension services to encourage cotton growers to adopt best management practises on farm (Coutts, 2003). However a range of “top-down” government policies and policy processes have arisen in the past few years. The introduction of water sharing and vegetation clearing legislation in Queensland and New South Wales raise difficult issues related to property rights, institutional and policy instrument design. It is not clear that coercive legislative “top-down” and “bottom up” voluntary adoption of best practices approaches effectively reconcile public and private interests or result in efficient NRM practices relevant to the cotton industry. The cotton industry is well positioned to drive coordinated change in the NRM policy world; however research is required to identify both plausible broad directions and specific options for value adding to public NRM policy and its implementation.

Public environmental interests are represented at a range of scales (local government, regional NRM authorities, state legislation and federal funding and policy arrangements) through diverse instruments (legislation and regulation, NRM plans, targets and investment strategies, the NAP, LandCare, NHT federal monies). The cotton industry coheres around private landholders and rural communities and spills across local and state government as well as catchment administrative boundaries. The potential for wasted administrative, expert and social energy in the effort to better manage natural resources as a result of this institutional complexity is high. This scoping study identifies the relevant environmental initiatives at these market, local, regional, state and industry scales and institutions by interviewing key informants as well as undertaking a literature review. It uses this data to assess the potential for better coordination to achieve coherent NRM governance in the cotton growing regions of Eastern Australia. This identification of initiatives and the potential for improving their coordination will be used to formulate a proposal for a longer term and more detailed study to be submitted to the CCCRC.

## 1.2 Methodology

The interview sample was constructed on a sector basis and sought to capture a diverse range of perspectives on the topic of NRM in the cotton industry. The interviewees’ names and contact details were collated from CSIRO and CCCRC researchers who were familiar with the cotton industry. Some snowballing sampling was undertaken within the state agency sector in order to gather both head and regional office perspectives. The snowball sampling technique takes advantage of the in-house knowledge of the initial interviewee by asking

them to nominate other relevant people within their organisation to interview (Flick et al, 2004). In total, a list of 90 names was collated and the 32 interviews constituted the informants prioritised from that list. There were no refusals. The interviewees are all well informed and relatively autonomous professionals in their fields. The thirty-two interviews were conducted with informants from 22 organisations.

**Table 1.1 Interview Sample**

Sectors	Includes	No. of Organisations Per Sector	No. of Interviews	Omits
<b>Cotton Industry Sector</b>	Organisations involved in cotton relevant R&D and its extension, state and national industry bodies, cotton growers active in industry bodies	8	12	Seed Companies and ginners
<b>State Agency Sector</b>	Informants from Agricultural, Environment and Conservation and Natural Resources State Agencies of Qld and NSW (states relevant to cotton growing regions) at both the strategic (head office) and implementation (regional office) level	5	11	
<b>Natural Resource Management Authority Sector</b>	NSW Catchment Management Authorities and Qld Natural Resource Management Authorities with jurisdiction over cotton growing regions	6	6	
<b>Local Government</b>	Informants from local governments with jurisdictions within cotton growing regions in officer and CEO positions	3	3	Qld local governments

The interview questions (see Appendix A) were developed by the five report authors and went through four iterations. The questions were piloted and refined. The pilot interviews are included in the data set. All of the interviews were recorded and transcribed (although part of one recording was lost and consequently could not be transcribed). Analysis of the transcripts was conducted using NVivo software to generate coding reports based on the interview questions. Excel spread sheets were used to manage and summarise the data concerning names, organisations and documents considered by the informants to be relevant to the research topic. Five of the interviews had two interviewees making a total of thirty-seven interviewees however they are treated as one data unit as no differences of opinion were expressed when two interviewees were present.

To protect the confidentiality of interviewees, citations are reported on a sector rather than organisational basis although summaries of organisational policies and views of other organisations' policies are reported on an organisational basis.

With a view to conduct a larger research project, each interviewee was asked to nominate individuals that they considered good informants for the research topic as well as documents they considered relevant. This snowball sampling technique was employed in order to establish which people and what documents belong to the domain of interest. Seventy three names of individuals and five nominations of organisations that were not included in the study sample were volunteered. Of these 73 names nominated, 6 individuals were mentioned more than once, indicating that they were key informants for the topic of NRM in the cotton industry. Five of these repeat nominations were individuals from the cotton industry sector. The remaining person was from the NSW Natural Resource Management Authority sector. Of these 6 individuals, 2 were mentioned twice, 3 individuals were nominated 3 times and one was nominated four times.

When the repetitions were removed, 62 individuals were nominated. Of these 62 individuals 26 were from the cotton industry sector, 25 were from the state (NSW or Qld) agency sector, and 8 were from a Natural Resource Management Authority (NSW or Qld) sector, and 3 it was unclear to which sector they belonged.

Eleven of the 62 people nominated were in fact already part of the interview sample, including one individual who was nominated three times and one individual who was nominated four times. The snowballing inquiries thus indicated that the interview sample collated from CSIRO and CCCRC researchers did in fact capture many informants from the domain of interest (NRM in the cotton industry). This information is summarised below:

**Table 1.2** *Individuals Nominated by Interviewees*

Names Nominated	No. of names nominated more that once	No. of names nominated interviewed	Sectors from which nominated names came
77 including repetitions	6 repeated	11	Cotton Industry 26
	2 repeated twice	None interviewed	State Agencies 28
65 excluding repetitions	3 repeated 3 times	One interviewed	Natural Resource Management Authorities 8
	1 repeated 4 times	Interviewed	Miscellaneous 4

All of the organisations nominated that were not represented in this study's interview sample were environmental non-government organisations. Of that five, one organisation was nominated twice.

**Table 1.3** *Organisations Nominated by Interviewees*

Organisations Nominated	No repeated nominations	No. Approached	Sector of Nominations
6	1	Not part of study	Environmental NGOs

The recommendation of relevant documents was not as fertile a topic for the interviewees, no doubt a reflection of how NRM policy debates are currently unfolding and have not yet yielded any clear conclusions. In short, the state of play regarding the co-ordination of NRM policy in the cotton industry is not yet embedded in literature:

**Table 1.4** *Documents Nominated by Interviewees*

Documents nominated	Sector document related to	No. Collected
15 (repetitions not captured, excludes legislative acts and BMP)	Cotton Industry - 7	10
	State Agencies - 6	
	NGOs - 1	
	Miscellaneous - 1	

## 2. NRM Trends

### 2.1 Most Pressing NRM Issue Now

The interviewees were asked which NRM issue they considered to be the most pressing in the cotton industry now as well as which issue they thought would be important in ten years time.

### 2.1.1 Major Issue

Of the 37 people interviewed, 28 identified water as the most important NRM issue facing the cotton industry at the moment. These interviewees represented all of the organisational groups interviewed with one exception (as the first half of the interview did not record). Two interviewees, who were both employees of NRMAs, identified weeds as the most important NRM issue, a local government representative identified economic sustainability, a NRMA member identified soil health and an interviewee from the state agency sector identified economic sustainability. The remaining three people did not answer the question.

The interviewees who identified water as the most important issue facing the cotton industry mentioned a range of more specific sub-issues which were considered to be particularly important. These sub-issues (below) indicate that the water policy reform process that seeks to balance production and ecological use of waters is dominating attention to NRM in the cotton industry. The number of interviewees who mentioned each sub-issue and the issues identified by each sector is shown in Tables 2.1 and 2.2:

**Table 2.1** *Water Sub-issues Identified as Affecting the Cotton Industry.*

<b>Sub-issue</b>	<b>Frequency mentioned</b>
Security (Access, amount, availability, reliability)	12
Policy implementation/review	7
Water/river management	6
Efficiency of use	5
Groundwater	4
Quality	4
Price	4
Water sharing	2
Research into river health/water	2
Long-term supply under climate change	2
Farm to catchment scale linkages	1
On-farm storages	1
Water markets	1



### **2.1.2 Secondary NRM Issues**

Twelve interviewees mentioned additional NRM issues which are facing the cotton industry at the moment. Five interviewees, two from the cotton industry sector, and three from the state agency sector, identified vegetation as a secondary issue. Climate change and weeds were mentioned once each by cotton industry interviewees and soils and ecosystem services were both mentioned by a cotton industry informant. Four of the five interviewees who did not identify water as the most important issue facing the cotton industry at the present time identified water as an issue of secondary importance.

## **2.2 Major NRM Issue in a Decade**

The interviewees were asked what NRM issue they thought would be important in a decade in an effort to capture the dynamics of the NRM issues of concern. Water dominated these responses indicating that it is a highly contested NRM issue.

### **2.2.1 Major Issue**

Of the 37 people interviewed, 23 believed that water will be the most important NRM issue facing the cotton industry in 10 years time. Only one of these interviewees had not identified water as being the most important issue facing the cotton industry at the present time. At least one person from each organisation interviewed believed that water would be the most important NRM issue in 10 years with only two exceptions (one of which was due to technical issues). The sub-issues to do with water included: water security, the influence of climate change on water availability and variability as well as the review and modification of existing water management policies.

The interviewees who identified economic sustainability, sustainable resource use, soils, and weeds as being the most important issue currently facing the cotton industry believed that the same issue would be the most important issue facing the industry in 10 years time. Two state agency people identified climate change as an issue in its own right, independently of its influence on water resources. Salinity was identified by one NRMA interviewee as being the most important future issue.

### **2.2.2 Secondary Issue**

Nine interviewees mentioned additional NRM issues which they believed would be important issues facing the cotton industry in 10 years time. These included: biodiversity weeds (two NRMAs), salinity (state agency, cotton sector, NRMA), genetically modified cotton (NRMA), ecosystem services (cotton sector), how irrigation fits into the landscape mosaic (cotton sector), water (cotton sector) and climate change (cotton sector, state agency, NRMA) with regards to water availability, impact on biodiversity, greenhouse emissions and carbon trading.

## **3. Context to Current NRM Policy**

The interviews were asked how well agricultural and NRM policy and implementation had been done in the past to obtain a picture of the degree to which past disgruntlements make current NRM dilemmas difficult to negotiate.

### **3.1 Opinions of Past Policy**

Twenty-four interviewees believed that past policy regarding agriculture and natural resource management had been done poorly. The most frequently mentioned explanation for the poor performance of past policy was lack of integration of policies (Table 3.1). Four aspects of poor policy integration were nominated:

- Poor integration between different levels of government:

“I think the integration and communication between government jurisdictions has been a significant issue and that occurs within states between local and state government levels

... I don't believe at a federal level that the state governments have actually cooperated fully together as well as they could have dealt with each other " (state agency);

- Poor integration between production and conservation:
  - “Resource and agriculture production has been done a bit in isolation” (NRMA) as well as “looking at an industry to the exclusion of the natural resource base in total” (NRMA);
- The treatment of different natural resource management issues as discrete:
  - “It's been done in a fragmented and less than integrated way. It might have been done, I believe, in terms of silos, if you like... it might be looking at water, in isolation from a lot of the other considerations that need to be made” (NRMA);
- Poor integration between the cotton industry and the government :
  - “[There is] a lack of integration with the industry and industry having feedback into how policy is implemented’ (cotton sector).

**Table 3.1 Why Past Policy Viewed as Poorly Done**

Reasons past policy was not well done	Frequency mentioned
Not well integrated	10
Poor consultation	6
Ad hoc	4
Poor knowledge of policy makers	3
Political limitations	3
Reactionary	3
Abrupt change from natural resource exploitation to conservation	3
Poor understanding of resource capability	3
Moving goalposts during implementation of policy	2
Still learning about how to manage the resources	2
Poorly delivered/explained	2
Inefficient/dysfunctional	2
Poor communication	2
Question of regulatory efficacy	2
Not designed to cope with future change	2
Need better policy tools	1
Lack of vision	1
Centralised decision-making	1
Erosion of grower confidence	1
Responded to users needs	1

The next most significant issue raised, mentioned half as frequently as integration, was poor consultation over NRM policy formulation and implementation (see Table 3.1). There was concern regarding the implementation of vegetation and water policies in both NSW and Qld. In both states it was perceived that:

“There was a lot of it [consultation] when each of these pieces of legislation came in ... and feedback came back saying well this is what we think. But it seemed to be that the legislation was just written and it came out. Here it is already” (state agency).

Only one informant believed that:

“On the whole it’s been good policy. On the whole we’ve listened to the users of what their demands are and we’ve followed those demands” (state agency).

Another interviewee believed:

“It has been done as well as you can expect. I think if you realise that we live in a democracy and hence if you live in a democracy you get moderated, compromised outcomes and we live with a bunch of those... There are no win-wins in this game!” (state agency).

One informant believed that agricultural policy had been conducted well but NRM policy had been conducted poorly and another believed that they had both been conducted well in isolation. Nine interviewees did not answer the question or the question was not recorded.

### **3.2 Influence of Politics on Past Policy**

Thirteen interviewees commented on the relationship between politics and natural resource management decisions. The most commonly mentioned opinion, (seven interviewees), was that NRM decisions are made for political gain:

“We haven’t been involved in natural resource management any time in the last eight or nine years – we’ve been involved in politics. We’ve been involved in the most disreputable and disingenuous politics you can imagine” (cotton industry).

Another expanded on this by explaining:

“It’s politically driven. It’s not really driven from an NRM outcome [point of view], it’s driven for a political outcome. That might be votes in a marginal seat or buying off Green preferences; rarely do they buy off farmer preferences, there aren’t any” (cotton industry).

NRM policy was viewed as consequently compromised:

“The whole policy issue is very haphazard and obviously is very driven by politics and ideology right now; it’s been sort of a gross failure on policy to address a lot of these issues that we’ve got” (cotton sector).

Five interviewees expressed concern that policy outcomes from the recent vegetation and water reforms were biased due to various lobby groups bypassing the established community consultation procedures. The interviewees referred to lobbying by either green groups or groups within the cotton industry of the relevant minister in NSW or Qld to ensure their views were heard. The opinion was expressed that both groups had approached the ministers due to lack of confidence that their views would be heard through the community consultation processes:

“The way we’ve dealt with the community in terms of their ability to influence policy, has not been good, it has ultimately ended up with a lot of political lobbying” (cotton sector).

Other concerns pertaining to the influence of politics on NRM decision making was the influence of short time frames on long-term decisions. It was suggested that the short-term nature of political processes makes it difficult to have a long-term vision for rural Australia which is fundamental to the development of NRM policy. It was also perceived that NRM decisions are driven by those providing the funding:

“I think the other problem is, some of it is a little bit political, if you like, so it depends on the whim of the person who’s providing the money, as to how much latitude you have, to kind of work with other people, if you know what I mean” (state agency).

### **3.3 Effect of Past Policy**

Twenty-six interviewees, including at least one person from each organisation within sectors, believed that the way past policy was conducted will negatively influence future cooperation. In particular, they believed that past policy will affect people’s willingness to listen, motivation to participate in future consultations and reduce future adoption rates of on farm best NRM practises.

Half of the interviewees who believed that future cooperation has been jeopardised by past policy performance believed that this was a result of the way that the recent water and vegetation reforms had been conducted in both NSW and Qld. In particular the community consultation processes conducted as part of these reforms were associated with a loss of trust and confidence of landholders, as well as industry, in the government. Four key reasons were offered on this loss of trust and confidence:

- Government failure to clearly define the role a community consultation process will play in policy making:

“I think the biggest impact on the trust was that we were told that they were going to be community plans and then so many things that the community wanted to do they just said, “No, you can't do that, can't do that. If the government wants to go down that path, they just need to be very up front from the start and say: “This is what you've got power over. This is what you have got no power over. You provide us your advice on these things that we'll accept change on, and sorry but this is the way it's going to be on the others,” and that would probably be a far more sensible way to go” (cotton sector);
- Government not delivering on what was initially promised:

“I think there is a lack of trust with the government to actually deliver what they say they're going to do” (cotton sector);

“We were told these Water Sharing Plans, once these were done were basically cast in stone yet we are seeing changes occur to them” (cotton sector);
- Poor demonstration of the NRM benefits to be gained by the reforms:

“I think farmers have seen a lot of these programs come and go in the past and seen very little in the way of actual results, in improvements in NRM outcomes. So yeah, people are reasonably sceptical about it and that doesn't help adoption [of NRM practises]” (cotton sector);
- Changed departmental role from extension providers to regulators:

“The mismanagement of the last 10 years has developed a culture, and that is the long term spin off of this, of mistrust. Ten years before that the Department of Primary Industries was the gun department for rural communities. They were the friend of rural communities; now they are the pariahs” (state agency).

Table 3.2

Why Past Policy was Viewed as Poorly Done according to Sector

	Not well integrated	Poor consultation	Ad hoc	Poor knowledge of policy makers	Political limitations	Reactionary	90/180 degree turn around	Poor understanding of resource capability	Moving goalposts	Still learning	Poorly delivered/explained	Inefficient/dysfunctional	Poor communication	Question of regulatory efficacy	Not designed to cope with future change	Need better policy tools	Lack of vision	Centralised decision-making	Erosion of grower confidence	Responded to users needs
Cotton Australia																				
CCC CRC																				
CRDC/BMP																				
Water User Associations																				
NSW DNR																				
NSW DEC																				
NSW DPI																				
Qld DPI&F																				
Qld DNRM&W																				
Local Government																				
NSW NRMA																				
Qld NRMA																				

Four people from the local government and NRMA sectors believed past policy may affect future cooperation in some circumstances and not in others. It was suggested by these interviewees that younger, more innovative farmers are less likely to be affected by past policy.

Only one person believed that past policy will not affect future cooperation as:

“[Growers] are more frustrated than giving up. So they’re critical of what they see as a strong emphasis on compliance but they actually have a value-based commitment to the idea of better Natural Resource Management as being a critical management issue for them as business people and land owners, or land managers” (state agency).

The remaining six interviewees either did not respond to this question or the response was not recorded.

## 4. NRM Policies

The interviewees were asked about their organisation’s NRM policies as the related to the cotton industry. Current NRM policies nominated by the informants are grouped into sectors and organisations and summarised below. Table 4.1 outlines:

- How these policies seek to balance the public and private benefits of resource use;
- What mechanisms are employed in their implementation;
- Any assessments of the success of these implementation techniques; and
- Any assessments of the reaction of cotton growers.

Not every cell is populated in the following table. This is due to the relative informality of the semi-structured interview methodology rather than reluctance on the part of the informants to address the questions.

The cotton industry sector, made up of multiple small organisations, is the most highly integrated sector. The roles of:

- Policy formulation;
- Consultation with growers;
- Research coordination;
- Packaging of research findings as best management practise modules; and
- Extension of those findings;

are well defined in terms of mutually reinforcing organisational responsibilities. Shared understanding of these roles and the relationships between them were evident among the cotton sector interviewees.

The four NRMAs, two from Qld and two from NSW also demonstrated a common policy purpose and implementation methodologies (that is driven by the logic of federal funding). However, as they are relatively new and essentially experimental organisations, they have yet to have the opportunity to profit from experience. The local government sector (although an inadequate sample) are driven by the logic of planning legislation and do not have an organisational view on NRM per se.

The state agency sector is uniform across NSW and Qld in the sense that there is a clear division of responsibility between the compliance mandate of environmental and NRM departments and the subsidiary role of Departments of Primary Industry to facilitate economic development within the terms of an environmental imperative.

**Table 4.1 Policies, Implementation, Benefits, Assessments and Responses**

Organisation	Policies	Implementation Mechanisms	How Public and Private Benefits are Balanced	Assessment of Implementation	Perceptions of Response of Growers
<b>Cotton Industry</b>					
<b>Cotton Australia</b> 7 interviews	<p>Profitability in a sustainable manner (Triple Bottom Line);</p> <p>Address public perceptions of cotton farming – obtain a social contract to farm;</p> <p>Policy development through a continuous cycle communication between stakeholders and growers.</p>	<p>Advocate for the industry with governments to stress the advantages of voluntary tools such as BMP L&amp;W and influence legislative development to make new rules more practical for growers to implement;</p> <p>Participate in Negotiations – eg. COAG National Water Initiative; MOA Qld Govt and QFF;</p> <p>Align BMP with law (promote compliance) using auditing and accreditation;</p> <p>Extension of Land and Water module of BMP via grower services officers;</p> <p>Discussions and alignment with NRM authorities to assist them to meet their catchment targets.</p>	<p>Rural economic development: cotton Industry benefits local communities;</p> <p>Production and stewardship go hand in hand (private benefit is a necessary precondition of public benefit), for eg. reduced inputs means reduced impacts (pesticide success story), and growers have to be able to afford to undertake NRM</p>	<p>Leaders through BMP, growers more switched on to R&amp;D; BMP L&amp;W module a vehicle for NRM; (a proven mechanism eg. reduction in pesticide use);</p> <p>Successful engagement with Qld Government with MOU (reducing what crosses farmer’s kitchen table)</p> <p>Challenge is to repeat success with BMP L&amp;W when there is no <i>financial</i> incentive to do it;</p> <p>Challenge to measure environmental impact of BMP L&amp;W module.</p>	<p>Very positive: cotton growers run mixed cropping businesses but <i>prefer</i> to identify themselves as cotton growers;</p> <p>Growers view the need to better manage natural resources as reasonable;</p> <p>NRM has no economic or risk management rationale but may well be driven by peer pressure and need for public credibility.</p>
<b>Qld Cotton</b> 1 interview		Satellite mapping currently used as a benchmarking and diagnostic tool could be extended to NRM.			
<b>CRC</b> 1.5 interviews (half position)	Profitable farming in healthy catchments and communities.	Funnel money through research providers to arm farmers with expertise in partnership with NRMAs.			Mixed: growers dislike bureaucratic tasks and BMP accreditation can be difficult; farmers not necessarily aware of NRM; smaller operators struggle with BMP.

<b>CRDC/BMP</b> <b>2 interviews</b>	Package research findings as on-farm best practices to facilitate adaptive management for environmentally responsible profit.	Convene and coordinate: researchers, growers and industry parties; review research; provide relevant technical information on how to minimise the impacts of cotton farming on external environments; embed findings in BMP (then disseminated through Cotton Australia extension personnel).	Undertake shift of focus from pesticide management to NRM, better integrate cotton farms into landscape through floodplain and riparian zone care.	Industry focus on BMP and its extension highly successful because one on one contact is essential to grower uptake of R&D.	Moderately positive: large middle group of growers are generally supportive of BMP depending on how much effort is required; What growers first view as a ridiculous imposition becomes normalised practise as growers try to outdo each other.
<b>Irrigator Groups</b> <b>2 interviews</b>	Construct policy platforms on natural resource use for economic outcomes with focus on obtaining certainty as to Water Sharing Plan rules.	Lobbying: Generate papers in consultation with subcommittees of irrigators, circulate them in government circles, and feed responses back to irrigators.	Reassure the public that the environment is being managed in a sustainable way; Water debate viewed as highly politicised and unfair; Need monitoring to ascertain health of rivers over time (proof of outcome).		
<b>State Government</b>					
<b>New South Wales</b>  <b>DNR</b> <b>2 interviews</b>	Water sharing planning process; Establish water market (economic paradigm will drive irrigators to water efficiency); Tighten rules (license categories, annual allocations etc).	Account management to ensure individual compliance; Establish Water Information Exchange to provide information on water use that could help irrigators to run their businesses better	Water sharing balances private and public benefit by stepping back towards natural flow frequency to maintain (and hopefully improve) river health with the least possible cost to production; Transparency in water entitlement; Managing rivers with science, meeting down-stream ecological queues.		Negative: irrigators view the regulation of water as an unnecessary evil; Inequitable outcomes between irrigators as a result of development of water sharing plans; Public and private opinions on water regulation are different (quiet majority support).
<b>DEC</b> <b>1 interview</b>	Protection of the Environment Operations Act; Pesticides Act.	Encourage best practise via regional staff, eg. pesticide officers; Compliance audits (but prioritised due to resource constraints).	River health policy is a public benefit as it is securing a long tem ecological future.		Negative: department is perceived as obstructive by growers.

<p><b>DPI</b></p> <p><b>2 interviews</b></p>	<p>Assist growers adapt to environmental imperative.</p>	<p>Extension of research effected through CCCRC via cotton industry development officers and district agronomists;</p> <p>Water use efficiency program.</p>	<p>Responsible access to resources within framework of public opinion (maximisation of private benefit within public opinion framework).</p>	<p>Successful in training private agronomic consultants to provide services in the long term to the cotton industry – 12% increase in water use efficiency in Qld (independently evaluated).</p>	<p>Positive: cotton growers have a culture of learning to improve farming operation where other industries resist new information.</p>
<p><b>Queensland</b></p> <p><b>DPIF</b></p> <p><b>3 interviews</b></p>	<p>Profitable primary industries in a sustainable manner.</p>	<p>Consider what constitutes best practise on farm and underpin it with R&amp;D investment;</p> <p>Programs; eg. water use efficiency program trains agronomic consultants and growers.</p>	<p>Increasing water use efficiency reduces drainage and prevents salinity.</p>	<p>Successful in training private agronomic consultants to provide services in the long term to the cotton industry – 12% increase in water use efficiency in Qld (independently evaluated).</p>	<p></p>
<p><b>DNRM&amp;W</b></p> <p><b>3 interviews</b></p>	<p>Uphold Water, Vegetation, Cultural Heritage Acts;</p> <p>Formulate water resource plans that lock in a no growth strategy;</p> <p>Establish water market.</p>	<p>Establish integrated co-regulation mechanisms with industry bodies (eg. MOU with QFF to accredit BMP as equivalent compliance);</p> <p>Demystify Acts (inform community);</p> <p>PMap – negotiated remnant vegetation management on a property by property basis;</p> <p>Case management of non-compliance notifications via database;</p> <p>Investigate offences with consistent use of prosecutorial discretion.</p>	<p></p>	<p>Inexperience with regulatory regime meant the detail needed to make legislation work was not settled in advance, however, there has been a dramatic improvement in the last 5 years.</p>	<p>Negative but improving: cotton growers are engaging with the department (are alert, educated and prepared to debate regulation);</p> <p>Cultural change - willingness to report breaches of Water Act and testify in court;</p> <p>Hostile reception to investigation of possible offence (taken as an accusation of incompetence);</p> <p>Perception of loss of access to water with new licenses;</p> <p>PMap process is successful (backlog of 1000 applications).</p>
<p><b>Local Government</b></p>					
<p></p>	<p>State Planning Legislation.</p>	<p>Local Environmental and Development Control Plans as</p>	<p></p>	<p></p>	<p></p>

<b>NSW</b> <b>3 interviews</b>		it relates to subdivision of agricultural land, hydrology and flooding; encourage proper rotations under best management practice.				
<b>Qld data gap</b>						
<b>NRM Authorities</b>						
<b>Qld</b> <b>4.5 interviews</b>	Natural Resource Management; Natural Resource Commission; Water; Native Vegetation Acts and policy;  Buy riparian and native vegetation outcomes	Focused, prioritised transparent and auditable delivery of NAP money via: CCC CRC affiliation; Subcatchment Planning; Technical support services; Leveraging off cotton industry (extend BMP L&W module in riparian zones); Co-investing with partners to align their activities to NRM targets (opportunistic funding of motivated farmer groups).	Investment within the private sector is based on the degree of public benefit (eg. incentives structured on a 60% landholder contribution to 40% public money);  Uptake is conditioned by the degree of perceived private benefit, need to educate farmers about their off-farm impacts and develop synergies between NRM and production.	Too soon to assess but anticipate that cotton industry will be an easy industry to work with	Too soon to assess	
<b>NSW</b> <b>4 interviews</b>						

## 4.1 Public and private benefit

Table 4.1 (above) demonstrates that the core disgruntlements between stakeholders pivot on incongruous understandings of the relationship between public and private benefits regarding NRM. In the context of this report, which is concerned with impediments to, and opportunities for, better coordinated NRM policy across sectors and organisations, it is worth delving into this issue. There is deep polarisation evident in the interviewees' comments regarding the current policy set that revolves around whether or not it is appropriate to characterise growers as pursuing exclusively private benefits through the use of natural resources. Competing definitions of the relationship between public and private benefits reflects the structural biases of the sectors. The idea that the public benefit is pursued exclusively by the state governments through water reform is disputed by the cotton industry sector informants on two grounds:

Firstly, it is disputed that unmanaged land is necessarily ecologically healthy. Growers are here conceptualised as land managers rather than business people. This objection is summed up in the pejorative term of "ecological apartheid":

"I believe in the word "and". I am not a supporter of the ecological apartheid that is so often promoted, especially [for] national parks. My farm is based on the concept that environment AND agriculture can work together to create a sustainable and diverse production system. I have tried the idea of leaving 15% for its environmental values, but I found that it did not work. The country just seemed to die. But running livestock through there on a time-controlled basis makes the country spring back to life with only a benefit to ecosystems" (cotton sector).

Secondly, the notion that production and NRM are incompatible is viewed by the cotton industry sector informants as unproven if not false. Instead, it is the experience of growers that long term production is in the first place dependent on good adaptive management practises and therefore public NRM benefits are best achieved through the pursuit of the private benefit. Furthermore, an unprofitable farming business is interpreted by cotton industry informants as indicating that time and money will not be spent on NRM and the property is likely to become degraded.

However, the resistance to water reform on the grounds that it constitutes an erosion of property rights has entrenched the public image growers as purely self-interested. The following observation on this irony was made by an irrigator:

"I know that the industry, the irrigators when they all sit around in a room drinking scotch, we all want to do things like advertise, we'll want to tell these bastards we're good. It would be really difficult to get that approach. What we have to do is demonstrate that we're trying to get better and we'll never ever be good. But we will always, always, always be trying to be better. Because you never get the best, do you, the best management practices are a conundrum, because once you get the best there's another step there somewhere. So to get irrigators to think like the pesticide; to apply the same methodologies we did with pesticide to irrigation will be very difficult, that is a leadership challenge, that's massive, it's tough. ... a lot of the advocates in our industry for water have been pretty well focused on two things: more water and property rights. Never ever, ever, have they been focused on better use of water. So that's going to be a real paradigm change because to get more water and property rights all they've done is focused on, we want more water and property rights. However if they went and actually used the approach "let's try and use our water better", they would have ended up with property rights" (cotton sector).

The state agency sector informants hold a very different view to the cotton industry regarding the relationship between the public and private benefits of natural resource use. These informants point out that rather than being opposite to growers in water and vegetation regulation debates, they are positioned between growers and environmental interests. The interviews reported that they are in the business of trying to establish a middle line:

“We are a bit in the middle because we hold the keys to allocations, licences, when you can and can’t take water and we sort of have no friends. The greenies hate us, the water users hate us and we love it that way” (state agency)

“There was a perception of the [NSW] agencies being obstructive to that [water sharing] process when in actual fact I know we were working very hard to solve the problems and to come up with solutions, but I think there’s still a perception out there in the farming community that we don’t try and solve problems, they see us more as an impediment. I think that’s an unfortunate perception ... Generally our mode of operation and our policy position is one of actually finding solutions to problems - not just making people do things that are inefficient and unproductive or economically unsound. That’s not in anyone’s interest. That’s not going to provide a good outcome. But that’s not really the way we operate. In actual fact probably as a green agency I suppose you might call us we’ve been fairly brown at times because that was the only way you really see this agency getting traction with this government” (state agency).

Interviewees from the state agency sector pointed out that it is unrewarding being the ‘flack catcher’ for administering the results of deeply polarised and politicised debates and being labelled as in the business of removing property rights. One informant commented that aggressive irrigator lobbying was ultimately counter-productive:

“I would encourage the industry to keep communications open... I don’t think the industry can afford to close the doors. No-one expects them to roll over and play dead. But equally, there are more proactive ways of trying to influence policy ... You can’t adopt the bare bit type solution... bully and block and filibuster ... If the industry wants to influence something which has state wide policy implications, they’ve got to have a concerted and coordinated state-wide argument” (state agency)

#### **4.3 Opinion of Policies of Other Organisations/Sectors**

A summary of the comments made by each sector of the other sectors are contained in Table 4.2. Although some of the opinions varied according to the sector the informant belonged to, there were some common trends.

There was general agreement that local governments do not have a significant role in NRM issues, their principal involvement in NRM being through the mechanism of land use planning. It was perceived that local governments are not overly concerned about what agricultural activities are occurring on land zoned for agricultural purposes although they could have a role in determining the best geographical distribution of agricultural activities within their jurisdiction.

Most interviewees were unwilling to make an assessment regarding the policies of the NRMAs as they have only been established relatively recently. Instead, interviewees put forward their aspirations regarding their future engagement with the NRMAs. A number of interviewees indicated that they believe that the NRMAs represent the best option for integrating the efforts of groups interested in managing their respective catchments and subcatchments.

From outside the cotton sector, the cotton industry was viewed as proactive in responding to external criticism. Interviewees from both state governments saw the cotton industry as providing a role model for other agricultural industries. Only the NSW NRMAs believed that the cotton industry needed to provide more evidence of outcomes with respect to biodiversity, soil fertility etc.

In the main, opinions of the state agency sector were offered by the cotton industry and the Qld NRMAs. The NSW and Qld state departmental informants did not provide commentary on the policies of their counterparts. Neither did local government interviewees comment on state agency policies.

**Table 4.2 Opinions of the policies of other organisations/sectors**

	<b>Cotton Industry (CI)</b>	<b>NSW State Govt</b>	<b>Qld State Govt</b>	<b>Local Govt (LG)</b>	<b>NRMAs</b>	<b>NGOs</b>
<b>Cotton Industry</b>		<p>Monitoring is inadequate to assess whether NRM policies are achieving environmental outcomes;</p> <p>The issues of NRM incentives and community consultation need to be better addressed.</p>	<p>The Qld Government is supportive of the cotton industry and the BMP.</p>	<p>LG seem mostly disengaged about NRM issues;</p> <p>LG have significant responsibilities but do not have the expertise to deal with them;</p> <p>LG do not have a big impact on the way cotton farms operate.</p>	<p>Catchment Action Plans not useful for providing advice to growers on how to meet their catchment obligations;</p> <p>NRMAs not well enough established to be able to assess their policies and implementation;</p> <p>NRMAs haven't yet grasped their water responsibilities;</p> <p>NSW NRMA's meant to be a community committee but are bureaucratically appointed;</p> <p>Condamine Alliance NRMA valuable as resourced a BMP officer position;</p> <p>There is potential for duplication of effort with the NRMA's.</p>	<p>NGOs are needed to keep a balance in NRM decision-making but often do not provide workable solutions that are economically, socially and environmentally sensible.</p>
<b>NSW State Govt</b>	<p>CI responds quickly to issues (eg. pesticide management);</p> <p>CI has a culture of information seeking to improve operations, in contrast to other agricultural industries.</p>			<p>Best coordination occurs with LG at the land use planning level.</p>	<p>NRMA's are only new to the game;</p> <p>It's up to the NRMA's to pull together the relevant interested parties to utilise water to best effect.</p>	<p>NGOs are challenging the Water Sharing Plans for not doing enough for the environment.</p>
<b>Qld State Govt</b>	<p>CI made a more sophisticated decision than other agricultural industries by developing its BMP;</p> <p>It is important to support the BMP;</p> <p>CI is exemplary in the way it has addressed NRM issues and should be a model for other agricultural industries.</p>				<p>The NRMA's haven't done too much on the ground yet.</p>	

<b>Local Govt</b>	LG supports self-regulation of the CI as it gets better results than government legislation /regulation.				The NRMA targets should be more in the upper than lower catchment.	
<b>NRMAs</b>	<p>CI has been smarter than other industries in accepting and acting on criticism;</p> <p>CI has tried to stay ahead of government regulation and demonstrate that they can manage themselves effectively;</p> <p>CI is starting to realise the value of biodiversity;</p> <p>They demonstrated that they handled the issue of pesticides but there is less information is forthcoming respecting their on-the-ground impacts on biodiversity, soil fertility etc.</p>		<p>The Qld Government has moved towards a legislative approach but it is not sufficiently well prepared to implement it;</p> <p>The Government doesn't have a good track record of using their legislation widely.</p>	<p>LG is a sleeper in this whole exercise;</p> <p>LG only deals with broad brush agricultural policy;</p> <p>LG have powers with regards to weed control but rarely use it.</p>		

#### 4.4 Responses of cotton growers to the policies of other organisations

Concerns regarding community consultation resurfaced in discussions regarding cotton growers' responses to the policies of other organisations. It was believed that farmers would have been angered by the way that the community consultation process had been carried out in both the vegetation and water reforms:

“What's happened to ground water and vegetation ... there's probably a very negative feeling towards, not the environment, but just perhaps anybody that's out there in a government role or whatever, trying to manage these owners” (cotton sector).

Over-regulation was also perceived to be negatively influencing farmers' responses to NRM. Four interviewees from the cotton and local government sectors believed that growers were frustrated with the complexity of regulations and policies:

“There's a great deal of disquiet in the farming community that... there's too much, too many directions and too much compliance instead of trying to concentrate it down into one good solid NRM framework that everybody agrees [on] instead of everyone adding their own bit and making it really unwieldy” (local government sector).

With regards to uptake of the BMP, three interviewees from the state agency NRMA and cotton sectors believed that there was good uptake of the program while two interviewees from the cotton and NRMA sectors believed that BMP adoption could be improved.

#### 4.5 Will Current Policies Solve NRM Problems?

A small minority of interviewees believe that the current NRM policy mix will be completely unproductive (four informants). The majority of responses to this question were cautiously optimistic. The numerical pattern of this cautious optimism is summarised in Table 4.3 below. The informants agreed across most sectors (excluding the cotton industry sector) that the water sharing planning process, however painful for all involved, had to be done:

“I just think the main thing is certainty rather than keep changing the rules” (cotton industry)

“I think the policies set the framework for the community to solve the problems” (state agency)

“You can resolve it in a, “So, how are we going to manage it this year,” [sense] ... identify the best possible direction that you can go in the space in which you have a reasonable level of certainty” (state agency)

“I think what the Government has done is made some very hard decisions. It may not have been implemented too well” (NRMA)

“At least we have made some calls, rather than just all wander around and do nothing and hope” (state agency)

“[E]veryone acknowledges that there has been an over allocation of the [water] resource” (local government)

Seven comments were made across the four sectors that the NRM policy challenge now is to integrate landholder practices with the new state based NRM compliance regimes using the industry bodies as the interface. Five of these comments are listed below:

“I think the interaction that is taking place between the farm lobby groups and the government is the best it has ever been” (cotton industry)

“[W]here opportunities are given for industries to work constructively with government; we can actually see some positive outcomes for natural resource

management long term. Where regulation is imposed without consultation, it really can have some ...adverse affect[s]" (state agency)

"[I]f they were coordinated and integrated across all the stakeholders, if everyone knew what needed to be achieved and who was doing what ... Because some things can totally negate what other people are trying to do" (cotton industry)

"I am extremely confident that we are going to ultimately end up with better NRM policy ... I am not confident that we will get there quickly and I am not confident that we will get there without a reasonable amount of pain being inflicted on sectors of the industry" (cotton industry);

"The industry I think will be very, very keen to try and demonstrate improvement with current rules, to try and mitigate against any further cuts in water availability. If we are able to demonstrate win/wins, then that's the real success" (state agency)

The largest area of agreement, crossing the four sectors, in relation to future NRM policy success is that monitoring of the ecological achievements of the water and vegetation reform process is crucial. Fifteen interviewees expressed this view. Five of these comments are included below:

"[T]he thing that's going to still be a struggle is scientific rigour in the [water] adjustment" (state agency)

"The biggest gap is a lack of good science ...we don't have actual data" (cotton industry);

"I don't think we have a good understanding of the sustainable yield [of natural resources] ....there's poor measurement of the resource and poor evaluation of the resource and poor understanding of the amount of use of that resource ... there's not enough monitoring and evaluation for the resources" (state agency);

"[I]rrigators would find it a lot easier to give water [back to environmental flows] if they thought that there was going to be ... a [measurable] environmental benefit from giving that up... and at least they were recognised for it" (NRMA)

"[W]e've learned out of the BMP program ... that we need to better start recording some information now ... Some key indicators so that in five years' time we can ... hopefully see a trend ... we can actually say we've got some qualitative and quantitative data to actually support and talk about it in an NRM focus" (cotton industry)

Further to expressing a view that monitoring data was necessary, four interviewees further commented that monitoring data will need to be gathered across sectors in such a way as to meet multiple organisational and sectoral objectives. Underlying the need to meet multiple objectives was the issue of whether the resultant data would be regarded as a valid or trustworthy basis for further decision-making. This is an important point if monitoring data itself is not to become politically contentious:

"[T]he farmers are ... in a good position to actually gather information about how good a job they are doing on those natural resources, and there is a real need to forge ahead in creating closer links between industry and government to get ... information sharing in place ... Policy has got to be built on information and where the policy has been built on information vacuums... the policy is ... shabby" (cotton industry)

"There certainly needs to be a consortium of people involved in collecting it. I don't think the industry or a lot of landholders would trust the department on their own gathering it, and, equally, I don't think the department would trust landholders on their own gathering it" (NRMA);

"[W]e don't want to do is spend money on collecting data only to be told, "Well that's just the irrigators" opinion" ...if you ... pooled all of [DNR, DEC, NRMA] resources ... you could probably do one decent program that would meet everyone's needs rather than all these half bit sort of ones that don't achieve a hell of a lot" (cotton industry)

**Table 4.3 Will Current Policy Solve NRM Dilemmas?**

	<b>Need Rigorous Scientific Monitoring</b>	<b>Framework Sets Parameters for Ongoing Adjustment Debates</b>	<b>Where Industry/Government Policy Integrated will have Success</b>	<b>Regional Groups Key to Resolution</b>	<b>No – too political</b>	<b>Yes – Water Sharing Plans Successful</b>	<b>Resolvable Eventually With Pain</b>
<b>Cotton Australia/Growers</b>	3		4		1		
<b>CCC CRC</b>				1			
<b>CRDC/BMP</b>	3						
<b>Qld Cotton</b>	1						1
<b>Water users associations</b>	2	1		1	1		
<b>NSW DNR</b>	2	2					
<b>NSW DEC</b>	1	1			1		
<b>NSW DPI</b>				1	1		
<b>QDPIF</b>		1	1				
<b>QDNRM</b>	1	2					
<b>NSW Local Govt</b>			1			1	
<b>NSW NRMA</b>		1		1		1	
<b>Q NRMA</b>	2		1				
<b>Totals</b>	15	8	7	4	4	2	1

## 5. Coordination of NRM Policy

The coordination mechanisms currently in place that were nominated by the interviewees are summarised in Table 7.1 below. Coordination via dialogue (regular meetings, discussions, forums etc) was the dominant method within sectors, and between the LG, NRMA and cotton industry sectors. This suggests that like-mindedness of people in neighbourly organisations (co-located in regions) assist successful informal (naturalised) coordination of policy and its implementation. Coordination across sectors was also taking place through more formal mechanisms such as co-funded positions, memorandums of understanding and integrated research, development and extension programs such as BMP and the water use efficiency program. There is noticeably more coordination effort taking place in the state agency sector in Queensland compared to New South Wales.

<b>Table 5.1 Map of NRM Policy Co-ordination</b>		
<b>Sector</b>	<b>Organisation</b>	<b>Coordination Mechanisms</b>
Cotton Industry	Cotton Australia	Coordinated policy discussions with like-minded industry organisations (eg. irrigator groups and growers associations); BMP L&W module equivalency with Qld DNR&M land & Water Management Plans; Outreach to NRM authorities in cotton regions (eg. co-funding BMP extension positions with NRMAs, IPM groups in Mungindi and Emerald share data with NRMAs); Outreach to LG (eg. regional grower services positions brief LG council meetings on cotton industry positions).
	Qld Cotton	Meetings/discussions with Qld DNRM&W and Cotton Australia re mutual interest in potential of satellite mapping technology to reduce administrative burden of BMP for smaller growers; Discussions with Cotton Seed companies on information of their product performance yielded by satellite mapping.
	CRC	Major coordination vehicle for cotton industry research (eg. alignment of NRMA/CCC CRC goals, researcher forums to prevent duplication and gaps in research effort).
	CRDC/BMP	BMP built on regulatory requirements and catchment targets; Outreach to NRMAs (eg. embedding extension officers in NRMAs, coordination of BMP extension with NRMA policies, access NRMA resources to simplify BMP L&W module for growers).
NSW State Agencies	DNRM	Run a water monopoly that balances demands of users (environment, town water, irrigators); Regional inter-agency water panel meetings (DEC, DNRM & DPI) with NRMAs.
	DEC	Develop cooperative working relationships with industry to further DEC policy; Participation in regional inter-agency water panel meetings (DEC, DNRM & DPI).
	DPI	Partnership with CCC CRC and NRM authorities in cotton industry R&D research effort; Place funding where agricultural industries are willing to invest (“whatever oils the wheel makes it turn”); Input into catchment blueprints to emphasise responsible resource use (help NRMAs deal “with the reality of what was in front of them”); Bed vegetation and water legislation down in the real world (eg. counter misinformation, educate landholders re. compliance).
Qld State Agencies	Qld DPI	DPI,DNRM&W and EPA meet 3-4 times a year at the Director General/senior executive team level; Participation in CIRM (Consortium for Integrated Resource Management – Qld agencies and Universities); Participation at Director General level on Whole of Government Committees on water policy, climate change and reef water quality; Minimum of weekly communication with DNRM&W on coordination of research activities; Research delivery (through Plant Sciences Group) linked with CCC CRC; Regionally based extension activities linked with NRM Authorities and CCC CRC; Budgetary decisions on funding NRM Authority projects; Delivery of water use efficiency program (project that embeds expertise in private sector via agronomic consultants).
	DNRM&W	Developing operational level information kit for LG on NRM legislation for regional extension use, assist LG apply NRM laws by providing expertise and training; Participation in <i>Australian Environmental Law Enforcement and Regulators</i> (AELERT) network for regulator information exchange (network includes LG and Cotton Australia); Compliance awareness program to demystify NRM laws to be targeted at NRMAs and other stakeholders; Planned workshop with industry groups (including Cotton Australia) seeking advance agreement to principles underpinning charter of NRM legal compliance that could be used to develop a co-regulation framework; Meetings with DPI to address overlaps in compliance notifications;

		Case management system recording all alleged non-compliance notification to feed information up to the strategic level of DNRM&W; Offering NRMAs audits in priority areas to check irrigation and vegetation clearing compliance; Ministerial Advisory Council formed as part of Condamine-Balonne water resource plan representing main cotton growers; Administration of inter-sectoral water trading transfers between town water and irrigation; Funding of water use efficiency program.
NRMAs	Trans-State	Murray Darling Basin Commission; Initial meetings/discussions on establishment of regional body collective across cotton country.
	NSW	Will bring coordination to bear by being the catalyst for agencies to talk and look at issues; Dialogue with Cotton Australia over BMP as on-farm implementation of catchment goals; Partnership with CCC CRC to align catchment goals to development of R&D projects; Namoi LG group (7-8 LGs) regular meetings/communication.
	QLD	Developing a sub-catchment approach with Cotton Australia for cotton growers participating in BMP in order that issues beyond property boundaries can be addressed via joint funding of extension officer and 80% of requirements for Land and Water Plan are met for each property; Funding of BMP extension position on Darling Downs.
Local Government	NSW	Local Government associations and regional organisations of councils; Host forum for vegetation corridor planning involving all relevant agencies/NRM authorities; Altering LEP on Department of Agriculture advice; Namoi LG group (7-8 LGs) regular meetings/communication; On-going communication with irrigation and cotton groups.

## 5.1 Assessments of Coordination

The eight reasons offered by the interviewees for poor coordination of NRM policy and its implementation are summarised below in Table 5.2.

**Table 5.2** *Reasons Proffered for Poor Coordination according to organisational groups.*

	Silos	Short Term contracts	Overly Centralised/poor consultation	NSW less coordinated than Qld	Churning	Business Model of Government	Interstate Tensions	Disengagement of Irrigation Industry
<b>Cotton Industry</b>	5		1	3	1	2		
<b>CCC CRC</b>	1			1			1	
<b>CRDC/BMP</b>	2	1	1	1	2			
<b>Water users associations</b>	1		1					
<b>NSW DNR</b>	1							1
<b>NSW DEC</b>								
<b>NSW DPI</b>		1						
<b>QDPIF</b>	1	2	1					
<b>QDNRM</b>	1	1						
<b>NSW Local Govt</b>	1		1					
<b>NSW CMA</b>	2	2						
<b>Q NRMA</b>	1	1					1	
<b>Totals</b>	15	8	5	5	3	2	2	1

There was agreement across sectors (excluding NSW state agencies) that the primary reason for poor coordination in NRM policy and its implementation was the progression of policy through agency silos that fail to foster inter-agency communication. Essentially the structural characteristics of state administration were critiqued by these interviewees as being too cumbersome and fragmentary to foster NRM policy governance. Fifteen interviewees made comments of this kind, of which five are reproduced below:

“I have got fairly bloody despondent about it all because it just seems like such a David and Goliath sort of battle. How does a small group like Cotton Australia or any farm lobby group really significantly change what is almost a fundamental structural flaw in the whole system? ... the cumbersome and inefficient nature of government at all levels” (cotton industry);

“It’s been done in a fragmented and less than integrated way. It might have been done, I believe, in terms of silos, if you like - looking at an industry, to the exclusion of the natural resource base in total, perhaps. Or it might be looking at water, in isolation from a lot of the other considerations that need to be made” (NRMA);

“[W]hat I [have] observed is a fair bit of grab for territory ... or grab for responsibility ... because it’s fairly difficult for a layman I think to understand, in New South Wales especially, who is actually responsible for what. There is a whole bunch of people in there doing things ...you have just got this mish mash of organisations all trying to do something but no-one understands how it’s working or how it’s coming together” (cotton industry);

“There’s no formal process, to my knowledge. I think there could be better coordination between agencies. I mean human nature being what human nature is, I think there’s still turf protection parochialism” (state agency);

“I can speak probably more specifically from a New South Wales perspective ... I’m fairly comfortable in saying that natural resource management policy isn’t well communicated across agencies. Quite often you’ll find one agency in total disagreement to another agency of government on the same government policy position” (cotton industry).

An aspect of poor governance due to policy/implementation silos was the instability of the silos themselves. Constant alterations to departmental names and briefs are viewed by the interviewees as problematic for stable governance of NRM policy. Comments on agency churning, especially in New South Wales were offered by three of informants, all from the cotton industry sector:

“The Water Department is a good example; they must be now on about name number five I think, so if they’re not confused we certainly are” (cotton industry);

“We don’t know who does what anymore. The states (NSW) keep changing names/Ministers/Premiers/Department Heads - we don’t even try to keep up” (cotton industry);

“In New South Wales, to me, it’s departments themselves keep being restructured and even within departments some of the sections don’t know what the other sections are doing” (cotton industry).

A key aspect of constant agency mandate churning was the loss of permanent staff positions. The prevalence of short term funding arrangements was nominated as a problem across sectors by eight interviewees. Three comments are included here:

“When you put people on contract they’re always thinking about whether they’re going to have their job or not at the end and that doesn’t create a comfort in that person and their role” (cotton industry);

“All of our water reform people were on temporary money. They were mostly young people, they had got their act together by the end of the process, had vast amounts of experience and now they have all gone” (state agency);

“It’s taken us 50 years to get where we are {in terms of resource degradation] and it might take another 50 years to get it back to where we were just for starters ...with the type of employment programmes that we have, or contract programmes that we have ... everybody works on very short timeframes now” (NRMA).

Inter-State tension was predictably nominated as a coordination problem by a cotton industry and a NRMA informant. Inter-state tensions are apparent from the cotton industry perspective as the cotton growing regions span the Qld and NSW divide:

“[I]t gets very hard when you’re dealing across states. You know, states are after themselves, looking after their own interests and that’s a really big problem in the Murray Darling” (cotton industry);

“There are problems between the state and the federal government as to how all this stuff is dealt with ... That is a major, major issue ... we are the meat in that sandwich because regional bodies in Queensland are actually guided by a bilateral agreement between the state and federal governments ...in Queensland I reckon there is regional Natural Resource Management bodies that are the probably the best chance yet of trying to sort that mess out” (NRMA).

The centralisation of decision-making leading to inadequate stakeholder engagement was nominated as a barrier to NRM policy coordination by five informants; three from the cotton industry, one from a state agency and one local government informant. Three comments are reproduced below:

“Specialists love centralised decision making processes because it cuts down all that difficulty [of] having to engage other viewpoints ... natural resource management is far too complicated for people to decide at the start what the outcome should be and what all the issues are” (cotton industry);

“[T]here has been erosion of confidence in growers ... They’re not willing to have people on their farms any more for fear of what the potential consequences are. Losing resources and that sort of thing” (cotton industry);

“I think there needs to be more involvement from the individual farmers. They know their land, they’re the best conservationists you can get ... They want their land forever and a day [so] they’re not going to bugger it” (local government).

The current dominance of a business or economic liberalist model for government, especially in NSW, forms an aspect of the increased centralisation of decision making that is experienced as problematic by growers:

[T]he government business model is causing us a little bit of uncertainty ... we see a chart from State Water for delivering the water and reading the metre ...and we see an attempt to get, not only what it costs them back but, a return on investment if you like - real business approach, a sort of public company, almost, approach. So that’s a bit frightening but not only do you see that but we now also see a separate water pricing charge from DNR” (cotton industry);

“The definition of public service, and working for public good, does not operate here anymore, [instead] it’s the public working for the government” (cotton industry).

Five interviewees, all from the cotton industry, pointed to the poorer prospects of coordination between the government’s environmental compliance regime and the cotton industry’s BMP L&W module for the mutual benefit of state governments and the cotton industry in NSW than in Queensland:

“The Queensland government is quite good, but the New South Wales government are just appalling ... The New South Wales government is very cynical place, in my view ...we just despair of them ... The concept of environment and production cannot coexist is wrong. (cotton industry);

“The Dangerous Goods legislation in New South Wales has just changed as of 1 September which means potentially we’ve got a new module that hasn’t got high adoption that is completely irrelevant now because the law changed. There was very little consultation with the industry” (cotton industry);

“My gross observation was that it was not very well coordinated in New South Wales. I think Queensland is a bit better. The evidence I have for that is that when we do negotiations on the Land and Water Management module that they actually had EPA and DNR people in the same room during the initial discussions about setting up the whole management systems approach” (cotton industry);

“We’ve had much more success of [the Qld Government] accepting [BMP L&W Module] as ... acceptable for the [Land and Water Plan] guidelines that they’re

trying to achieve; which is smart. I mean, why would you go and pile a heap of resources at trying to create another idea? (cotton industry);

“You just can’t have multiple vehicles, it just won’t work” (cotton industry).

## 5.1 Innovative Co-ordination Mechanisms

The data summarised NRM policy co-ordination mechanisms in Table 5.1 suggests that there is an emphasis in Qld, missing in NSW, on *assessing* how well the environmental compliance regulatory regime is being implemented and *responding proactively* to landholder perceptions and concerns about that new regime. The Queensland agencies have moved to address concerns over perverse effects of the new compliance regulatory regime at an operational level. An attempt has been made to meet the accusation of inaccurate mapping from the “Big Brother Eye in the Sky” by offering landholders a chance to put forward their view of what constitutes worthwhile remnant vegetation of their property, negotiate with the Department once on what should be left, and then be left to manage the rest of the property as they see fit. Thus, an attempt has been made to reconcile the dual objectives of public control of clearing and private autonomy to manage a working property:

“... obviously, as vegetation grows it might change, it might have been cleared 10 years ago and it’s grown back, eventually it will reach remnant status again. And that’s been one of the complaints ... So we are saying, “Before it turns back to remnant, do one of these P Maps, now lock it in and say that it’s now forever and a day regarded as non-remnant and you can keep clearing it and treating it and whatever is locked in as remnant stays as remnant ... we [attended an] ... Agricultural Show maybe two months ago now and it was probably one of the most common questions I got asked ... we kept running out of the application forms” (state agency).

There has also been inter-agency coordination and cooperation in Queensland to address the on-farm implications of reducing availability of irrigation water – namely that the production benefits of limited (and potentially shrinking) irrigation water need to be increased. The highly integrated Rural Water Use Efficiency Program seeks to embed water use efficiency expertise within regional economies such that this expertise will live beyond the program’s funding:

“[The Water Use Efficiency Program] has been successful because we’ve actually worked with private industry consultants who will be providing those services long term to the industry. The government sector can’t do that: they can’t afford to do that and won’t do that. So there is little point in setting up a service in say three years or something and then just leaving it, leave a hole and walk away. It just doesn’t work. That’s why we’ve gone down this track of ... capacity building within the cotton industry ... one of the tricks as to getting the balance between demand and supply of services. Both fall in a heap if you’ve got too much demand for a service that isn’t there, it just won’t happen. People are disenchanted and lose interest. If you’ve got a heap of people out there who are willing to provide a service and no-one’s interested in paying for it, well it will just fall in a heap as well” (state agency).

The program is funded by the Queensland DNR&M&W and delivered by Queensland DPI&F. By being integrated with the cotton industry it spans the state divide. This program has been independently evaluated and judged to be highly successful (Coutts and Bell, 2003).

A tentative finding of this scoping study is that there may well be a significant difference between public and private opinions among landholders over the new state government compliance regimes regarding water sharing and vegetation clearing. It is possible that the new compliance regimes are altering the pre-existing social norms silencing private opinions regarding responsible management of natural resources. State agency sector interviewees report that landholders themselves are worried about over exploitation of finite shared

resources, that the *political* debates concerning property rights do not necessarily capture grower sentiment:

“It’s been a big cultural change for this area ... [initially] you wouldn’t get that many complaints and then they would be anonymous. People saying, “No, I don’t want to tell you who I am, but this is happening right here right now, what are you going to do about it?” Now we actually ask people, “Are you willing to provide us with a statement.” If someone is pumping at 12 o’clock at night it’s a bit hard for us to get there and catch them sometimes, especially the size of the area we cover and the small number of investigators we have ... we’ve had a bit of a success there which all started when we had a couple of successful prosecutions and it got a little bit of publicity. People said, “Apparently the department is a little bit more serious about this.” And it’s developed from there ...” (state agency)

## 6. Interviewees’ Suggestions for Further Research

We asked the interviewees what they would consider useful research regarding the coordination of NRM policy in the cotton industry given their views on how effectively coordination is currently taking place. Not all of the interviewees cared to make a comment on further research, however, nine interviewees offered suggestions. One informant from the cotton industry sector cautioned that the relationship between social scientific investigation, the cotton industry and policy should be clarified as a first step:

“[T]he CCC CRC’s background is very much practical solutions, efficiency gains, problem solving ... but policy is ... an entirely different world ... this is science plus policy. So if they don’t get their head around their view of policy and how they are going to approach policy and how they are going to engage with the community and government in terms of policy, none of this counts. This will just be an attempt to keep replicating old work of efficiency gains, improvements, etc, and trying to somehow think that that will change the policy, well it won’t. Policy is not the real world; it’s a parallel universe ...” (cotton industry).

Two interviewees suggested it would be worthwhile to examine the effect on the diffusion of NRM Practises among cotton growers (namely, uptake of the BMP L&W module) of the new state NRM compliance regimes:

“[I]t is very easy to work with the top echelons of farmers ... there has got to be a better way of getting a bigger slice of those innovators to become innovators ... there are always people going out of the industry but we need more and more to actually move up in to the top end and putting things in place help them do that ... it’s [also] a question of how you manage the people who are going to lose out in this process... until we can figure out how to manage the losers in the process then there is always going to be a problem - irrigators for example will always fight it” (NRMA);

“I think it would be good to go and talk to some farmers ... that may be are not that involved with some industry processes ... both cotton growers and people in ... the upper parts of the catchment. Just get a sort of feel for where those people are ... How many of them are actually driven because they want to do [NRM]? How many [think] ... “I’ve got to comply because I’ve got to comply rather than saying I think ... this will be good for me long ... it would be sort of interesting to know what a lot of people feel” (cotton industry).

The research question here is: will the state NRM compliance regimes decrease or increase adoption of NRM practises among landholders?

The majority of research question suggestions (six interviewees) focused on the BMP L&W module as the basis for co-regulatory arrangements in conjunction with state governments as part of the new State NRM compliance regimes. The notion of co-regulation recognises the limits to command and control regulatory mechanisms in the face of:

1. entrenched norms and practises emphasising private, autonomous land management (Bartel, 2005);
2. the difficulty of monitoring the diffuse sources of pollution generated by multiple small to medium agricultural enterprises (Gunningham, 2000); and
3. the prohibitive costs to government of ensuring compliance in the face of community resistance and difficulties of monitoring (Coglianese and Lazer, 2003).

Negotiated co-regulatory partnerships with industry bodies (such as Cotton Australia) that have traction with landholders through extension mechanisms emphasising environmental stewardship (such as the BMP L&W module) constitutes a potential solution to these three difficulties. A small body of literature is developing around exploration of this potential. Gunningham asserts that: "The prospects of such agreements are best where there is a history of cooperation and peer benchmarking and the presence of recalcitrants has the potential to undermine the image of the industry as a whole" (2003:14). The motivation for industry bodies to enter into such agreements is the prospect of being able to offer their members "regulatory relief (Gunningham, 2003:21). The Qld Farmers Federation MOU with the Qld Government is motivated by the prospect of such regulatory relief, namely Qld government acceptance of farm management systems as "a key component of the policy mix is delivering sustainable and profitable agriculture" that will can "enhance cooperative and effective working arrangements between the Qld Government and the intensive agricultural sector" (Cherry, 2005:3).

Five of the six interviewees in favour of exploring the co-regulative option commented that negotiations between the cotton industry and the state governments over the use of BMP L&W module as a common vehicle is likely to more productive than the current situation:

"I just think the days of command and control in farming just is not going to work and that's not to say self-regulation is going to work either, but surely some combination of the two which requires by definition a partnership between the industry ... and the command of the controlled government side. You're locked into really one approach aren't you? except that the current processes don't work. There are all sorts of briefs and papers arguing that" (cotton industry);

"[E]xplore the opportunities for ... what the cotton industry itself thought were significant issues that they could make a difference to in NRM. That would help government I think find positive partnerships and that would be a very useful thing to do" (state agency);

"There is always a danger with these type of agencies, like Cotton Australia, where they ... don't want to be seen to be too close to the government [because they will be seen as] part of government and ... lose ... effectiveness or ... independence ... But given those issues I still think that there is a way that a more integrated approach can be established: the sort of work that Cotton Australia is doing with the land and water management plans is a great example" (state agency);

"There is no way a government can come up with the BMP and it shouldn't: however, it can reward those who do" (cotton industry);

"They can see that as industries, with a voluntary program, we can actually reach far more people than they can ... as an industry we were working on a Land & Water Management module for our BMP program which is our natural resource management component since about 2000. So the industry recognised there was a need. In about 2002 we started lobbying the government and said you've got this Land & Water Management Plan statutory tool, we've got this process, let's look at the outcomes and they really do look similar, let's look at some sort of equivalency ... we are in 2005. [S]o that's taken a long time for the Minister at the time, Steven Robertson, to finally say, "You know what this actually sounds like a good idea. Department, start to talk to industry" (cotton industry).

One interviewee commented upon the BMP L&W module's utility in furthering NRMA objectives.

“I think as an industry ... we have actually got to get better at coordinating the whole thing and saying well if this is BMP, this is what it does and this is what it doesn't do, it's not the silver bullet cure that can solve world peace. So don't sell it as that ... making sure that we are using it for the right purpose ... all of a sudden we get a phone call after about four or five meetings that they [NRMAs] haven't involved us and said “Oh we've organised for a BMP position ... we are left with growers saying no, if it is a position to do BMP we want it to house within the industry ... we've just got to actually define who gets pulled into the negotiations and what and “these are the rules of engagement” if we want to move forward on NRM” (cotton industry).

The research question in this case would be to analyse the preconditions, potential and progress of the BMP L&W module as the basis for industry/state government and industry/NRMA co-regulatory arrangements. Such a project would be evaluative in tone and multi-scaled as it would need to assess what co-regulatory arrangements could deliver at four scales: landholders, NRMAs, industry bodies and state governments.

## 8. Conclusion

The interviewees report that the state of NRM policy coordination across the state government, local government NRMA and cotton industry sectors is currently poor. Coordination of NRM policy is fragmented by:

- differences between the Qld and NSW governments in NRM policy implementation;
- the progression of policy through unstable agency silos;
- lack of inter-agency communication within state governments;
- the unproven regionalist experiment of NRMAs; and
- continued contestation over regional water sharing and vegetation management plans as landholders fight to retain their autonomy over land management.

Research concerning incentive, market-based NRM instruments does not appear to be relevant to the cotton industry as a solution to poor NRM policy coordination as it does not address these sources of fragmentation. The opportunity for improving coordination of NRM policies and implementation across organisations, policy approaches and resource issues in the cotton industry lies in the use of the BMP L&W module as a common *delivery* vehicle. The L&W module offers the opportunity to harmonise efforts at “bottom up” environmental stewardship with the “top down” compliance regimes of state governments by offering landholders regulatory relief and in return for voluntary compliance in partnership with their industry body.

The research strategy capable of underpinning more effective and equitable deployment of NRM policies and practices relevant to the cotton industry would analyse the preconditions, potential and progress of the BMP L&W module as the basis for industry/state government and industry/NRMA co-regulatory arrangements. Such a project should be evaluative in tone so as to support the incorporation of learning and insight into co-regulatory designs. It should also be multi-scaled so as to assess the effectiveness and appropriateness of co-regulatory arrangements for individual landholders, NRMAs, industry bodies and state governments.

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## Appendix A Stakeholder Interview Protocol

### NRM and Policy Context

What do you see as the most important NRM issue facing the cotton industry at the moment?  
What do you think will be the most important NRM issue facing the cotton industry in ten years time?

How well has policy regarding agriculture and natural resources been done in the past?  
Do you think this colours people's views and willingness to cooperate to the present day?

### Your Organisation's NRM Policies

What are your organisation's policies regarding NRM and the cotton industry?

Could you point us to any relevant documents?

What are the public NRM benefits (eg. riparian health, water flow and quality, vegetation, biodiversity) these policies seek to achieve?

How do these policies aim to balance these public benefits with the use of natural resources for private benefit?

What mechanisms do you use to ensure these policies are implemented on cotton farms?

Do you consider this method of implementation to be successful?

If not, why?

What is your assessment of the response of cotton growers to these NRM policies and their implementation?

### Coordination of NRM Policy across Organisations

Are your organisation's policies coordinated with those of other organisations?			
Prompts (if necessary)			
Local Government	CMA/NRMA	Cotton Industry	State Government
Planning controls	Resource condition targets	Best Management Practise	Legislation
Community Development			

Do you believe that NRM policies are well coordinated between agencies in the cotton industry?

What do you think could assist the coordination of agencies' NRM policies in the cotton industry?

What is your assessment of the response of cotton growers to the NRM policy of organisations other than your own?

### Assessment of Policy Processes Overall

How likely do you think it is that the current policy processes will solve the NRM problems (issues they named as current [now] and emergent [ten years time])?

Where do you consider success is likely and where do you consider it to be unlikely (and why)?

What would you consider to be useful further research concerning NRM policy coordination?

### In Closing

Are there any additional comments you would like to make?

Who else would you recommend interviewing? (snow-ball question for building contact list)