

ENHANCING THE COTTON INDUSTRY'S BMP PROGRAM TO IMPROVE ADOPTION

AN EMS PATHWAYS PROGRAM PROJECT



Australian Government

FINAL PROJECT REPORT



Australian Government

**Cotton Research and
Development Corporation**

Report prepared by Allan Williams A & A Williams Pty Ltd

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Disclaimer

The views expressed in this Report are those of the author, and do not necessarily reflect the views or position of either individuals, organisations or sectors of the cotton industry, or of the supporters and/or funders of this Project.

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Pre-amble

Pathway ‘A track formed incidentally by passage between places, rather than expressly planned and constructed to accommodate traffic; a narrow unmade and (usually) unenclosed way across open country, through woods or fields, over a mountain etc.’ (Oxford English Dictionary, 2nd edition, 1998 reprint)

Even if the decision to use the word pathway to describe the funding program that supported this project did not have this definition in mind, the experiences over the last 3 years have demonstrated that it was nevertheless a particularly apt (and perhaps even astute) choice of word.

While a pathway’s aim is to provide a means for getting from one place to another, it also has the effect of connecting people who hope to benefit as a result of that connexion (otherwise why go to the effort of taking the pathway?). Connexions — trying to identify new ones, seeking to strengthen weak ones, and re-establishing once-stronger ones — provide the central theme in the endeavours of the cotton industry to turn an unmade and narrow path into a wider road without dead-ends or by-ways, and with cuttings through the steeper mountain slopes.

Connexions identified, investigated and worked on by the Project were many and varied:

- The connexion between on-farm activities and environmental outcomes and catchment targets
- The connexion between the industry’s BMP Program, and catchment plans / blueprints
- The connexion between policy and outcome
- The connexion between quality and environmental characteristics required to support a brand
- The connexions between the participants in the cotton supply chain (both on-shore and off-shore)
- The connexion between retailer interest in ‘sustainable’ cotton and the industry’s BMP Program
- The connexion between retailer interest and consumer interest in ‘sustainable’ cotton
- The connexion between reputation, and the processes and protocols that might support a reputation
- The connexion between perception and reality
- The connexion between (poor) reputation and freedom to operate
- The connexion between investment and return

Like relationships and reputations, connexions need to have time and effort invested in them for them to work most effectively. Like relationships, choices have to be made. Not every possible connexion can be (or even should be) invested in. Those connexions that offer mutual benefits, such as value to both parties in a commercial transaction, such as identifying practices that deliver both better environmental and production outcomes, and such as identifying indicators that are of interest to both producers and regulators, provide the natural starting point for investment.

The following report will not characterise the investigations of the Project under each of these possible connexions (as even connexions have connexions). Rather, it will seek to provide the rationale as to why — for the purpose of turning a pathway into a road (so as to better enable cotton growers to reach the outcomes of adoption of profitable and sustainable farming practices; improved natural resource management and environmental outcomes; and an ability to demonstrate environmental stewardship to domestic and international markets) — it is recommending that some connexions should be invested in, in preference to others. What connexions — and therefore pathways — offer the best value to those seeking to invest in making the connexion?

Executive summary

The EMS Pathways Project “*Enhancing the cotton industry’s BMP program (ems pathway) to improve adoption*” (the Project) has allowed the cotton industry to investigate whether and how the combination of the industry’s already established environmental management programme (‘BMP’) and the increasing attention being paid to the environmental characteristics and performance of agricultural production systems could be utilised to provide advantages to the Australian cotton industry — such as increased adoption of sustainable and profitable farming practices, increased awareness of the environmental credentials of Australian cotton and increased market value.

The Project sought to extend the BMP concept both **in scope** — to fibre quality as well as environment — and **in extent**, from the cotton grower to all sectors of the domestic cotton supply chain. The reasoning behind this extension was that it would allow the industry to better support a branded product that could be used to differentiate Australian cotton.

The activities undertaken by the Project fell into 4 distinct categories:

1. Investigating the market’s requirements — especially retailers’, vis-à-vis desired and required ‘sustainability’ attributes to determine whether the existing BMP Program could meet those requirements (or needed adjusting) and then endeavouring to have Australian BMP cotton made into garments and thereby trial ‘whole of chain’ BMP so as to understand both the limitations to and potential of such an approach to add value to the adoption of good natural resource management practices
2. Developing fibre quality best management practices for each of the major sectors of the domestic cotton supply chain, in collaboration with the industry association and commercial interests participating in each of those sectors
3. Investigating the requirements and options for demonstrating stewardship, domestically and especially internationally, through developing the framework for a branded product¹, and through collaborating with relevant international organisations and initiatives focussed on or addressing sustainability issues in cotton production
4. Maintaining an on-going involvement in core industry BMP activities, and in particular reviewing the domestic approach to better natural resource management as implemented by the catchment planning process and relevant legislation, both state and federal.

These 4 main areas of activity fall into 2 quite distinct and different points of focus for the Project and this report: the first 3 areas were generally directed to investigating and testing the potential for market pull-through to provide an incentive for the on-farm adoption of better natural resource management practices, while the second focal point was the existing milieu of natural resource management in Australia: the institutions, legislation, policies and current thinking regarding how best to build a pathway to sustainable farming systems.

The Project had a number of successes, particularly with the engagement of additional industry sectors in the BMP concept, and the development of BMP’s for those sectors. Most notably, the classing sector instigated a complete BMP Program, and by the completion of the Project members of the classers association were undergoing random audits of their compliance to the BMP’s developed with the assistance of the Project. Fibre quality management BMP’s were also developed for cotton growing, cotton harvesting and cotton ginning, with the latter BMP’s being tested in a pilot audit of some 27 cotton gins.

There were also 4 shipments of cotton for which a ‘BMP certified’ status was requested, with 2 of those shipments ultimately ending up as garments in a Japanese department store that is seeking to differentiate itself for the ‘Lifestyles of Health and Sustainability’ market in Japan. The garments

¹ The actual development of an actual brand i.e. a logo and tag name was outside the scope of this Project, and work on this aspect was undertaken by Cotton Australia and the Australian Cotton Shippers Association, with support from the Project

(made from 100 % Australian cotton) were sold with an in-store promotion campaign that was based on both the Australian and sustainability attributes of the cotton used to make the garments. The success of the initial campaign in 2006 has led to plans to extend the campaign until at least 2008, with a doubling of the total volume of Australian BMP cotton consumed in the first campaign in 2006.

The good stewardship of the industry was also demonstrated, albeit more subtly, through regular involvement and contact with the Better Cotton Initiative, the International Cotton Advisory Committee and the World Wide Fund for Nature.

Opportunities do exist for the industry due to its reputation as a producer of high-quality lint with good environmental stewardship. The development of an initial small market for Australian BMP cotton in Japan and the Better Cotton Initiative (BCI) testify to this. At this stage however, the volumes are small (Japan) or still some way off becoming market reality (BCI). Furthermore, the specific value to be gained by investing in this market opportunity for any specific actor in the supply chain is difficult to quantify.

In the current climate of severely reduced plantings, and continued low cotton prices, it is not feasible to expect either the industry as a whole, or individual commercial entities to invest significantly in a new concept, particularly given the difficulty in identifying both the specific value, and how best to 'share' that value.

However, given that the scrutiny that will be placed on Australian agriculture is likely to continue to grow, rather than diminish, and that in an era of increasing environmental awareness the current weak links between consumer 'responsibility' and producer 'responsibility' for looking after the environment may strengthen, it is important to focus future efforts in a way that both ensures that Australia's 'early-adopter' advantage is not lost to new initiatives, such as 'Pure Brazil Cotton' **and** that areas likely to provide the greatest and most immediate benefit and value to cotton farmers and the environment are pursued.

Given the on-going need to undertake domestic stewardship, the issue becomes not whether the cotton industry has in place the structures that support the fundamental premise of an environmental brand (which it does), but deciding the appropriate level of investment in those structures that would help Australian cotton to remain a fibre of first choice and (more optimistically) to capitalise on any opportunities in any newer, greener world.

Unless circumstances change, investing in and adopting a whole of chain approach as trialled by the Project is unlikely to lead to a specific or direct ability to **significantly** influence the on-farm adoption of environmental best management practices. This is due to:

- The complexity of the supply chain, both on-shore (from grower to port) and off-shore (from spinner to retailer)
- This complexity making it difficult for the individual supply chain participants to identify (and therefore value) the specific benefits to be gained by investing in and implementing a whole of chain approach
- The difficulty in making the connexion between the retail interest in sustainable cotton and the farmers, as there are generally no direct connexions between the retailer and the cotton-producer (such an approach is too logistically difficult to implement on a large scale)
- The likelihood of additional costs being incurred to maintain product integrity via chain of custody requirements combined with the (generalised) unwillingness of retailers and consumers to pay a higher price for sustainability attributes for their clothing, and the associated chain of custody costs.

Recommendations

There are nevertheless connexions worth investing in:

1. The connexion established with the Japanese, and the connexion between the BMP Program and marketing of it. It is therefore recommended:

That the cotton industry develops an agreed set of 'BMP' information that any organization involved in selling cotton that is to be utilised in an environmental campaign agrees to use

2. The connexion between a spinner's requirements and Australian cotton, and fibre quality and environment. It is therefore recommended:

That the industry formally discusses whether there is an opportunity to develop a brand based on fibre-quality parameters, and whether this could or should be linked to adoption of fibre quality and/or environmental BMP's

3. The connexion between production practices and environmental outcomes. It is therefore recommended:

That the focus of future project activity should be on:

- a) **developing an agreed set of indicators for the environmental performance of cotton farms; and**
- b) **better identifying both the practices that are relevant to improving or sustaining those indicators, and the specific benefits that accrue to the farm and/or the environment from the adoption of those practices**

4. The connexion between catchment authorities and their requirements, and industry programs. It is therefore recommended:

That in order to support the above effort, the relevant governmental organisations provide the means for streamlining how industry can interact with catchment management authorities

5. The connexion between industry's ability to continue to play a leading role in promoting the adoption of sustainable natural resource management practices and funding. It is therefore recommended:

That in order to support industry's continued delivery of BMP adoption, greater and longer-term funding certainty is required

“It takes many good deeds to build a good reputation, and only one to lose it”

Benjamin Franklin, author, political theorist, politician, printer, scientist, inventor, diplomat and founding father of the United States

“A good reputation is more valuable than money”

Publilius Syrus, Roman slave and maxim writer

“You cannot build a reputation on what you are going to do”

Henry Ford

1. Introduction

This report summarises the activities and findings of the cotton industry’s ‘EMS Pathways’ project, *“Enhancing the cotton industry’s BMP Program to improve adoption”* which ran from July 2004 until June 2007. The report is based on the template provided by the Project Managers, and is therefore not a complete report of all activities conducted by the Project. Reports were provided quarterly over the life of the Project that contained detailed reports on project activity, as well as the various outputs of the Project.

An overview of the Australian cotton industry

The cotton industry occupies a small but significant part of the landscape. Cotton is generally grown as an irrigated crop² in the highly fertile alluvial floodplain soils in many of the major inland river valleys of eastern Australia. It is produced as a commercial crop across 11 catchments, from the central highlands of Queensland, to the Menindee Lakes in southwest New South Wales.

Cotton has been grown in Australia since the 1800’s, but not until the construction of large irrigation dams in New South Wales and Queensland in the 1960’s that provided a reliable source of water was it able to become an established crop.

Rapid expansion occurred in the 1980’s and early 1990’s, when production increased from around 1 million bales³ per annum to over 3 million bales per annum. While production reached a peak of 3.6 million bales in 2001, subsequent drought conditions have seen production fluctuate over the last 5 years: 1.6 M bales in 2002/03, 1.3M bales in 2003/04, 2.9M bales in 2004/05, 2.6 M bales in 2005/06 and an estimated 1.1 M bales in 2006/07. While the putative ‘full’ production of 3M bales represents less than 3 % of the total world production, Australian cotton is amongst the highest quality in the world, and represents therefore a significant proportion of the world’s production of high quality long staple cotton. Australia — due to its lack of a domestic spinning industry — is also one of the largest exporters of cotton.

The cotton production chain in Australia is reasonably long, and has become more fragmented in recent years as activities traditionally undertaken ‘in-house’ (such as cotton harvesting) have been contracted out, largely to better utilize capital. In brief the cotton chain can be detailed as:

- Seed breeding and varietal development (2 commercial companies; peak body Australian Cotton Planting Seed Association*⁴); the Project interacted regularly with the larger of the two seed providers, Cotton Seed Distributors
- Cotton growing (approximately 900 cotton growers; peak body Cotton Australia*; represented on research matters by Australian Cotton Growers Research Association*); the Project was in regular contact with the 2 growers’ organisations, and the Australian Cotton Growers Research Association provided direct financial support to the Project

² Irrigated cotton normally represents about 75% of the crop

³ 1 bale is equivalent to 227 kg of lint cotton

⁴ * indicates member of Australian Cotton Industry Council

- Cotton harvesting (mix of professional contractors and part-time grower/owner contractors; less than 100; represented by the Australian Cotton Harvesters Association); the Project engaged with the Australian Cotton Harvesters Association through a sub-project that conducted a survey of cotton harvesting contractors
- Cotton module transport (no professional organisation, numbers unknown); no direct contact with module transporters; module transporting issues were considered as part of the interaction with harvesters, and discussions were held with the Cotton Australia staff member responsible for dealing with the regulatory issues associated with module transporting (primarily to do with module size and load restraint)
- Cotton ginning⁵ (approximately 13 ginning companies⁶, who operate anywhere from 1 to 13 separate ginning facilities; total number of separate ginning facilities is approximately 40; represented by the Australian Cotton Ginners Association*); the Project engaged closely with the cotton ginners through attending association meetings, a series of workshops and the development of ginning BMP's
- Cotton bale transport (no professional organisation, numbers unknown); no project contact
- Cotton warehousing (no professional organisation, numbers unknown; warehousing both conducted in-house by cotton shippers – see below, or contracted); no project contact
- Cotton shipping merchants (12 organisations; represented by Australian Cotton Shippers Association*); close and regular engagement was maintained with ACSA, and various members of ACSA throughout the term of the Project
- Cotton classing (approximately 6 organisations — some classing done in-house by cotton shipping merchants, some conducted by independent classing facilities; represented by Cotton Classers Association of Australia*); close and regular engagement was maintained with CCAA, especially regarding development of classing BMP's and the associated auditing protocols

There are also a number of vital support industries represented on the Australian Cotton Industry Council:

- Cotton Consultants Australia: professional association for individuals who provide agronomic and insect management advice to cotton growers, as well as employees of input providers (especially pesticides)
- Cotton Agricultural Products Association: association representing resellers of inputs for cotton growers
- AVCARE

Research and development is funded and managed by 2 organisations (both members of ACIC):

- Cotton Research & Development Corporation
- Cotton Catchment Communities Co-operative Research Centre

As well as being represented by Cotton Australia and the Australian Cotton Growers Research Association, cotton growers' interests are catered for via 16 regional cotton growers' associations, with each growing region⁷ (generally centred on a valley) having its own association.

Cotton-growing is estimated to consume approximately 10-15% of the total water used by agriculture in Australia in a 'normal' year. Cotton has also had until recently a strong reliance on

⁵ The process whereby cotton seed and trash are removed from the lint, with the lint packaged into bales for transport to the spinning mill

⁶ The exact number is determined by how cross-ownership between ginning companies is treated in the calculation

⁷ Biloela, Darling River (Bourke), Darling Downs, Dawson valley, Dirranbandi, Central Highlands (Emerald), Gwydir valley, Lachlan & Murrumbidgee, Lower Namoi, Upper Namoi, Macintyre valley, Macquarie, Menindee & Lower Darling, Mungindi, St George and Walgett

the use of insecticides to control the many insect pests that attack cotton. However, the introduction of genetically engineered cotton with an insecticidal protein expressed by the cotton plant (Trade name Bollgard) has led to a significant reduction in insecticide use, as well as significant reductions in the levels of off-site contamination by insecticides.

The Environmental Landscape Pre – Pathways

Cotton growing and bad publicity have been bed-fellows from the days of sanctioned use of slave labour. And despite the abolition of slavery in most parts of the world, the use of forced or bonded labour is still an issue associated with cotton-growing. More modern concerns have added to cotton's image problem, most notably the use of and pollution by agrochemicals, the use of water, and the introduction of biotechnology.

Australian cotton growers have not been exempt from these pressures. In the 1980's and 1990's, concerns over the use of pesticides by the cotton industry, and the potential environmental problems (eg. fish kills, pesticide residues in rivers) and trade consequences (eg. pesticide residues in beef) led to the development of a research-focussed response by the Australian cotton industry. The Cotton Research & Development Corporation, in collaboration with the then Land & Water Resources Research & Development Corporation and the Murray-Darling Basin Commission conducted a research program titled "*Minimising the impact of pesticides on the riverine environment using the cotton industry as a model*" (the Joint Program) that ran from 1993 to 1998. This Joint Program investigated the ways in which pesticides could move off the farm, and the best ways of managing this movement, so that contamination risks could be minimised.

One outcome was a formal Best Management Practices Manual for managing pesticides. This BMP Manual has now been expanded to cover issues other than pesticides, most notably on-farm water management. Pre-Pathways therefore the cotton industry had in place a comprehensive environmental management program covering the major areas of natural resource management associated with cotton growing: water, pesticide use, soils and vegetation. The Program consists of a risk assessment process for prioritising environmental risks and required actions, detailed guidance material ('Best Practices'), industry staff dedicated to implementation of the Program, and a voluntary audit and certification process whereby independent auditors, specialising in cotton production systems, verify a grower's compliance with the practices detailed in the BMP Manual.

The BMP Manual and its associated implementation and audit program have been instrumental in achieving significant changes in the way that cotton farmers manage pesticides. For example, the second independent environmental audit of the cotton industry, conducted by GHD, noted:

"One of the most significant environmental improvements in the Australian cotton industry is the development and implementation of a Best Management Practices (BMP) program. The Best Management Practices program indicates a high level of stewardship by the cotton industry. The BMP Manual is an excellent tool for systematic and detailed evaluation of environmental issues and implementation of continuous improvement action plans. The audit identified a direct link between the areas of improvement observed on the properties and the BMP modules available to the growers at the time of the audit. Farms that had undertaken their second BMP audit showed real improvements in environmental management, and the auditing process provided a benchmark to indicate that progress had been made. It was observed that farms practicing BMP generally had better environmental management practices, as well as superior documentation and records management."

Additionally, a study commissioned by Cotton Australia (Macarthur 2004) found that cotton farmers rate the BMP Program highly as a change agent.

It is important to stress that to date, no other cotton industry in the world has developed even a remotely comparable system for seeking to mitigate the environmental impacts of cotton farming.

The Trade Landscape Pre - Pathways

The Australian cotton industry has been facing increasing competitive pressure, particularly due to falling world prices, and increased competition from Brazil and branded cotton from the United States. While Australian cotton has historically been able to command a premium due to its high

quality, lack of contamination and proximity to the majority of the world's spinning mills, this premium was (and still is) under threat, as other cotton producers improve their fibre quality, and minimise their contamination levels. The Australian cotton industry has been able to remain competitive in a global commodity market due to a number of factors, including its ability to produce high quality cotton, grow world-leading yields, maintain low levels of contamination, and provide reliable shipments. Increasingly though, these advantages are being eroded as competing growers improve their yield and quality, and pay more attention to managing contamination. Furthermore, the introduction of transgenic cotton varieties, and the increased speed with which technology can be adapted and adopted has led to improved yields world-wide, and therefore a significant increase in total annual world cotton production in recent years, one of the contributing factors to the current low cotton price.

This competitive pressure has been exacerbated by fluctuating water availability and therefore production levels, leading spinning mills to find alternative sources of cotton, which then become further competition once Australian cotton becomes available again.

Motivations for taking up Pathways

It was therefore considered likely that Australia's competitive advantages will not be as large, nor last as long as they used to. To maintain its place as a preferred supplier, the Australian cotton industry considered it needed to do more than continually improve on its performance in the areas noted above. One option identified was to further differentiate Australian cotton to better entrench it as the product of choice in a discerning market. The means of differentiating Australian cotton would be to develop a brand that represents Australian cotton, and what it can offer to the customer.

It was quickly determined that for product differentiation to be successful, the basis of differentiation needed to be unique, and preferably difficult to copy or replicate. Two aspects of Australian cotton stand out as offering the ability to provide such a point of differentiation: high quality fibre, and good environmental stewardship. Whilst the focus of the EMS Pathways funding program is on improved natural resource management practices, it was also recognised and accepted that fibre quality management would likely be a critical component of any formal branding program — not least of all as the existing informal brand (or promise) of Australian cotton is based on its reputation for quality, contamination-free lint.

The hypothesis of the cotton industry's EMS Pathways project therefore was that by developing a branded product, and Best Management Practices (BMP's) for each stage of the supply chain to support that brand promise, the Australian industry could enhance demand, which in turn could provide an incentive for cotton farmers to participate in the BMP Program, leading to increased adoption of BMP's and improved NRM outcomes.

The ultimate aim of the Project therefore was to support efforts by the industry to reposition Australian cotton as more than a high quality commodity cotton, through providing the frameworks and systems required to support any brand-promise based on either or both environmental stewardship and high quality lint. Such a brand-name⁸ for Australian BMP cotton could help it compete on more than just quality and price. It was anticipated (or at least hoped) that creating a retail brand for Australian cotton could considerably increase the leverage Australian cotton has with spinners, especially if the position could be reached whereby retailers request manufacturers to use only Australian BMP cotton in the manufacture of their garments.

⁸ It is important to note that the EMS Pathways project itself was not involved in the development of a brand, i.e. the logo and tag-line (the 'look and feel'). The role of the project was to investigate the systems and framework necessary to support and **deliver** on any promise made by a brand, such as the appropriate best practices.

2. Project Summary

Objectives

The overall aim of the Pathways project was to extend the cotton industry's BMP Program to the entire production chain to create a complete environmental and quality assurance supply chain program. It was anticipated that this would help create a point of market differentiation that would enhance demand for Australian cotton (in a time of increased international competition) and therefore help provide a market incentive for higher levels of adoption of the Program. The specific objectives of the Project were:

- To assess the requirements for extending the Program along the production chain
- To develop additional management/production guidelines to meet these requirements
- To redraft the BMP manual to meet whole of chain demands
- Trial the implementation of whole of chain cotton BMP.

Method

The method adopted was as follows:

- Identification of relevant stakeholders along entire supply chain (gathering marketing intelligence)
- Developing appropriate best practice guidelines based on the information received, and in industry consultation
- Engagement with industry sectors, non-government organisations (NGO's) and retailers both individually and via the Better Cotton Initiative
- Commissioning specific projects to fill knowledge gaps, and to assist in the engagement with specific sectors of the industry (such as the ginners and harvesters)

It is important to note that the EMS Pathways project work has been in addition to the existing core BMP program of the industry, in particular the on-farm implementation program conducted by Cotton Australia. The Project, as well as investigating the issues noted above, also collaborated closely with the existing industry programs: research into natural resource management issues, BMP development, BMP implementation and BMP auditing.

3. Project Evaluation

List of Outputs

The Project undertook 4 major, and quite distinct, areas of activity:

- To develop fibre quality best management practices for each of the major steps in the cotton supply chain, in collaboration with the industry association and commercial interests participating in the sector
- To investigate the requirements and options for demonstrating stewardship, domestically and especially internationally, through developing the framework for a branded product, and through collaborating with relevant international organisations and initiatives focussed on or addressing sustainability issues in cotton production
- The investigation of market requirements so as to develop an understanding of the sustainability needs and requirements of the downstream market players in the cotton supply chain — especially retailers —and endeavour to have them to use Australian BMP cotton in their garments and thereby trial 'whole of chain' BMP
- To maintain an on-going involvement in core industry BMP activities, and in particular reviewing the domestic approach to better natural resource management as implemented by the catchment planning process

A descriptive overview of the development of the fibre quality BMP's follows; the latter areas are described in more detail later, under the headings of *Enhanced ability to demonstrate environmental stewardship*, *Other Lessons* and *Linkages – Catchment Plans* respectively.

A listing of the actual outputs is also provided.

Outputs 1: Industries implement pathways

Fibre Quality BMP's

Cotton growing BMP's

The Project development of fibre quality management BMP's for cotton growing coincided with the planned development of Fibrepak⁹. Fibrepak will be a comprehensive document that will contain information for managing fibre quality at 'every step, from pre-planting to processing'. The aim is to provide all those involved in producing and delivering fibre — the grower, manager, agronomist, consultant, retailer, ginner, classer, merchant and shipper — with knowledge of what aspects of fibre quality they can influence, options for managing those aspects and an understanding of the needs and constraints of the other participants in the fibre supply chain.

In order to avoid producing 2 similar documents with common goals, it was decided to incorporate the draft fibre quality BMP's developed by the Project into Fibrepak. On-going liaison with CSIRO has been maintained to ensure that a comprehensive and co-ordinated package of best management practices for fibre quality is developed.

Classing BMP's

The rationale behind this area of focus is that in order for the Australian industry to remain a cotton producer of choice it needs to be able to describe and classify its product with accuracy and consistency.

To do this the industry wanted to ensure that classing facilities are standardised so they give reliable, consistent and repeatable results. To this end, a set of Classing BMP's was developed in collaboration with the Cotton Classers Association of Australia. Six classing facilities are currently certified as complying with these BMP's, having undergone audits in both 2006 and 2007. The Project also tailored a number of existing industry audit office operational documents to fit the classers audit program, including the development of the random audit process, and guidelines for qualification as an auditor of the classing BMP's.

Other activities that form part of the classing BMP's that go to maintaining and building on Australia's reputation for quality, consistency and reliability include the conducting of formalised 'round' tests (whereby each facility classifies a common sample of cotton) so as to analyse and check on a weekly basis the long term uniformity and reproducibility of the HVI lines being used in Australia. Work was also done to determine and measure the significance of any differences between classing facilities values of HVI colour.

Under the auspices of the Project the classers were also able to agree on one module averaging¹⁰ system (ie agreed on a single method for reporting on the bale grades attributable to each module of cotton). Previously 3 different module averaging systems were in place, which increased the potential for variability in reporting classing results.

⁹ Once completed, Fibrepak will complete the suite of comprehensive management manuals for growing cotton in Australia, joining Spraypak, Soilpak, Nutripak, Waterpak, Weedpak and Entopak

¹⁰ A module is the term for the package of compressed cotton delivered by the grower to the cotton gin for processing. Module averaging is the process used whereby all bales from a module are assigned a grade, even though not every bale is individually classed. Such a system is possible given the general high level of uniformity of cotton quality in a module

Harvesting BMP's

A sub-project conducted a series of face-to-face interviews with cotton harvesting contractors and cotton growers who either rely solely on contractors to harvest their crop, or who also perform some contract harvesting. The results of the interviews highlighted a sector that was professional but aging and in need of some additional support, especially regarding concerns over their long-term profitability, capacity to attract and retain qualified staff, compliance with OH&S requirements and ensuring that their potential to affect certain fibre quality parameters is properly understood. The sub-project also developed a check-list of harvesting BMP's that can be incorporated into Fibrepak.

Ginning BMP's

While Australia has a well-earned reputation as being one of the 'cleanest' growths available, contaminants nevertheless can be found in Australian cotton. Efforts have therefore gone into accurately quantifying the degree and type of contamination in Australian cotton to ensure that industry endeavours to further reduce contamination levels are focussed on the highest priority sources.

The work has concentrated identifying both the major sources of contamination and the industry segments that introduce the contamination (eg. on farm, during harvest, module building, in the gin yard or during ginning). In particular, there has been a focus on the gin level, with gins being surveyed to better understand the level of various types of contaminants found in cotton delivered in modules to the gin yards, and a focus on the shipper level, with shippers being surveyed to determine the types of complaints that they are receiving.

Following a series of meetings and workshops to introduce the BMP concept to the ginning sector, a draft set of ginning BMP's was developed in close collaboration with the Australian Cotton Ginners Association. Adopting the approach used by the classers of conducting a preliminary audit against the first draft of the BMP's to reality check their applicability, relevance and utility, the ginning BMP's are currently being 'road-tested' through a pilot audit of approximately 27 out of the 40 gins operating in Australia.

Outputs 2a: Content

The following materials were developed, or had their development, assisted by the Project:

- An updated overview of all relevant legislation affecting cotton farmers (state and federal)
- Best Management Practice guidelines for Cotton Classing
- Best Management Practice guidelines for Fibre Quality Management
- Best Management Practice guidelines for Ginning
- Development of FIBREpak
- Development of a 'Field to Fabric' training course
- Revised audit documentation tailored for use in the auditing of classing facilities
- Briefing paper on issue of gaining formal recognition for industry (environmental) programs
- Papers for presentation at the following conferences:
 - o 2004 International Textile Manufacturers Federation centenary conference
 - o 2005 Cotton Growers Forum
 - o 2005 ICAC Plenary meeting
 - o 2005 4th EMS in Agriculture Conference
 - o 2005 Australian Cotton Shippers Conference
 - o 2005 Technical Textiles and Non-wovens Association Annual Conference
 - o 2005 4th China International Cotton & Cotton Textile Conference and 2nd China International Knitting Textile Conference

- 2005 PacifiChem Symposium
- 2006 Australian Cotton Conference
- 2006 ICAC Plenary meeting
- 2007 CropLife General meeting
- Report “Growing the Top Line: A BMP Brand Strategy and Business case” (SWAT Marketing)
- Report on requirements for eco-labelling generally, and specifically under ISO 14001 and the EU ecolabel
- Report on operation of the BMP Audit Office
- Report on tracing and identifying cotton physically through the supply chain
- Report on Harvesting in the Australian Cotton Industry: The practices and their impact on the quality of the Australian Crop
- Development of a harvesting ‘checklist’
- Report on the Use of Bale Coverings in the Australian Cotton Industry
- Report on potential ginning BMP’s (in preparation for ginning workshop)
- Investigation on various legal issues: trade mark issues, certification trade marks, labelling, other standards (Oeko-Tex, Euroflower /EU eco-label) and operation of the Privacy Act
- Investigation of a range of branding or labelling systems, including Supima, FiberMax, Signia, Pure Brazil Cotton, Samuel Jackson and Usterised
- Wool pathways steering committee involvement
- Review of catchment blueprints and plans
- Report on International Market Segmentation of Australian Cotton and Yarn: Assessment of Future Market Demands for High Quality Cotton and Cotton Developed Under Certified Best Practice Production Systems[#]
- Report on initial ‘benchmarking’ of Australian cotton gins against the draft ginning BMP’s[#]
- Report on current state of knowledge on impact of moisture on cotton bales[#]

The following projects and activities were supported by the Project:

- Initial development of the definition of the ‘Better Cotton’ concept, and attendance at BCI meetings in October 2004, June 2005, March 2006, September 2006 and May 2007
- Industry involvement with the ICAC’s Taskforce on Commercial Standardisation of Instrument Testing of Cotton, including attendance at CSITC meetings in September 2005, March 2006 and September 2006
- Industry involvement with the ICAC’s Expert Panel on the Social Economic and Environmental Performance of Cotton
- Australian Cotton Shippers export development tour to China (2005)
- Industry involvement with Japanese trading houses sourcing BMP cotton (Izumiya, Daiichibo), including drafting heads of agreements, BMP certificate wording and development of background information on BMP
- Meetings with Marks and Spencer, and a pilot shipment of cotton to India destined for M&S
- Investigations into options for verification of BMP status generally
- Development of a brand for Australian cotton, including reviewing trade mark and certification trade mark issues and requirements
- Participation in 2 industry-wide ‘Field to Fabric’ regional tours (2005 and 2006)
- Participation in the CRC’s ‘Environmental Performance Indicators’ workshop (December 2006)
- Attendance at various meetings of Australian Cotton Growers Research Association, Cotton Growers Forum, Cotton Australia, Australian Cotton Classers Association, Australian Cotton

[#] Report will not be available until after submission of this final project report

Ginners Association, Australian Cotton Shippers Association, Cotton Consultants Australia, the BMP Management Committee, the Cotton Evaluation and Assessment Committee, the CRC 'Fibre Extension Focus Group', the Australian Cotton Industry Council, CMA facilitators meeting

The following media releases and articles were produced by the Project:

- Australian Cotton Grower and Australian Cotton Grower Year Book (2006)
- Australian Cotton Outlook, January 2006, June 2006
- 2006 Australian Cotton Conference media release
- Dalby Cotton week videoconference
- Cotton Reel, Cotton Australia, April 2006
- Spotlight on Research, Cotton Research & Development Corporation, August 2005
- Spotlight on Research, Cotton Research & Development Corporation, Summer 2005
- The Cotton Magazine, August 2006

The following industry workshops were held:

- With a ginning focus, December 2005, February 2006 and November 2006
- With a branding focus, October 2004, July 2005
- With a focus on BMP adoption, June 2006
- Final reporting workshop, May 2007

The project also participated in the various EMS Pathways workshops sponsored by the Department, thereby contributing to the discussion and debate on EMS in agriculture in Australia:

- March 2005
- March 2006
- February 2007

Outputs 2b: Linkages

One of the more pleasing consequences of the Project has been the re-establishment of the connexions between some industry sectors assumed to have a close working relationship. As depicted by Figures 3 & 4, there are now many more relationships requiring management in the movement of Australian cotton between the farm and the port than there were say 20 years ago. As a result, some linkages (for example between the classers and the ginners) have been weakened as they have gone from an 'in-house' service to a commercial footing. The existence of the Project, and the development (or at least re-establishment) of more formal communication links between some of these industry sectors has taken place.

- Between classers and ginners (driven by need to agree on BMP's that affected both sectors, and a desire for more timely communication)
- Between classers and merchants
- Amongst classers
- Amongst ginners
- Between harvesters and industry
- Between industry and Japanese trading houses
- Between industry and Better Cotton Initiative
- Between industry and the International Cotton Advisory Committee
- Between industry and CMA's
- Between industry (project) and Australian Wool Innovation, Meat & Livestock Australia and Grains Council of Australia

Outputs 2c: Adoption

- On-going adoption of environmental on-farm BMP Program
- Utilisation of classing BMP's, auditing of classing facilities
- Utilisation of ginning BMP's, auditing of gins
- Use of BMP certificates for shipments of BMP cotton
- Use of BMP background information to inform marketing in Japan

Early developmental outcomes

Unfortunately, while the start of the Project coincided with an increase in production following a downturn, the recovery was short-lived. The latter part of Project has seen the lowest cotton production for over 20 years, and a level that is less than one-third of the peak production year of 2001. From the industry's all-time peak production of 3.6 M bales of cotton in 2000/01, production over the life of the trial was 1.3 M bales in 2003/04, 2.9M in 2004/05, 2.6 M bales in 2005/06 and an estimated 1.1 M bales in 2006/07.

The current poor cotton market (a combination of a depressed cotton price and a high Australian dollar) and climatic conditions represent threats to the very existence of the cotton industry. In such circumstances, any issue not directly focussed on maintaining profitability is difficult to countenance.

Early developmental outcomes 3: Increased industry ownership of EMS

One of the aims of the trial was to extend the general BMP concept both beyond the farm-gate and beyond environmental considerations, and this has been generally achieved. The direct engagement of the classing and ginning sectors in the trial, including regular presentations to association meetings about the EMS Pathways project, have assisted to increase industry ownership, such that a number of the sectors have expressed a desire for on-going support for their recently developed programs. These include maintaining the classing BMP program, a second round of gin audits, further investigations into the issue of bale moisture, holding a harvesting-focused workshop, and the development of warehousing BMP's by the shippers.

The Project has also made regular presentations to industry associations and conferences.

Early developmental outcomes 4: Increased capacity within agricultural industries

A training course was developed for all sectors of the cotton supply chain to inform them about customer needs and expectations and the quality-control requirements of the industry.

The training course runs over 3 days at the CSIRO Textile and Fibre Technology's (CTFT) research and development facilities in Geelong. It provides participants with the opportunity to interact with researchers on all aspects of the cotton production pipeline from agronomy to fabric formation to dyeing and finishing. It has a strong emphasis on the impacts of fibre quality on textile processing, and seeks to inform participants about the management factors that can influence those fibre qualities of most importance to purchasers of raw cotton and cotton textiles.

The course is a combination lectures and demonstrations of modern commercial cotton spinning, knitting, weaving and dyeing equipment, which is all located on-site.

The Field to Fabric Training course has been run 4 times since the inaugural course of August 2005, with 105 participants. Further courses are planned for both 2007 and 2008. The following sectors have been represented by course participants:

Cotton growers	15
Cotton picking	1
Ginners	29
Classers	9
Extension Officers	4
Merchants (domestic)	15
Merchants (international)	6

Spinners	5
Others	21

The course has received extremely positive feedback — with the need to run 3 courses in 2006 to cater for demand, instead of the planned sole course, as evidence. In addition, the course has been aligned with several competencies from the national training package for vocation training and education.

Early developmental outcomes 5: Enhanced working relationships between industry and governments

While not government, Catchment Management Authorities (CMA's) are statutory organisations with a critical and central role in natural resource management. Over the course of the Project, mainly through the relationships between Cotton Australia and the recently established Cotton Catchment Communities Cooperative Research Centre, the following linkages¹¹ have been developed:

- The subsidisation of BMP audits by the Gwydir CMA, as an incentive for BMP adoption
- The employment of a cotton BMP Officer with funds provided by the Namoi CMA

The industry's BMP Manual has been lodged (October 2006) under Queensland's Farm Management Systems process for approval as an accredited industry scheme for the purposes of the Water Management Act. While no formal decision has been made, it is understood that the application is likely to receive approval in the near future.

It is anticipated that accreditation could have the following positive consequences:

- It gives the BMP Program and those that are a part of it credibility in their practices and approaches on-farm; that is, it enhances the reputation of the program
- It will give recognition to the efforts cotton growers are making (voluntarily) towards managing their risks; that is, it enhances the reputation of the growers actively participating in it
- Giving some transparency in dealing with the government as they respond to pressure for more regulation
- It will ensure that BMP complies with minimum legislative requirements i.e. growers will have the confidence that if they are doing BMP, then they are on the 'right side' of the law
- It will set a benchmark against which any further changes to these minimum legislative requirements can be assessed
- It will serve to demonstrate to government that existing farming practice is sustainable (according to best available science)
- It will provide an agreed and established benchmark of practices and performance for those other stakeholders interested in the environmental performance of the cotton industry (eg. environmental non-government organisations), which should further assist the ability to demonstrate, collectively as an industry, that cotton farmers are responsible stewards
- It may serve to reduce the cost burden of high government regulation of compliance on the grower i.e. the government will not need as many 'policemen' to check up on people if they have faith in this system, and therefore the grower won't have to pay for as much administration.

It is further hoped that these potential benefits will enhance the uptake of the BMP Program, due to it being seen as a better option than an regulatory approach (noting of course the issue highlighted below regarding the need to also identify specific on-farm benefits to encourage adoption; that is, still need to demonstrate a specific connexion between process and outcome).

Whilst at the commencement of the Project a good working relationship was established with DAFF, this relationship unfortunately weakened over the course of project as a result of the

¹¹ The Project was mindful of not further complicating the development of relationships between the industry and the various CMA's by adding a third point of contact

appointment of project managers between the industry and DAFF, and the high turnover of staff at DAFF responsible for the Project.

Intermediate outcomes 6: Increased adoption of EMS in all industry sectors

BMP implementation has been on-going through the life of the Project, via both Cotton Australia's GSM's, and the additional 'BMP Officers' employed, or previously employed through the Namoi and Condamine CMA's.

Increased adoption has occurred in the classing sector, with all the classing facilities (bar one) undertaking an audit against the cotton classing BMP's developed.

In the ginning sector, the first round of pilot or test audits of the gins against the draft BMP's (which include an environmental component) commenced in mid-April 2007, with results due by mid-May, once the second round of audits has been conducted. Some 27 gins, from 7 different ginning organisations are participating in these pilot audits.

Intermediate outcomes 7: Increased adoption of profitable and sustainable farming practices

The Australian cotton industry has traditionally focussed on numbers of growers participating in, or certified under, the BMP Program, as the measure for adoption of profitable and sustainable farming practices. It was recognised early in the development of the BMP Program that a means of demonstrating the adoption of BMP's was required, and so a comprehensive (voluntary) audit program was established, which included:

- The determination of minimum standards under the BMP self-assessment ranking system for each of the issues subject to a self-assessment (approximately 80 issues) (i.e what rank, or practice, was required to achieve certification)
- The establishment of an audit office to run and manage the BMP certification process, including the establishment of the various standardised operating procedures and documents necessary (eg. reporting templates, auditor qualification criteria, complaint handling procedures etc.)
- The development of an auditor training course

A review of the BMP Program generally in 2004 (Macarthur 2004) highlighted a distinct difference of opinion between growers and external stakeholders as to the value of the audit process. A significantly higher percentage of external stakeholders (80%) strongly agreed that there was value in the audit process compared to 50% of audited growers, and about 30% of unaudited growers. While the perception of value may well lay in the eye of the beholder, more importantly the realisation of it resides in the wallet of the person who has to invest the money, time and effort.

Due to various changes in the certification pathway it is somewhat difficult to develop an accurate picture of the participation rate in the BMP Program from year-to-year, as what constituted being 'certified' has been modified over the course of the BMP Program. Thus the figures below include all farms that have had at least one visit by an industry auditor. Nevertheless the following adoption levels for BMP can be noted¹² (%'s based on the 894 cotton growers listed in the Cotton Australia database):

Dec 2002: 20 % of growers certified, representing approximately 45 % of cotton area

Dec 2006: 33 % of growers certified (293 cotton farms)¹³

April 2007: 37 % of growers certified (328 cotton farms), representing 47 % of cotton area

This focus on participation and certification to the BMP Program may have been to the detriment of determining the type and extent of specific practice change engendered by the BMP Program. Such a focus has proved problematic for a number of reasons:

¹² Based on Roth 2007 (unpublished draft) and pers. comms with Cotton Australia staff.

¹³ During 2006 Cotton Australia had an active campaign encouraging participation in the BMP Program that resulted in 128 new growers entering the Program (Roth 2007).

1. For growers currently certified, it is clear that it will be difficult to sustain an on-going interest in remaining certified as there will be a diminishing value in the audit process if there is no explicit benefit arising from undergoing the audit
2. For growers not currently certified, given the period of time the BMP Program has been in place, it is difficult to see a change in heart taking place (see further, below)
3. In any event, lack of involvement in the certification aspects of the BMP Program does not equate to a lack of best practice adoption¹⁴
4. An emphasis on certification numbers (understandable in light of the strong support such reporting received from external stakeholders noted above) carries with it the risk of reducing focus on identifying the specific practice changes that have been implemented
5. A reduced focus on the specific practice changes of interest also reduces the focus on identifying the specific benefits that have been attained through implementing that practice.

So, while the great majority of the cotton growers who have undertaken an audit speak positively about that experience¹⁵, the testimonies are more often than not in general terms, for example: *“it makes you aware of your obligations”*, *“it focussed on areas we overlooked”*, *it gave us the push to do things we have been putting off”*. These general benefits, good as they may be, do not seem to provide enough incentive to entice those sceptical of the merits of the audit process to test that scepticism.

By focussing on the number of growers audited as a measure of success, efforts at promoting the BMP Program concentrated on getting growers to be audited, rather than identifying and promoting the benefits of adopting the BMP’s themselves. Ultimately auditing is a means to an end – a means of measuring practice change — and not an end itself.

This issue of value is also reflected in the general attitudes displayed to the BMP Program, with every review conducted over the last 5 years including comments that while the BMP Program has been invaluable from an industry perspective, it nevertheless needs to do a better job of identifying and selling the specific benefits to be gained by undertaking the BMP process¹⁶. One quote (Hassall 2006) perhaps sums it up:

*“You don’t hear growers talking about how valuable BMP is to their **business**”*

Intermediate outcomes 8: On-going industry action/pathway, industry leadership into the future and increased industry responsibility

Based on the various reviews conducted on the BMP Program¹⁷, the findings of this Project, and the workshop held on 29 May 2007 to present and discuss those findings to industry, it is clear that while a reasonably clear division should be maintained between fibre quality management issues and environmental management issues they are both critical components to the continued well-being of the industry.

From **an environmental management** perspective:

- The BMP Program has helped provide the industry with a level of credibility with government, other industries and local cotton communities
- The industry — through Cotton Australia and Cotton Research & Development Corporation — is committed to maintaining a formal program for managing the environmental impacts of cotton farming

¹⁴ For example, Macarthur (2004) separated practice adoption between certified and non-certified growers; practice adoption for both groups had clearly improved over the previous 5 years of the BMP Program for a range of issues, especially weather monitoring prior to applying pesticides and control and management of storm water run-off

¹⁵ Holloway and Roth 2003 note that 90 % of respondents felt that their audit was of significant benefit.

¹⁶ Not because they do not exist but rather that they are difficult to quantify, especially as data gathering until recently has been focussed on certification levels more than on specific practice change and the benefits derived from that change

¹⁷ Macarthur 2004, Hassall 2006, Roth 2007, Brigalow Directions et al 2007, BMP Adoption Workshop 2006

On-going industry action to deliver on this commitment will therefore likely focus on the following issues:

- Revising the current (2nd) edition of the BMP Manual (last updated in 2004) in light of comments and feedback received during various reviews of legislation, updated industry information and surveys on grower attitudes to BMP
- Aspects for specific consideration in this revision process include:
 - o Better integrating the production and environmental aspects of cotton production into a more seamless package i.e endeavouring to remove (as much as possible) the distinction between environmental management aspects and production aspects. Maintaining this distinction¹⁸ works to institutionalize the perception that environmental considerations are an ‘add-on’ management issue that is being externally imposed, whereas incorporating environmental issues into every-day farm management practices and processes will deliver a more robust approach
 - o Better identifying and quantifying the specific benefits potentially to be achieved as a result of adopting the recommended best practice
 - o Identifying more explicitly the actual changed practices being implemented by cotton growers, and the specific benefits that have resulted from those practice changes
 - o Focussing the promotion of the BMP Program on the inherent benefit to the farm, rather than because there is some external pressure that is dictating to the grower what they must do¹⁹.
- Developing options for delivering the BMP Manual via an electronic interface, including the ability for computer based data entry, report generation and practice change measurement — which will require improved data capturing capabilities
- Further integrating the BMP concept with the requirements of CMA’s and other farming enterprise activities (especially grain and cattle production)
- Developing appropriate environmental performance indicators (see below, *10-Ultimate Outcomes* for more detail)

From a **fibre quality management** perspective:

- The development of fibre quality BMP’s has helped improve both the internal operation of the individual classing facilities, as well as the cohesiveness of the classing sector generally (eg. as a result of discussing, debating and agreeing on a common approach to an issue that previously had different standards being used)
- It is hoped and anticipated that similar outcomes will eventuate from the development of the ginning BMP’s, initiated by this Project
- Continually ‘raising the bar’ on fibre quality management (eg. on contamination levels) will be necessary for the industry to retain its current status as a supplier of high quality cotton.

On-going industry action to deliver on this will therefore likely focus on:

- Continued development and finalisation of Fibrepak
- Continuing to support the development of ginning BMP’s to the stage that they have been agreed and finalized
- For the cotton harvesting sector, building on the initial relationship established between the professional association and industry established by the project to finalise the harvesting

¹⁸ Some environmental issues will likely remain outside the strict purview of production; the process of integrating production and environmental issues will help to identify these, and therefore help to identify those issues requiring greater external support for the adoption of practices aimed at addressing them

¹⁹ One comment from the May 29 workshop was that “cotton growers actually like the environmental aspect of their farm. The concept that the grower ‘does the environment for themselves’ is real. It is also believable. If we promote the environmental side of our performance, somehow it loses that believability factor in the public’s eye. We are best to just do it, and keep it in reserve for when the consumer wants it”

'Picking for Quality' checklist, develop a standardized OH&S induction process (including reviewing the need to update the existing 'Harvest Safety' video developed through CRDC), continuing to work on standardising road transport rules, and organise and run a series of 'pre-pick' workshops for cotton harvesting contractors prior to the 2008 harvest that would focus on raising awareness of the various components of fibre quality, with an emphasis on those that can be affected by harvesting practices

- Continuing the support being provided to the Classers Association in their audit program to at least 2008; the Cotton Classers Association has clearly expressed the desire to maintain the BMP Program, and to have on-going industry involvement in future refinements of both the technical aspects of the Program, and the auditing procedures supporting it. Other areas of continued activity include instigating an independent check-test analysis, and further refining the ability to quantify the colour and leaf components of cotton quality via machine, rather than visually.
- Developing warehousing BMP's (through ACSA) so that there are no gaps in the fibre quality management chain
- Continued promotion of both the environmental and quality aspects of Australian cotton by ACSA in Australia's main markets
- Continued support of research that aims to:
 - o Demonstrate the quality of Australian cotton, highlight the importance of quality, better measure quality, help preserve quality, and create better quality varieties

As highlighted by the 'grower' perspective provided to the 29 May 2007 workshop the challenge is to undertake this integration (or connecting): across commodities, with CMA needs and along the supply chain in a way that somehow "captures value".

Ultimate outcomes 9: Increased community capacity and institutional change

The vagueness and broadness of the terms 'community', and 'institutional change', as well as the time-frame over which this project was conducted makes this outcome rather difficult to even begin to measure.

Ultimate outcomes 10: Improved natural resource management and environmental outcomes

While the cotton industry is confident that there has been significant adoption of improved natural resource management practices²⁰, the connexion between those changed practices and specific environmental outcomes is still difficult to make. There are two fundamental difficulties in establishing the connexion:

1. There is no agreed set of specific indicators applicable across industries or with catchments against which to measure and determine agreed environmental outcomes
2. There is still a lack of certainty as to the connexion between (the currently general) catchment targets and the specific on-farm practices expected to assist in meeting that catchment target

The cotton industry is hoping to address the first issue through a recent funding application to the "EMS Pathways to Sustainable Agriculture: Industry Leadership" program titled "Cotton, grains and beef: one farm, multiple enterprises, common indicators". The objectives of this project include agreeing appropriate environmental performance indicators (EPI's) with the CMA, help build a shared understanding of the definition of sustainability, and the options available for making progress towards sustainability, including common and appropriate best management practices.

As noted in the application, the lack of an agreed set of EPI's has limited the ability of the cotton industry to effectively measure the success and impact of the BMP Program against the needs and requirements of external stakeholders, such as the CMA's. Agreement on a set of cross-commodity EPI's that also meet the needs of the CMA will allow the industry to focus its attention

²⁰ Eg second environmental audit (GHD 2003), Macarthur 2004 and Roth 2007.

on measuring the impact of the most important and relevant NRM issues for a catchment, and also assist in identifying areas that require additional extension support. The results of this monitoring will then allow the industry to determine whether adjustments need to be made to any of the elements of the BMP Program (eg. focus of implementation effort on specific issues, development of BMP's to address issues not covered in the BMP but for which a specific EPI is being monitored).

By identifying a key set of environmental performance indicators and measuring them, this information can be fed back to producers in a language they understand, thereby contributing to their decision-making activities. Currently, all industry can report on its practice change and make assumptions about the environmental performance these should deliver on. By collecting real, meaningful data, producers can be more confident that the decisions they are making and the practices they are adopting are making positive contributions to the sustainability of their catchment without having to interpret catchment blueprint targets or arbitrary management action targets written for CMA plans.

Ultimate outcomes 11: Enhanced ability to demonstrate environmental stewardship to domestic and international markets

An 'ability to demonstrate environmental stewardship to domestic and international markets' has a number of fundamental requirements including:

1. That there is, in fact, environmental stewardship; and
2. That there is an appropriate mechanism that can be used to make this demonstration

But this ultimate outcome begs the question: is this a good or necessary thing to do? And why? How? (i.e what form should the connexion between being able to demonstrate such stewardship and the market take?) Who are our domestic and international markets? And importantly, what value is created if this connexion is made?

While the Project also begged this question, it endeavoured to answer some of the questions that arise as a consequence of assuming that it is a good and necessary thing to have the ability to demonstrate environmental stewardship.

Why it was considered good and necessary was because it was hoped that demonstrating stewardship would not only be of interest to the market, but would also be valued by the market in a tangible way that could lead to benefits for the participants in the cotton supply chain.

It was also considered good and necessary as a means of maintaining Australia's reputation as an environmentally-responsible source of agricultural products.

As indicated during the discussion on adoption and elsewhere, the Australian cotton industry can reasonably claim that it is practising good environmental stewardship. It is clear that this is of interest to the some parts of the market — selected retailers, as discussed below — but it is equally clear that it is not of particular interest to the market that really matters, the spinners who are the direct purchasers of Australian cotton.

Regarding the form of demonstrating this good environmental stewardship — the how — two approaches were adopted: one approach focussed on developing a brand, the supporting structures for delivering on the brand promise and then making sales under that brand that would highlight (demonstrate) the environmental stewardship, while the second approach focussed on developing and strengthening relationships with international and domestic organisations with an interest and involvement in cotton sustainability issues. It was considered that (given the limited value of self-praise) having other organisations recognise the efforts of the industry would provide an effective alternative method to using marketing and branding as the means of demonstrating environmental stewardship. This latter approach, while not as explicit as a brand, and perhaps slower-working, nevertheless provides a useful alternative to developing a brand that is considerably cheaper.

Izumiya retail sales

A large Japanese Department store chain, Izumiya²¹, has developed in collaboration with the Australian industry, a promotional campaign for clothing made from 100 % Australian BMP cotton²². Australian cotton was spun in Indonesia, processed in China, and was sold under the store brand "Good – i". The initial run went on the shelves at the beginning of April 2006, and since it sold out, Izumiya has plans to expand the volume of garments in both 2007 and 2008, with anticipated total consumption of Australian cotton in the 2008 line being about 1,000 bales. The range initially comprised ladies and children's wear, with men's wear scheduled to be included in subsequent runs.

Izumiya's emphasis is on quality at reasonable prices, and they have now reinvigorated their environmental policy²³ that had focused on foods, but which is now being extended to apparel (which accounts for 20% of sales). Australian BMP cotton was seen as a perfect and natural fit for the expansion of Izumiya's environmental credentials to clothing. Izumiya is targeting the 'LOHAS' or Lifestyles of Health and Sustainability' sector, a marketing segment that is focused on health and fitness, the environment, personal development, sustainable living, and social justice²⁴

The Project has been assisting ACSA in their work with Izumiya, including the requirements for tracking of the BMP cotton, and drafting the Heads of Agreement between Izumiya, ACSA and Cotton Australia that governs contributions by each party to the cost of various promotional material, support and use of Cotton Australia's 'Cotton Mark' and the payment of a licence fee by Izumiya to ACSA.

As noted by the Australian representative who attended the official launch of the product line in Osaka, Hilton Lobb "the interim agreement with Izumiya enables us to learn much about the process and to trial protocols that will apply to the final model."

Whilst the volumes are currently small, Izumiya has advised that clothing is a growth item in their supermarkets, growing at approx 6% pa, the result of a concerted and significant promotional effort in the apparel segment. In addition they have opened 4 new supa-centres since November, adding some USD20 million to turnover. They have over 2 million club members, which enables them to collect data on buying trends and provide us with feedback as the promotion gets underway. Thus the industry is very well placed to supply a potentially increasing market, and also receive specific information as to the factors that are important for a successful campaign in the Japanese market.

Given that other Japanese organisations have also expressed interest in 'BMP' cotton, Japan would be a logical choice for any major focus for promoting the industry's efforts in building awareness of the environmental credentials and highlighting our quality fibre. Further market development work to build on this promising start in Japan is planned for July 2007.

Whole of Chain Overview

- The request for the BMP cotton was made after the cotton harvest, meaning that the BMP status had to be tracked, in the first instance, retrospectively. This was problematic, especially as it seems merchants are reluctant to publicise to cotton farmers that they have a market for BMP cotton
- The following procedure was developed to allow for the verification of BMP cotton, and most of the components were applied to the second shipment of BMP cotton (given the cost and timing involved, changes have not yet been formally made to either the module ticket or the gin data collection and reporting system to provide for an extra 'BMP' field):

²¹ Annual sales of approximately USD3 billion, spread over some 90 stores

²² Thus replacing Chinese cotton in the product line

²³ "Customers requirements for the quality of products are getting more exacting, due to their increasing concerns for environmental problems and safety problems" – Company website

²⁴ Whilst the website dedicated to Lohasian's (www.lohas.com) provide an alternative description of 'responsible capitalism', a more cynical descriptor might be 'conscious salving'

- ❑ Each module delivered by a grower indicates the BMP status of the farm on which the cotton was grown; this is recorded by the gin, and becomes one of the information fields for each of the bales produced by the module
 - ❑ Cotton Australia provides verification to a merchant who queries them that the farm in question is currently BMP certified.
 - ❑ Cotton Australia issues a certificate to the merchant attesting to that current BMP status, which is then provided with various shipping documents for the cotton. The certificate includes the Cotton Australia logo ('Cotton Mark').
- If the recipient of the cotton has entered into a licence agreement to use the cotton mark, then words to the effect of the following can then be used in their promotional material. Such wording would likely need to be sorted out on a case-by-case basis in cooperation with the customer in question, so that a clear-cut promotional statement which both encapsulates the BMP message and the needs of the customer can be agreed.

This product is made from Australian cotton produced under the BMP environmental best management practices program, verified by Cotton Australia and sourced from members of the Australian Cotton Shippers Association.

It is the unofficial industry position that any organisation purchasing BMP cotton for use in a marketing campaign based on the properties of the cotton intrinsic to it because of its BMP status should enter into an agreement with the industry along the lines of that entered into with Izumiya, so that at a minimum a licence fee can be charged to recover the costs involved in the verification process, and developing any literature provided that clearly sets out what BMP is. Consideration might also be given to providing a catalogue of cotton photo's for licence holders to use to increase the value of entering into such an agreement. Such a position would help ensure that a consistent message about BMP, and minimize the risk of confusion should 2 different marketing departments define BMP in such a way that contradictory messages were being conveyed.

This is an important consideration as at roughly the same time as Izumiya was in open discussions with the industry about using BMP cotton, another Japanese organisation was also seeking to develop a product line based on the environmental credentials of Australian cotton. This product line of garments made from 100 % Australian cotton was specifically promoted on the basis of low levels of pesticide use. And while they also sought a BMP certificate from Cotton Australia, as they did not seek to use the trade-marked 'Cotton Mark', there was no incentive for them to enter a licence agreement, nor did the industry have any real ability to control what claims they were making about the cotton, there being no ability to interfere with a generic 'Australian cotton' promotion (and perhaps there is no genuine ability to prevent any individual marketing 'BMP cotton, or at least no way to stop them short of instituting legal proceedings).

Interestingly, the latter campaign has been as unsuccessful as has Izumiya's been successful, such that the company in question has now formally met with the industry personnel involved in the work with Izumiya. There is no evidence to suggest that the lack of industry involvement in this latter campaign was a reason for its poor performance — it may have been due to them targeting a different market given they are both a wholesaler and retailer, but were marketing it to other retailers with the proposition "less chemical used" rather than developing their own in store promotion. In any event this was not an attractive angle for their customers, such that most of their products are now on the retail shelf without even mentioning that it is 100% Australian cotton. The positive aspect is that these outcomes have prompted them to now sit down with industry, and thus allow the industry to maintain a level of control over the BMP 'message'. Furthermore, one of their executives commented that it (the product line) would be more attractive if their concept and products were backed up by industry bodies in Australia, so they now would like to see how they might work more closely with ACSA and Cotton Australia.

At this stage the industry will only look to enter into a licencing arrangement with the brand owner/retailer (and not with the spinner, or fabric knitter for example), as they are the only sector really interested in this type of product and therefore the only sector worth concentrating on for the time being.

Table 1: Time Line

Date	Event
2002	ACSA and CA commission Austrade to conduct desktop research on brand-owners/retailers in Japan, and other likely countries
2004	ACSA and grower representatives meet with 8 department stores, including AEON/Izumiya
2005	Hilton Lobb & Allan Williams meet with AEON Izumiya Izumiya present at ACSA conference
Feb 2006	Izumiya representatives visit Australia, meet with ACSA, merchant
Feb 2006	448 bales shipped to Indonesia
Apr 2006	Heads of Agreement agreed between ACSA and Izumiya
Apr 2006	Spring Collection released; 330,000 garments sold
Aug 2006	Izumiya present to Australian Cotton Conference; give away clothes; plans announced for targets of 420,000 garments for 2007 and 500,000 garments for 2008 to be sold under the "Good-i/BMP" marketing campaign Summary of issues covered by BMP Manual provided to Izumiya
Nov 2006	Izumiya awarded Austrade's 2006 "Import Award"
Apr 2007	Australian Product Fair in Kansai, including promotion of Australian cotton; general theme of safe, healthy and environment friendly

Fig 1: Original Artwork presented to Izumiya

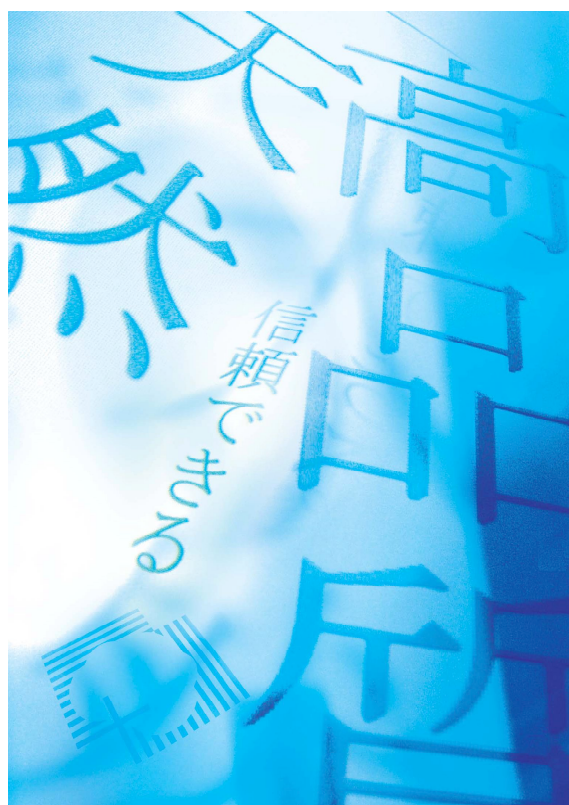




Fig 2: Artwork used by Izumiya in their promotional campaign

Relationship with WWF-Australia

During the course of the Project, WWF-Australia undertook a case study of the Australian cotton industry BMP Program, which highlighted the following strengths:

- The industry commitment to and leadership of the BMP Program, through the development of a tool for helping cotton farmers manage their environmental impacts (the BMP Manual), the provision of dedicated staff and other resources, and through the development of an audit program, with industry-trained auditors
- The structure and content of the BMP Manual, which was noted as practical, adopting a whole-farm approach, and being 'more outcome focussed than an EMS' (i.e. ISO 14001)

A number of areas for improvement were also identified, including:

- Better development and collection of baseline data on both practices and resource condition
- Better engagement with the general public

The former comment is being addressed in the implementation of the land and water management module (subject to water availability), while Cotton Australia continues to track public opinion and develop appropriate communication strategies, currently based on a 'softly-softly approach' rather than any direct communication to the general public about the performance of the cotton industry (especially with respect to water use, the current, and likely long-term future hot topic).

The relationship developed with WWF-Australia also resulted in the connexion to the Better Cotton Initiative, discussed below.

Better Cotton Initiative

The Australian Cotton industry has been involved in the Better Cotton Initiative (BCI) since its first open meeting in 2004, when it was invited to present its experiences in developing an environmental management program to a range of stakeholders brought together by the World Wide Fund for Nature (WWF): banks, retailers, other non-government organisations (NGO's) working on cotton-related issues, scientists and cotton traders. Australia provided the only producer representation, and it was explicitly noted that this was because Australia's efforts in this area were leading the world.

BCI was initiated by the World Wide Fund for Nature and the International Finance Corporation, and is one of a number of so-called "multi-stakeholder initiatives" or MSI's instigated by WWF to address the impacts of a number of key agricultural commodities, the others being palm oil, soy and sugar.

BCI has on its steering committee large retailers that sell significant quantities of cotton (IKEA, adidas, H&M, The Gap) as well as a range of environmental NGO's, and the United Nations Environment Programme.

It has always been assumed that Australian BMP cotton would automatically qualify as Better Cotton, and the draft principles proposed for defining Better Cotton (see below) give no cause to alter that assumption (noting that the issue of how to deal with an issue that is not relevant – for example the economic principle is unlikely to be particularly relevant for Australian cotton growers — has not been discussed)

Table 2: Better Cotton Framework

Principle	Criteria	Tools	Implementation Strategy	Indicators
Broad goal which we hope to achieve	Key elements that must be met to achieve principle ('detailed what')	Tools and resources that farmers can use to meet criteria	How tools and/or resources will be provided to farmers	Measurements used to indicate whether the criteria are met

Global Environmental Principles

Better Cotton is produced by farmers who maintain the quality and availability of water

Better Cotton is produced by farmers who use pesticides safely and responsibly

Better Cotton is produced by farmers who care for the health of the soil

Better Cotton is produced by farmers who preserve natural habitats

Better Cotton is produced by farmers who care for, and preserve the quality of the fibre

Global Social Principles

Better Cotton Initiative will respect and promote Decent Work

Better Cotton Initiative will facilitate producer organization (for smallholders)

Global Economic Principle

Better Cotton Initiative will facilitate access to equitable finance

Engagement with the Better Cotton Initiative is built on the expectation that it provides an opportunity for credible, third party endorsement of the BMP Program that will provide a means to demonstrate environmental stewardship — a similar model is presented by use of the heart foundation tick. The potential role is for Australia to be involved in working out how existing

programs (such as BMP) can meet the definition of Better Cotton (and it is highly likely Australia will), and how compliance with non-relevant principles is undertaken (eg. access to equitable finance).

International Cotton Advisory Committee (ICAC)

ICAC is an inter-governmental organisation that is the only international peak body for the cotton industry; its mission is to assist governments in fostering a healthy world cotton economy and it seeks to achieve this by, inter alia, serving as a clearinghouse for technical information on cotton production and by serving as a forum for discussion of cotton issues of international significance. The role of the ICAC is to raise awareness of emerging issues, provide information relevant to the solving of problems and to foster cooperation in the achievement of common objectives. ICAC sees itself as having a unique role as a catalyst for constructive change, with plenary meetings of the ICAC providing the major forum for the discussion of international issues of importance to the world cotton industry, and providing opportunities for industry and government leaders from producing, consuming and trading countries to consult on matters of mutual concern.

The increased attention on the environmental and social impacts of cotton production has become part of ICAC's brief of issues subject to the above role. As ICAC seeks to provide both a forum and a mechanism for addressing the impacts of cotton production, it has turned to the Australian cotton industry given its efforts in undertaking the development of a formal approach to managing its environmental impacts of cotton farming. Thus, at the ICAC Plenary meeting in 2005, the Australian BMP perspective was presented to delegates, providing the opportunity to demonstrate its environmental stewardship to a large group of industry and government representatives. The following plenary meeting in 2006 had the environment as its major theme, and once again, Australia was invited to present a paper on some of the technical aspects of demonstrating environmental responsibility. In addition, one of the outcomes of the 2006 meeting was the formation of an Expert Panel on the Social, Economic and Environmental Performance of cotton production, which will provide objective, science-based information to ICAC on the negative and positive aspects of global cotton production and will make recommendations for further action as appropriate. Allan Williams, the developer of the BMP Manual, has been invited to fill the role of chair of the Expert Panel.

Evaluation against project objectives

To assess the requirements for extending the Program along the production chain

The requirements were successfully assessed, and can be summarised as follows:

- Best Management Practices for growing (quality and environment)
- Best Management Practices for harvesting and transport
- Best Management Practices for ginning
- Best Management Practices for classing
- A means to verify the BMP status of the cotton before it is stored in the warehouse
- An agreed 'message' re the qualities represented by the environmental BMP's
- A commercial owner and driver of any formal marketing plan

To develop additional management/production guidelines to meet these requirements

Information was developed for each of the above assessed needs, except the last which is a matter for individual commercial entities to assess.

To redraft the BMP manual to meet whole of chain demands

While no specific demands were made by any specific sector that necessitated the re-drafting of the BMP Manual, the content of the Manual was reviewed against updated industry information, the recommendations of the 2nd industry environmental audit, legislation and catchment management blueprints and plans. Areas requiring amendment have been identified, and will be

incorporated into the 3rd edition of the BMP Manual once the issue of whether a new or modified format (eg. electronic) for the BMP Manual should be adopted.

Further areas identified for modification were:

- Amalgamation of the Farm Design & Management module with the Land and Water Management module
- Suggestions regarding the addition of 'green house gas' BMP's

Trial the implementation of whole of chain cotton BMP

This is covered by the discussion under *Ultimate outcomes 11: Enhanced ability to demonstrate environmental stewardship to domestic and international markets.*

Case Study: Talking Japanese — A Branding Campaign for Australian Cotton

With the support of the Project, Austrade and the Australian Cotton Shippers Association, nearly 330,000 items of cotton clothing were made from Australian BMP cotton and sold by the department store chain *Izumiya* with an in-store promotion campaign based on both the Australian and sustainability attributes of the cotton used to make the garments. The cotton was initially shipped to an Indonesian spinning mill, with the yarn sent to China for knitting and weaving.

The initial run of garments consisted of children's and women's clothing, and the subsequent campaigns are planned to include men's clothing. Garment construction also occurred in China. The success of the initial campaign in 2006 has led to plans to extend the campaign until at least 2008, with a doubling of the total volume of Australian BMP cotton consumed in the first campaign in 2006.

The Australian industry licensed the use of the existing "Cotton Mark" to help *Izumiya* market the garments. Other support provided by the Australian industry included the development of point of sale material and product swing tags, images of cotton growing, a DVD explaining how cotton is grown in Australia and a summary of relevant practices from the BMP Manual.

Plans are well underway to build on this success in marketing Australia's sustainability credentials with an industry visit to Hong Kong and Japan in July 2007 that will brief a selected range of retailers and textile manufacturers on the environmental and quality attributes of Australian cotton.

4. Lessons and Findings

Content

From a natural resource management perspective, only minor gaps in the content of the industry's on-farm BMP Manual were identified from a review of the catchment management plans applicable in cotton-growing regions. These gaps were in the areas of energy efficiency and waste management; both these issues have been targeted for consideration and possible inclusion in the third edition of the BMP Manual. There are gaps related to cultural heritage issues that have yet to be considered at an industry level.

No gaps in the Manual were identified²⁵ by any of the external organisations engaged with over the course of the Project, including the retailers who had BMP cotton shipped to their spinning mills and the various NGO's involved in the Better Cotton Initiative.

Linkages - internal

The structure of the cotton industry has undergone significant change over the past 20 years; where once cotton would only in effect pass through the hands of 2 organisations: the farmer (grow, harvest and transport to gin) on to the ginner (who would also class and ship the cotton), it can now potentially pass through the hands of 6 (and commonly 4) different commercial entities. This is depicted in Figures 3 and 4, below.

Whilst the segregation of supply chain responsibility has been driven by financial considerations (for example reducing capital investment in harvesting equipment that is only used for 4 weeks), that have presumably been beneficial, this segregation also makes developing an industry-focussed co-operative approach to managing issues that are relevant to multiple sectors more complex and therefore more difficult, due to:

- The sheer number of relationships that need to be managed make reaching agreement harder, not only because of an increase in the range of perspectives that need to be taken into account and accommodated, but also particularly because of the greater difficulty in identifying specific costs and benefits to each of the individual sectors
- Increased complexity, and therefore cost, in any chain of custody requirements (necessary to support any branding initiative)

It is clear that a theoretical interest (in having an industry brand) does not necessarily translate into a desire to bring that about if that requires direct funding as no direct benefit to the bottom line can be discerned. History has shown that Australia has been able to sell its entire crop, even in years of record production, so the need for a brand to provide an additional marketing tool falls into the 'nice if we had it but don't really need it' category. That the effort to develop a new brand for Australia was not pursued to a successful conclusion – admittedly due to a range of factors such as lack of resources and repeated setbacks with identified options — militates against a model of an 'industry-owned' brand.

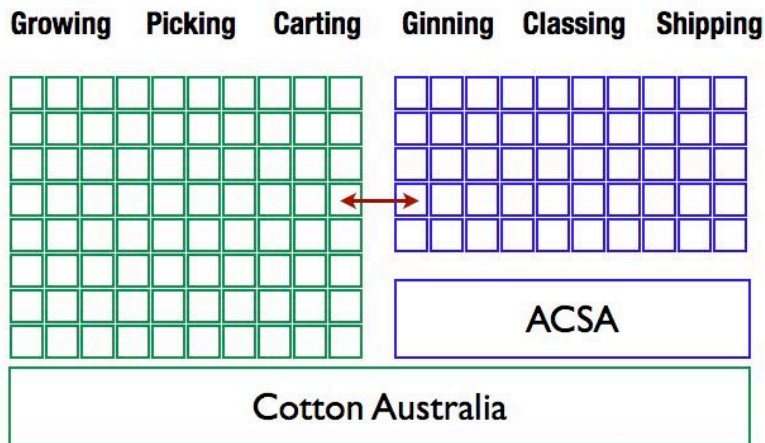
Nevertheless there is an argument – that may be difficult to mount clearly - that the "premium" that a united industry brand could help provide is continuation of the forward demand for Australian cotton, and the ability to sell the entire crop in the year of production. Interestingly, the review of the various 'branding' programs indicated that a specific commercial interest²⁶ was by far the most common driver for the development of such a program, providing centralised control and responsibility.

²⁵ This was assessed, not through these organisations reviewing and commenting on the BMP Manual, but through developing an understanding of what they saw as critical issues and ascertaining that these issues were covered in the BMP Manual.

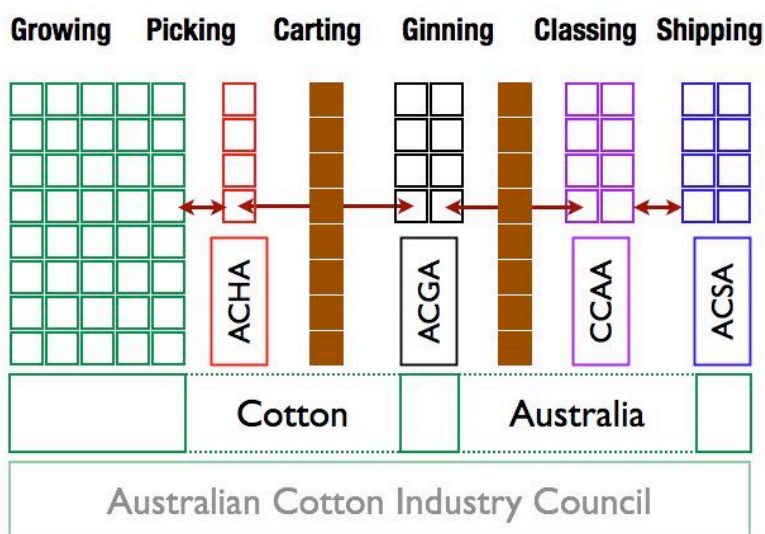
²⁶ FiberMax, Supima, Samuel Jackson, Usterised and Pure Brazil Cotton, and are all owned by a single sector of the supply chain – planting seed, growers, cotton ginning, cotton testing and textile manufacturing respectively. Only Signia is an initiative with stakeholders from multiple parts of the supply chain; little evidence was found to indicate that it is currently active

If this approach is adopted then it will have the advantage of a specific and resourced commercial focus; the disadvantage of course is that the interests of industry and the interests of individual commercial entities are not necessarily 100 % aligned. One option that does provide a relatively high level of alignment though is to focus the brand on specific fibre qualities, with the seed companies, as the organisations responsible for developing the varieties, then providing the commercial leverage that is perhaps needed to get the brand beyond a theoretical concept.

Connexions for 'Brand Australia' Cotton



Connexions for 'Brand Australia' Cotton



Figures 3 and 4: Increased complexity of the domestic cotton supply since the 1980's (the project interacted with each sector except carting, indicated by the solid boxes)

Linkages – Catchment Authorities (Plans)

At the outset of the Project a review of the multitude of catchment plans²⁷ applicable to cotton growing areas was conducted, and a number of issues were identified (numbers 1 – 8 below). Subsequently some of these have been recently updated and formally approved, while some have not, or are still in draft form; the following section therefore includes both the original commentary — as in Queensland in particular the situation has not changed — as well as any changes or amendments that are relevant to the original commentary (number 9). These changes are only applicable in NSW, and were driven by significant changes in legislation and regulation that have occurred since the blueprints were drafted; for example, the Namoi blueprint was written in 2002; since then the Native Vegetation Act 2003 and the Water Management Amendment Act 2004 have come into force, and are now incorporated into the revised Namoi Catchment Action Plan (CAP), dated February 2007. Only the Namoi Cap has been reviewed in detail, and it is hoped that the significant improvements apparent in that CAP from the previous Namoi Blueprint are replicated in the other CAP's as they are reviewed and updated.

1. A significant majority of the management actions were the responsibility of the catchment authority; typical examples of actions include “Negotiate with industry”, “Monitor the performance of promoted practices”, “Document relevant case studies”, “Identify areas of high risk”, “Provide incentives...” “Develop an environmental benefits index...”.
2. There were nevertheless a reasonable number of actions that could be undertaken by an industry with the requisite structures in place (i.e. a set of recommended practices, and a means or formal system for implementing those practices on farm). Examples from the Queensland Murray Darling include “Develop and implement [plans] at the property level”, “Provide workshops and associated extension activities which encourage landholders to adopt appropriate land management practices”
3. Only a small minority of the actions could be classified as an action immediately implementable by a farmer on their farm; even actions that on first appearance could be implemented at the farm level require an initial identification of the target areas within the catchment for the issue in question before the relevant farms and therefore on-farm implementation is possible.
4. Whilst the NSW plans were developed from a common (then) Department of Land and Water Conservation template, and have a general sense of similarity, there are nevertheless significant local and regional variations that present difficulties for any industry that operates across a number of catchments. Some of these variations are regional, and likely reflect a common ‘bureaucratic’ influence: e.g. the Namoi and Gwydir plans share very similar approaches, but are different to the Central West and Lachlan plans, which likewise share many similarities.
5. It is clear from the form of the Murrumbidgee plan that this region has been ‘catchment planning’ significantly longer than the other NSW catchments. Its plan is more tightly integrated between its levels of objective and target and more focused in the outcomes sought than most of the other plans; nevertheless it manages to introduce an additional ‘level’ of action that is difficult to distinguish from the higher levels of activity common to all the catchment plans.
6. One common theme shared by all the plans is the generality or vagueness of the actions required (such that they are not measurable), even when listed under the supposedly most detailed level of the plan — despite the claim that they provide “answers to questions” i.e. “the nuts and bolts” about what has to be done to achieve the management targets. A short list of the verbs used includes: Identify, develop, promote, link, provide, quantify, support, determine, analyse, improve, review, educate. Many of these verbs highlight that there is still extensive research to be conducted to identify the specific areas that require priority management. These verbs then generally lead into a general statement that offers little if any guidance on the actual practical steps that a land holder/farmer might want or need to put into place to actually manage the issue in question. Examples include:

²⁷ Catchment plan is used as a generic term to include the previous ‘catchment blueprint’ in New South Wales, as well as the various natural resource management plans in Queensland.

- Collate and map resource inventories and information
- Collate information on existing BMP's and identify gaps
- Provide incentives for adoption of BMP's for all land management
- Educate land and resource managers so they can appropriately identify and manage their natural resources
- Provide grants to resource managers
- Adopt and implement BMP's
- Develop an awareness and education program to highlight the benefits of...
- Promote the use of BMP's to manage salinity
- Provide extension advice for delivery of BMP's
- Develop minimum performance standards to minimise salinity risks from irrigation
- Develop and support the adoption of BMP irrigation practices.

This makes it difficult to translate these broad 'requirements' to the specific actions required of a farmer on their property.

7. There are a number of apparent inconsistencies in fundamental aspects of the catchment plans, in particular the attitude to environmental management systems and accreditation:

EMS

Of the 9 plans reviewed, 4 referred specifically to EMS's within the context of the requirements of landholders: the Namoi, Gwydir (identical), Murrumbidgee and Western plans. The Gwydir and Namoi plans contain quite strong recommendations:

"This target would also incorporate land managers implementing an EMS (such as ISO 14001). It is hoped that integrated property management plans will able to be accredited in the near future"

By comparison, the Western and Murrumbidgee statements on EMS are general:

"Explore the potential for EMS to deliver improved natural resource outcomes and provide market advantages" (Western catchment).

Accreditation

As with EMS, accreditation is referred to in a number of the plans: Border Rivers, Central West, Gwydir, Namoi and Lower Murray Darling.

These references also range from the reasonably general:

"Encourage adoption of sustainable industry accreditation and environmental management standards" (Lower Murray Darling)

to the very formal:

"Accreditation of property plans will be essential for accountability requirements for implementing not only this blueprint but regional vegetation management plans, water sharing plans and credit trading schemes" (Gwydir)

Not surprisingly, little analysis and consideration of the implications of implementing such a scheme are included in the plan itself, with the issue being listed as priority number 15 (out of 40 priority actions), viz:

"Develop options for the introduction of... accreditation of property management plans for landholders that implement management actions in this blueprint"

Given the extensive policy, legislative and resource issues associated with any move towards such a formal property-scale planning process, it is surprising that a more coordinated approach was not taken.

8. A further inconsistency, though perhaps not as vital, is the manner in which actions are linked to higher-level catchment targets. A number of plans list a number of targets against a specific issue (eg salinity, biodiversity), while others aggregate the issues under a single action or target (in order to minimise repetition of similar or identical actions under different issue headings).

The issue of how to 'translate' or 'link' farm scale activities to catchment scale outcomes (and the associated monitoring and reporting requirements) remains a vexed one. It is likely that this issue will only be solved via incremental improvements in farm management practices, and the passing of sufficient time to allow the impact of changed farming practices to become apparent. Hence the need for

- A strong partnership between the institutions currently primarily responsible for these two scales: catchment authorities and industry.
- Good baseline information on a set of agreed indicators from which to measure the impact of changed farming practices

9. Pleasingly, many of the issues noted during the original review appear to have been addressed in the recently published Namoi CAP. Whilst it is still a complex plan, it has some significant improvements from the previous Blueprint:

- Specific reference to the role of industry: *"A key feature of the Namoi CAP is working with industry, ... (and) research organisations"*
- Furthermore, while the specific on-ground actions required or expected of farmers is still not detailed, the distinction between CMA responsibility and farmer responsibility is better made, such that the CAP focuses on the areas that the CMA needs to work on to identify those specific on-ground actions: *"... the Catchment Targets and Management Targets will require benchmarks to be established before [emphasis added] quantitative targets can be set"*. The specific on-ground activities required (both the actual practice(s) and priority locations for implementation) will then be far easier to identify once this level of detail is applied to the targets. And the role of industry is specifically noted. Thus, for the broad target of improving soil condition, the CMA Management Action is *"to developing and/or extending BMP in partnership with industry"*; and *"assisting the adoption of industry based BMP through technical support and incentives"*.
- A particular reference to the efforts of the cotton industry with its BMP Program highlight the critical role the CMA sees industry as having
- Dropping of the focus on EMS, and the adoption of a broader definition of EMS that includes industry programs such as cotton BMP
- Explicit linking of catchment targets and issues to both Natural Resource Commission targets and national matters (sic)
- The explicit statement that *"Resource Condition Monitoring can be costly and is the responsibility of State agencies"* is to be welcomed (noting of course that there is still plenty of water to flow down plenty of catchments on this issue: *"The outcomes of negotiations at State level regarding the monitoring to be undertaken for State-wide targets will determine what further monitoring programs need to be put into place at regional and local level"*).

Although the Namoi CAP represents a welcome and significant improvement over the previous incarnation of the catchment blueprint, the issue of consistency between CAP's remains i.e. will the role of the cotton industry's BMP Program across all the catchments mirror those of the Namoi? Or will it be up to the individual CMA's to make that determination? Obviously from a resourcing and managing multiple stakeholders perspective, a common position vis-à-vis industry programs — that is, a consistently-framed recognition of their potential role and value — would be extremely beneficial given the workload that will fall on industry in engaging with 11 different organisations.

In the meantime, it is the position of the cotton industry that there is sufficient knowledge on a number of current best practices, and a corresponding level of potential on-farm improvement for

these practices, for the industry to continue to concentrate on improving the adoption and implementation of known best practices while further work is conducted on the best way of establishing links between the farm and catchment.

Linkages with the Queensland catchments²⁸ are being developed through a Cotton Australia initiative²⁹ that is in effect a relationship-building exercise focussed at the field level. It will entail a series of meetings between Cotton Australia staff and regional catchment staff that will be asking questions such as:

“What do you want from the BMP Program?”

“What should we be measuring?”

“What interaction should there be between industry programs and catchment plans?”

One aim of the meetings is to provide a greater understanding of the industry’s BMP Program to field staff, so that (hopefully!) the differing priorities that catchments have can be brought closer together, for example through providing a more realistic assessment to them as to what an industry can or cannot do (or should or shouldn’t do). One issue that it is important to highlight to catchments is that industries should **not** be responsible for catchment wide monitoring. Rather, the role of industry is developing appropriate farm-level indicators in consultation and collaboration with the catchment authority that can then ‘feed up’ to the catchment-level monitoring required of the catchment plan and authority. Of course, for these indicators to be of the most use to the catchment authority they need to be consistent³⁰ for all cropping systems within the catchment, hence the proposal by the cotton industry to work on developing environmental performance indicators that can be used across commodity groups.

It was also established that there are no glaring gaps between the requirements of the catchment blueprints/NRM plans and the current BMP Manual, so that a cotton farmer implementing the entire BMP Manual will be very likely complying with their catchment requirements (to the extent that they can be ascertained at a farm level!). In any event, the proposed and actual collaboration between the catchments and the cotton industry will help to identify any gaps should they emerge, eg. as a result of a cotton growing sub-catchment or region being identified as an area of risk requiring certain specific actions.

Adoption

The development of a brand for Australian cotton is more likely to address the broader issue of the marketability of Australian cotton. While this will affect the overall profitability of cotton farmers, it is less likely to result in specific premiums to individual farmers on a broad scale that can be attributed to the adoption of better natural resource management practices. The focus of future industry efforts therefore should be on better identifying the production benefits; this is discussed in more detail below.

Project management

Any future project cutting across multiple industry organisations could benefit from a steering committee that could act as a point of initial discussion and debate so that direction-setting for the work is fully informed through the involvement and input of the multiple sectors with an interest.

While contractors have been used to good effect for specific aspects of the Project — the bale covering work, and the ginning preparations for example, it is suggested that given the issue of increasing industry segmentation (see figures 3 and 4), then an appropriate industry organisation should employ any project officer if the work is longer than a year (given the practical considerations of short-term contracts). Such a structure would likely be better placed to deal with the issues of:

²⁸ Condamine Alliance, Fitzroy Basin Association and Queensland Murray Darling Committee

²⁹ This is independent of the project recently submitted to the EMS Pathways to Sustainable Agriculture: Industry Leadership, “Cotton, grains and beef: one farm, multiple enterprises, common indicators”

³⁰ Both in what is being measured and/or monitored, and how it is measured and/or monitored

- the cross-cutting nature of the work (across industry organisations);
- the need for institutional support to act on recommendations from the project; and
- the need to create closer link between learnings as they are being gathered and the development of industry strategies.

At the outset of the Project a close working relationship was developed and enjoyed with DAFF. However, due to both the degree of turnover in responsible staff and the decision to employ an intermediary to oversee the day-to-day management of the project, this working relationship with DAFF was weakened.

Other lessons and considerations

Consumers

One of the fundamental challenges in developing a market for 'sustainable' cotton is that there is no direct benefit (or value) to the consumer (and in this aspect there is at least a connexion with the cotton grower, who equally does not gain any market value from the implementation of sustainable farming practices). And before assuming that the increased importance being attached to sustainably produced food will be reflected in time, or in the same way, in the market place for fibre-based products it is important to highlight the differences between food and fibre:

- For the consumer, when cotton is compared with food, cotton has a greater distance between the primary product - raw cotton - and the final product, say jeans. This makes it more difficult for the consumer to relate to or be interested in the means of production of the raw material
- For clothing, the consumer faces a myriad of factors to consider when making a purchasing decision - brand, colour, style, size, type of cotton, price. Any considerations about sustainability are therefore competing for attention with many more factors than is the case for food
- Probably most importantly there is no selfish motivator! Sustainable cotton has no direct health benefit for the consumer, as is the case claimed for sustainable (especially organic) food.

Hence the marketing relies on appealing to indirect concerns of the consumers, which is made more difficult as a lack of interest quickly translates into an unwillingness to pay anything extra (and thus a very small market). The experiences of the Project are similar to those outlined by Pahl (2007):

"... [such supply chains entail] significant costs combined with few private benefits The main reason for the lack of benefits is that the end user (the consumer) does not value environmental assurance and is not willing to pay for it. For this reason, the global food and fibre supply chains, which compete to supply consumers with safe and quality food at the lowest price, resist public pressure to implement environmental assurance"

With perhaps the comment that rather than actively resisting public pressure, textile supply chain participants more adopt the attitude that the pressure is so small as to not warrant the additional effort and investment required to mount resistance.

Ultimately, the majority of consumers will make purchasing decisions based on the private benefits derived rather than on any general sense of 'environmentally responsible purchasing'³¹. Sustainability to date has only ever been a secondary driver for consumers; again as Pahl (2007) notes:

"Environmental considerations remain the primary motivator for only small groups of highly committed consumers"

³¹ Research by Cotton Incorporated on consumer attitudes to the influence of environmental considerations on garment purchasing decisions indicate that only 16 % of those surveyed considered environmental aspects to be a relevant consideration

Marketing Angles and Europe versus Japan

An interesting contrast is provided by looking at the 2 different destinations of trial shipments of BMP cotton made during the course of the Project — Japan and England.

As highlighted by the case study, the Japanese department store clearly saw the ‘Australian’ angle as an important part of its promotion and hence specified that the Australian origin of the cotton was important.

The efforts to ship cotton to Marks & Spencer were initially based on the desire to work on the issue of sustainable cotton, generally due to their desire to be seen as a socially responsible corporate citizen but with a previous poor experience with organic causing them to consider alternatives:

- Both shipments came about as a result of general promotion of the good environmental credentials of the Australian industry established by the BMP Program
- The shipment to England did not end up in any branded or labelled product line, as there was no ‘angle’ offered by Australian BMP cotton for their marketing (as evidenced by the subsequent switch to focussing on organic and Fair Trade cotton)
- One of the shipments to Japan did end up in a branding campaign; while the environmental aspect was included, ultimately it was the general “Made in Australia’ albeit with clean & green attributes also focussed upon in the campaign
- Even if ‘BMP’ or sustainable cotton is required by M&S, rather than specify a particular origin or growth of cotton – such as Australia – they are more likely to specify that they require ‘BMP’ i.e. cotton of a particular quality or type, but not specify where it has to come from.

Organic as a proxy for sustainability

Organic cotton is the favoured eco-label as ‘organic’ is a well-established and well-understood brand in its own right that does not require any detailed communication campaign to explain to consumers what the brand means (which largely explains its appeal). Any alternative to organic, for example a putative ‘BMP’ brand, would require some additional marketing to explain to consumers what the brand actually meant. Given that consumers apparently spend less than a few seconds deciding whether to look at a garment, the brand owners favour readily understood, simple messages, and would likely be reluctant to expend time and energy on a campaign to try and explain the benefits of a ‘BMP’ cotton, **especially** as highlighted above, environmental issues are, for the majority of consumers³² at best a secondary consideration when making a purchasing decision.

Retailers and NGO’s

It is clear that retailers do not want to become environmental experts, and therefore will rely upon NGO’s to determine the appropriate level of environmental assurance for a given issue (this is also why organic so popular – no so much thought required!). Of particular concern is that a Cotton Incorporated survey on consumer attitudes about the environmental impacts of cotton clothing highlighted that some 66 % of respondents indicated that the retail environment was their primary source of information about those impacts. In other words, marketers, whether informed or misinformed by NGO’s, are in effect the gatekeepers for the information that influences a significant majority of consumers as to the sustainability profile of cotton farming.

Drivers for retailers

There are two main reasons why global brands in particular are interested in sustainable cotton. The first is **supply chain security** – they have a vested interest in ensuring that production of one of the major raw materials in their supply chain is not put at risk, for example, through reduced yields, reduced production because of increased regulations and or restrictions, or reduced access to water.

³² Survey results were quoted at the workshop that while 30% of consumers claim that they are willing to (i.e. in theory) to pay more for sustainable products, only 3% actually “translate this willingness into actual purchases”.

The second driver is managing their **reputational risks** - and protecting the value of their brand, which can represent over half the value of a company's balance sheet. A tarnished reputation can lead to loss of brand (and balance sheet) value, a fall in share price, customer boycotts and dissatisfied employees. And that value can be diminished quickly: Nike reportedly lost over one billion dollars US from its balance sheet when the sweatshop conditions of workers producing its shoes was exposed. It is no coincidence therefore that of the 6 specialist cotton clothing/retail companies in the top 100 global brands by value, three are directly involved in the Better Cotton Initiative, and one is looking to become involved.

As these retailers are not experts on the sustainability of cotton production, they have tended to look to external parties and/or systems to define sustainability — again, organic production is a good example of this. More recently however, some retailers, lacking confidence in the ability of organic cotton to supply large volumes of cotton, have sought to become involved in the development of standards that would define sustainable cotton production — i.e. Better Cotton Initiative. The Australian industry, as the only national cotton industry to have defined best management practices for sustainable cotton production, is well placed to meet the requirements of, and therefore be able to supply, any demand for this style of cotton when it eventuates.

Brand development

If we consider a brand to be a promise, then we need to have the ability to deliver on that promise. One of the challenges therefore is whether and how to combine the two means of differentiation, environment and quality. These are challenges first because the two aspects have different target audiences. For the spinner, the direct customers of Australian cotton, quality is the fundamental consideration (or promise) they are interested in. They will only be interested in the sustainability of the method of production if **their** customers are interested in it, and require it. The customers who are ultimately responsible for that interest are much further down the supply chain – the brand owners and retailers of cotton clothing — and they generally do not have a direct connexion back to the spinner, and nor are they generally interested in adding that further complexity to their business. It is obviously critical to understand the needs of these two groups of customers when designing a brand, and the systems that underpin the brand promise.

Second, branding them is a challenge as neither environmental management processes nor fibre quality management practices are directly measurable characteristics of the product being sold. Environmental branding is the branding of the environmental management production practices, something that is impossible to measure by reference to the finished product. Branding the fibre quality management practices — whilst they will hopefully lead to improved fibre quality and an enhanced reputation — is of course no guarantee of say contamination free cotton.

As both are process-based product characteristics, they (especially the environmental branding) will require systems to ensure that the piece of cotton being traded was actually produced as claimed. That is, a tracking and verification system is required. The challenge is to do this in a way that does not add cost, but still prevents any of the multitude of supply chain participants from substituting other growths to take advantage of any demand.

Brand Focus

Any branding campaign should be based on a 'master brand' focussing on Australian cotton eg. "Naturally Better" with any 'green' labelling a subset of the master brand. This approach is recommended as the balance between recognising that the Australian cotton is the 'greenest' available, but not promoting it as so green as to risk a backlash from critics of cotton.

The branding strategy should focus on 'business to business' (B2B) relationships rather than business to consumer due to:

- the additional resources required for a consumer marketing campaign
- the nature of the supply chain, and the strength (or otherwise) of the influence wielded by the various stages (i.e. unlikely to be able to influence consumer demand to such an extent that mills' buying requirements will change).

A B2B approach is a long-term strategy, and can be expanded to a B2C approach overtime, especially as the ability to claim the 'green' ground improves.

Verification

BMP cotton requires a verification system such that Australian BMP cotton can be identified through the supply chain to minimise the chance of other cotton being passed off as Australian BMP cotton.

Evidence to support continued and growing interest in sustainable cotton

At the commencement of this project, the sustainability of cotton – as something of interest and relevance to the consumer (or the marketing department of retailers) – was being discussed by both NGO's and retailers. Thus, in 2004 WWF was able to organise a 2-day meeting that was attended by representatives from a range of small and large clothing retailers. Over the 3 years of the Project, this down-stream interest in sustainability did not diminish. For example:

- Better Cotton Initiative is now established as an on-going initiative with a full-time staff member
- Marks and Spencer announced their 'Plan A', which is a 100 point plan for M&S improving the sustainability profile of their entire supply chain; it includes therefore items sections on reducing the impact of natural fibres, and a goal of developing a long-term strategy to ensure that all their cotton comes from sustainable sources
- Wal-Mart have developed a sustainable textiles network, and have launched a 5 point sustainability program that is likely in time to focus on the environmental aspects of cotton production, given one of their aims is to "sell products that sustain our resources and environment"
- Tesco's has announced plans to place a carbon rating on every product they sell
- A new trade magazine. Eco-textile news was launched in 2006
- A textile-focussed Industry association, The RITE Group, has been established, with the aim of providing advice and fact based information to minimise the negative environmental impact of the production, use and disposal of textiles and apparel. The Group's ultimate goal is to "drive forward the sustainable and ethical production of textiles and clothing throughout the global supply chain through a number of innovative initiatives".
- Although not cotton-specific, still a sign of the times is Unilever's announcement that they would seek to source 100% of their tea from ethical sustainable sources – representing some 12 % of the world's demand for tea.

Evidence to support it will remain a niche market

- Wal-Mart burst onto the organic market in 2005/06, and within 12 months became the single largest purchaser of organic cotton; and at the 2006 ICAC Plenary meeting, a consultant employed by Wal-Mart highlighted the plans to go beyond organic production and develop a 'sustainable textile network'; these efforts have seemingly stalled as the philosophy of "earth friendly products won't save the earth if they don't save people money" starts to take hold
- How concerned (or aware) is the consumer on issues that do not affect them directly? That Time Magazine can refer to "100 % organic cotton sheared from sheep" suggests that the level of knowledge about on-farm issues is still rather low. Farm-production issues that do not affect a consumer are therefore even less likely to figure prominently in the purchasing decision – if the purchaser has no basic understanding, they are unlikely to see a problem and if there is no problem then it is hardly likely they will pay a premium to solve it!
- Farm-issues are a secondary issues to other concerns, especially when compared to food safety. Unpublished survey work³³ conducted highlighted that the response to the question "why did you purchase that organic food product" was fundamentally affected by the preliminary introduction to the survey: when the survey was conducted merely as a series of straight question, the answers invariably revolved around food safety and health; when the surveyor introduced themselves as a farmer however, farm sustainability concerns became far more likely to be noted as one of the purported purchase rationales.

³³ M Logan, pers comm.

- Costs are increased if supply chain segregation is required; increased costs need to bring about an increased benefit.

Where is the value?

The Project came up against a quandary: while most shippers agreed that there could be benefits if the Australian crop was subject to BMP processes and protocols and it was marketed as such, it was difficult to substantiate a tangible commercial benefit. In other words, they could not identify a strong enough connexion between investing in the necessary processes and protocols, and a return on that investment. As such, there is unlikely to be a willingness (particularly in the prevailing industry circumstances) to invest in either any significant adjustments to existing arrangements (eg. chain-of-custody requirements) nor in an industry-focussed marketing campaign based on an industry brand.

There is little value for a consumer in making a purchasing decision based on a connexion between the cotton garment and the sustainability of the production system that produced the raw materials. Cotton does not have the same consumer link to safety that food has that would drive consumer concern and therefore purchasing habits.

Ultimately, it is suggested that the potential offered by a brand based on superior fibre qualities that can offer a direct and specific value to the direct customer of Australian cotton – the spinner, for example as a substitute for higher-priced Pima - overwhelms the current potential offered by an environmental brand. Fortunately, a niche environmental market is likely to match closely the market for high-quality cotton clothing, the market that would be targeted by spinners using Australian cotton with superior characteristics. The issue then is whether an environmental or BMP condition is added to any brand developed for this superior quality cotton. As this is a decision solely for the effective owners of the varieties with these characteristics it is only raised here as a suggestion for consideration.

Opportunities to brand Australian cotton do exist. On the environmental front the current presence of campaigns in Japanese Department stores focusing on both the Australian and environmental characteristics of the cotton evidences this, and the involvement of large retailers in the Better Cotton Initiative points to a potential future demand for sustainable cotton. On the fibre quality front the combination of the existing (albeit informal) brand and the ever-tightening specifications being required by spinners, provides both the platform and need to formalise the existing good practices that are helping the industry to deliver on its brand promise. The challenge however is to be realistic about what such a brand may deliver — further consolidation of Australia's position as a reliable supplier of high-quality, sustainably produced cotton. The alternative is to surrender that position to our competition.

5. EMS in Agriculture

Potential value

Provided EMS continues to be defined broadly — so as to include the various industry programs for example — and not narrowly whereby only an ISO 14001 style program would qualify, then there is considerable potential for EMS. It is after all simply another way of referring to good and responsible management that takes into account both production and environmental considerations.

Ultimately EMS should be a very generic term that covers a wide range of approaches that seek to improve the profitability and sustainability of Australian farmers – and if that is the case then there is obvious value in 'EMS'. Additionally, if such a broad meaning for EMS comes about, then there will not be any alternative against which it is competing.

Constraints

It is critical to remember that EMS is only a tool, and not an ideology.

Unfortunately EMS is often seen as a pejorative term – due to its association with the very formal ISO 14001 standard (hence the need to define it broadly), that competes with a range of other

terms for attention — best (and better) management practices, good agricultural practices, sustainable agricultural practices, farming for the future etc. And there is still a long way to go in selling to farmers the benefits of good management process that do not necessarily have a direct connexion to on-farm outcomes and benefits.

Irrespective of the tool or its name, there is a critical need to better make the connexion between natural resource management benefits and production benefits, and funding any extension activities required to fill any gap in adoption. And it could be argued that the name 'EMS' militates against making this connexion, as it reinforces the concept of separating environmental and production issues.

For an industry working in a range of catchments, it is important that each CMA has a common understanding as to what is meant and covered by the term 'EMS' to ensure that they use it appropriately in their own planning documents, and that they are talking about the same thing as industry, so that there is not a mis-match in expectations as to what industry might deliver via their 'EMS'.

Advantages and disadvantages of industry led EMS

Advantages

In an era of declining provision of extension services, industry is well-placed to support farmers with support staff on a one on one basis. And one-on-one contact is essential for at least two reasons:

- NRM considerations will generally be placed on a lower priority than production and economic issues, and therefore need regular face-to-face contact to keep them 'on the radar', and to better make the connexion on practices that have both environmental and production outcomes.
- The 'uniqueness' of each farming operation with regards to the NRM issues it faces, its location and management structure etc. may require that the advice contained in the guidance material available to be tailored and / or interpreted

An industry-led program that pays proper attention to the challenges facing it is going to have a number of distinct advantages:

- It will focus on production efficiencies as well as environmental issues, and thereby enhance adoption
- It will be flexible and more credible than any centrally imposed system, and therefore more likely to be accepted and adopted

It will be a politically powerful means of demonstrating genuine commitment to responsible natural resource management. The alternative to an industry-led EMS is of course a consumer-activist led, or more likely a legislative-led approach based on consumer-activism.

Such an approach will more than likely:

- Be comprehensive, i.e. is overwhelming, as it tries to cover every environmental issue
- Be externally audited, i.e. is expensive
- Lack the ability to be site-specific, i.e. is inflexible

There has already been significant investment by industry in EMS, and therefore a good degree of ownership amongst industry members has also been developed; if industry does not continue to co-lead, then this investment will be potentially wasted. Neither are farmers likely to be sympathetic to changing horses mid-race, so a move away from an industry leadership role could actually damage future efforts.

An industry program will generally have more internal credibility than an externally developed or imposed program and hence have a greater chance of success; this will also be due to the likelihood that an industry program, as it will be shaped by industry-minded people, will endeavour to be simple, low cost, and look to address priority issues first as a means of making it manageable.

Disadvantages

Many of the above advantages of course could also be perceived as disadvantages, depending upon your point of view. An industry program that does not sufficiently address external perspectives and concerns will lack external credibility if it is seen to be ‘watering down’ standards. They may also not address what some perceive to be the pressing needs facing either agriculture in general, or the cotton industry specifically.

As industry programs are dependent upon significant support from industry organisations and therefore farmer funds, they may suffer from a lack of access to long-term funding, and are vulnerable to production downturns: both in a reduction in total levies available for collection, as levies are generally based on an amount per production unit, and also in participation, as many industry organisations rely on voluntary funds and are therefore subject farmers coping with the downturn by cutting back on discretionary spending, such as voluntary levies.

Finally, one criticism often levelled against an industry-lead approach is that it may do a good job on the *how* of farming in an environmentally responsible manner, but not the *whether* of farming should even be taking place, for example in a particular setting. It is an open question however as to whether this is properly an issue for regulators rather than industry.

6. Recommendations

“I have but one lamp by which my feet are guided, and that is the lamp of experience. I know no way of judging of the future but by the past”

Edward Gibbon, Author of The Decline and Fall of the Roman Empire

“Change is the law of life. And those who look only to the past or present are certain to miss the future”

John F Kennedy, 35th President of the United States of America

“Prediction is very difficult, especially of the future”

Niels Bohr, Nobel Prize winning physicist

Introduction

It is of course axiomatic that we cannot predict the future. So we are not in a position to answer the question “will there ever be a genuine and sustainable demand for sustainable cotton that rewards those cotton growers who produce it” and thus suggest the appropriate level of investment (if any) in developing a sustainability brand for Australian cotton that could help drive on-farm adoption of better natural resource management practices. There is evidence that can be adduced to support both the realist’s view (Gibbon), or the optimist’s (Kennedy).

For the purpose of making recommendations as to where to best invest the industry’s limited resources, it is however possible to lay out the evidence for 2 possible futures: one in which there is a genuine, large scale market for ‘sustainable cotton (however defined) that provides a reward and an incentive for cotton farmers who ‘do the right thing’, or one that is basically unchanged i.e., sustainable products are no more than a niche market that pale into insignificance against the size of the commodity market in question. From this evidence an assessment of the risk:reward can be made.

The dilemma faced by any broad-scale environmental marketing campaign or brand is that while a clear message is being sent by governments and consumers that their expectations as to how farmers care for the natural resources under their stewardship — through more efficient water use, through reduced and/or more efficient chemical and fertilizer use, through reduced noise, odours and greenhouse gas emissions, and reduced off-farm pollution — consumers and world commodity markets are not prepared to pay more to cover the costs of adopting of these practices, many of which have no direct benefit to the farmer who thus has little incentive to adopt them.

Industry workshop to discuss initial recommendations

An industry workshop was held on 29 May 2007 to provide opportunity for industry feedback on the draft recommendations. The workshop addressed participants on the following aspects of the Project:

- An overview of the entire project by the project officer, listing some of the findings of the Project, and highlighting the draft recommendations
- Presentations by representatives from each of the sectors involved in the Project:
 - Cotton classers
 - Cotton ginners
 - Cotton shippers
 - Cotton harvesters
 - CSIRO Textile and Fibre Technology

Following the presentations a facilitated 'hypothetical style discussion was conducted. While no formal vote or poll was taken to reach an agreed position on any of the matters discussed during the workshop, the recommendations have been amended to reflect workshop discussions.

Recommendations

There are connexions worth investing in:

1. The connexion established with the Japanese, and the connexion between the BMP Program and marketing of it. It is therefore recommended:

That the cotton industry develops an agreed set of 'BMP' information that any organization involved in selling cotton that is to be utilised in an environmental campaign agrees to use

As shown by the case study with Izumiya, opportunities do exist, albeit in low volumes, meaning that the benefits currently available will not spread very widely across the industry. Thus the emphasis should be on supporting those individual companies that see a market with:

- industry – level information, so as to avoid competing companies in market place making contradictory claims and jeopardising entire the campaign and even reputation of industry

2. The connexion between a spinner's requirements and Australian cotton, and fibre quality and environment. It is therefore recommended:

That the industry formally discusses whether there is an opportunity to develop a brand based on fibre-quality parameters, and whether this could or should be linked to adoption of fibre quality and/or environmental BMP's

This focus is being suggested given that the value and marketability of a brand based on the very characteristics that determines the value of the cotton will far outweigh the current value of an environmentally-focused brand).

3. The connexion between production practices and environmental outcomes. It is therefore recommended:

That the focus of future project activity should be on:

- a) **developing an agreed set of indicators for the environmental performance of cotton farms; and**
- b) **better identifying both the practices that are relevant to improving or sustaining those indicators, and the specific benefits that accrue to the farm and/or the environment from the adoption of those practices**

Catchment targets must be translated to expected farm outcomes — expectations as to both resource condition and practice adoption — so that farmers have tangible tasks and benchmarks to achieve. The indicators chosen to measure progress towards catchment targets are an integral part of this translation, as they will provide the most link back to the expectations held of the farmer. The form of the indicator, the scale at which it is measured and responsibility for measuring all need to be ascertained in order that the translation is meaningful and understandable.

Any focus on indicators and their related BMP's needs to be combined with identifying the benefits anticipated as a result of the adoption of the BMP(s) in question. Such a focus will help ensure that incentives and priorities can be best matched.

The challenge therefore is distinguishing clearly between the two; the emphasis needs to be on identifying those practices that both have a private and public benefit, and as clearly as possible demonstrating both value propositions. Once this has been achieved, it is anticipated that one can then better identify those areas that don't have a private benefit, and target these for incentives³⁴; these should allow for appropriate extension and investment strategies to be developed for each of these types of outcomes sought as well.

In the same way that consumers will value private benefits over public, so too will farmers. Or, as stated by Ridley (2007):

“For EMS in Australia to become a mainstream farm business management activity there needs to be sufficient private good outcomes for land managers to adopt them and sufficient public good outcomes for public money to be invested in their implementation, As there are few market drivers at present, extension and incentives are likely to be needed to facilitate their uptake”

4. The connexion between catchment authorities and their requirement and industry programs (If industry is to develop a set of indicators, they need to be accepted across all catchments in which the industry is operating). It is therefore recommended:

That in order to support the above effort, the relevant governmental organisations provide the means for streamlining how industry can interact with catchment management authorities

The focus for developing 'local' natural resource management plans, strategies and priorities is the catchment management authority (CMA). Industry, as the representative of farmers in a catchment, and as a potential provider of appropriate tools that can assist a CMA address its priority issues and to achieve its targets (such as the BMP Program, implementation staff, relevant research) also has a critical and essential role in natural resource management, and it is of course incumbent upon industry to take into account the priorities and targets of the catchment plans applying to cotton farms. The task for industry though is that, in the case of cotton, this requires that up to 12 different CMA's, across 2 jurisdictions, be engaged with³⁵. While it is accepted that is a necessary task that cannot be circumvented, it is not so easily accepted that CMA's that operate within the same jurisdiction should have totally different processes. For example:

- There are challenges in translating the catchment plans (blueprints) into on-farm actions
- There are differing approaches taken the 'form' of the catchment plan; and each group has different priorities, planning mechanisms and modes of action when it comes to delivering regional NRM outcomes.
- There is a wide range of priorities between CMA's as to their expectations about what an industry program can or should deliver
- There is a wide range of methods for achieving their priorities

³⁴ In other words, seek to redress the fact that the environmental externalities of agricultural production are not recoverable in the current market place.

³⁵ Central Highlands, Fitzroy (Dawson-Callide, Theodore), Condamine-Balonne, Queensland Murray Darling, NSW Border Rivers, Gwydir, Namoi, Western, Central West, Lachlan, Lower Murray Darling, Murrumbidgee

- There is a wide range of means for achieving their catchment plans
- While some groups are supportive of BMP, others refuse to recognise that BMP is delivering NRM outcomes
- Some groups believe that BMP is delivering practice change but not in the geographic areas that are of a priority to them at the moment
- Some groups want to see the environmental performance monitoring information regarding BMP adoption before having confidence in supporting the adoption or recognising growers who are certified

Furthermore, any set of indicators used by the industry needs to be accepted across all the catchments; not only would this streamline the industry's work in this area, it would assist in ensuring that information collected could be aggregated to provide meaningful data as it would help ensure consistency in the type and form of data being collected so that it is comparable. While it is natural and expected that there will be some diversity between CMA's, the current level of diversity is making a difficult task for industry virtually impossible. For example, in Queensland, each 'CMA' is currently expected to be reviewing its catchment plan. However, not only is each CMA at a different stage of review (even though they are supposed to under the one timetable), they are undertaking the review in markedly different processes, with differing endpoints³⁶. Such a range of varied approaches and processes makes industry involvement more difficult, as each engagement requires an individualised and detailed understanding of the workings and attitudes of the CMA in question. No efficiency, through having a common set of processes and understandings, is possible.

It would therefore be beneficial to industry if – given it is faced with the task of dealing with multiple CMA's — a more formalised role for industry programs could be instituted, including a more formalised approach to how industry is engaged with by CMA's. Formalisation would lead to greater consistency in dealings with CMA's, making those dealings more efficient, and better enabling industry to devote time and resources to helping CMA's meet their catchment targets.

A more formal relationship (especially if it developed into formal recognition) could offer a number of advantages:

- demonstrating the industry's commitment to accepting responsibility for managing its natural resource base
- providing an alternative, more flexible (better?) means for cotton growers to comply with their regulatory requirements
- maintaining a degree of control or at least involvement in the details of how farmers are expected to manage their natural resources
- minimising the risk of duplication, and the attendant risk of reduced adoption of the BMP Manual
- developing better working relationships with the relevant regulatory authorities

Such a relationship would provide the mechanism for formal partnerships to be developed with the various catchment authorities. While a formal framework or mechanism is not a prerequisite to developing good working relationships or informal partnerships with the catchment authorities, it would (especially in light of the number of partnerships potentially involved) help minimise the costs involved to the industry, and streamline the process considerably.

Such a formal partnership could:

- involve a formal steering group/committee charged with managing the agreed roles and responsibilities
- help formally define the roles and responsibilities of the catchment and industry

³⁶ For example, one CMA is undertaking a complete review of its entire plan – everything is on the table – while another CMA is not going to commence its review unless and until it receives secured funding to implement it.

- help ensure close collaboration on the development of appropriate and standardised BMP's (and perhaps catchment targets)
 - help develop appropriate reporting linkages between the farm scale and catchment scale
 - provide for incentives for involvement in the BMP Program, eg. a reduction or waiving of catchment levies.
5. The connexion between industry's ability to continue to play a leading role in promoting the adoption of sustainable natural resource management practices and funding. It is therefore recommended:

That in order to support industry's continued delivery of BMP adoption, greater and longer-term funding certainty is required.

7. Bibliography

- Access Economics Pty Ltd and Maunsell Australia Pty Ltd, "*Evaluating Logistics Chain Technology – Australian Farmgate to Port*", A report for the Rural Industries Research & development Corporation, Publication number 04/188 (2004)
- Acona Limited, "*Buying your way into trouble? The challenge of responsible supply chain management*", Report for Insight Investment (2004)
- Allwood J, Laursen S, de Rodriguez C & Bocken N, "*Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom*", University of Cambridge Institute for Manufacturing, Cambridge (2006)
- Andrew M, Jarvis T, Howard B, Mcleod G, Robinson S, Standen R, Toohey D & Williams A "*The Environmental Stewardship System (ESS): a generic system for assessing rural environmental performance*" AJEA Vol.47, issue 3, 2007, pp. 245-259
- Australian Academy of Science and CSIRO, "*Abstracts, Integrating Agricultural and Environmental Imperatives for a Profitable and Sustainable Future*", Fenner Conference on the Environment, 8-9 November 2006
- Australian Farm Institute, "*environmental management systems – is there value in the cost?*" Farm Policy Journal Vol. 3, No.4, November Quarter (2006)
- Baffes J "*Cotton Market Setting, Trade Policies, and Issues*", World Bank Policy Research Working Paper 3218, World Bank, February 2004
- Cary J, Bhaskaran S & Polonsky M "*Green Marketing and EMS: Assessing potential consumer influence on EMS development in fresh food chains*" Rural Industries Research & Development Corporation Publication number 04/175 (2004), quoting Polonsky, "*Green Marketing*" in "*Sustainable Solutions and Eco-products and Services*", Charter, M. and Tischner, U. (Eds), Sheffield, UK, Greenleaf Publishing
- Cary J, Bhaskaran S & Polonsky, M "*Green Marketing and EMS: Assessing potential consumer influence on EMS development in fresh food chains*" Rural Industries Research & Development Corporation Publication number 04/175 (2004)
- Consumer's International Office for Developed and Transitional Economies, "*Green Food Claims*", Consumer's International (2004)
- De Man R "*Promoting Sustainable Cotton from West Africa — The business case for private sector involvement*", Report to UNEP/FAO (undated, c. 2005)
- GHD "*Second Australian Cotton Industry Environmental Audit*", GHD Pty Ltd, August 2003
- Gunningham N, "*Cotton, Health and Environment: A Case Study of Self-Regulation*", The Australasian Journal of Natural Resources Law and Policy [Vol. 9, No.2, 2004]
- Gunningham N., and Sinclair D "*Environmental Partnerships: Combining sustainability and commercial advantage in the agriculture sector*", Rural Industries Research and Development Corporation, publication number 02/004, Canberra (2004)
- Heinze K E, "*Credible 'Clean and Green': Investigation of the international framework and critical design features of a credible EMS for Australian agriculture*", CSIRO Land & Water, February 2000
- Hassall and Associates "*Evaluation of the Australian Cotton Industry's BMP Process*", A report prepared for the Cotton Research and Development Corporation, February 2006
- Holloway R and Roth G, "*Grower feedback on Cotton BMP Auditing*", The Australian Cotton Grower Magazine, March 2003, pp. 20-22
- Institute for Agriculture and Trade, "*Marketing Sustainable Agriculture: Case Studies and Analysis from Europe*", IATP (1998)
- Ind N (editor) "*Beyond branding – how the new values of transparency and integrity are changing the world of brands*", Kogan Page (2003)
- Brigalow Directions and Brand Navigation "*An exploratory investigation into current grower attitudes towards cotton bmp*", A report prepared for CRDC (May 2007)
- Kurt Salmon and Associates, "*Visions and Perspectives of Consumer Behavior and Trends in Clothing*" International Wool Textile Organisation, June 2004

- Macarthur & Associates “*A Review of the BMP Program*”, Cotton Australia and Cotton Research and Development Corporation, February 2004
- Morison K “*Branding Australian Cotton*”, Presentation to ABARE Outlook Conference, 1-2 March 2005
- National Land & Water Resources Audit, *Australian Agriculture Assessment 2001*, Land & Water Australia on behalf of the Commonwealth of Australia (2001)
- Pahl L, “*Adoption of environmental assurance in pastoral industry supply chains — market failure and beyond*”, AJEA Vol.47, issue 3, 2007, pp. 233-244
- Ridley A, “*Preparing Australian broadacre agriculture for environmental scrutiny using Environmental Management Systems: implications for extension services*”, AJEA Vol.47, issue 3, 2007, pp. 367-377
- Robins N “*Building Markets for Sustainable Trade*” International Institute for Environment and Development, Paper delivered at the Royal Institute for International Affairs, Trade Investment and Environment Conference, 29 October 1998
- Roth G, “*On farm achievements of the Cotton Best Management Practices Program*” Unpublished draft paper, April 2007
- Rowland P, Waller M, Gorrie G & Douglas B “*Developing a National Certification Process for Environmental Management in Australian Agriculture*” Rural Industries Research & Development Corporation Publication number 05/157 (2005)
- Schofield N, Williams A, Holloway R & Pyke B, “*Minimising riverine impacts of endosulfan used in cotton farming – A science into practice environmental success story*” in Rational Environmental Management of Agrochemicals: Risk Assessment, Monitoring and Remedial Action, Oxford University Press (in Press)
- Swat Marketing “*Growing the Top Line — Business Case for Branding Australian Cotton*”, Report prepared for the Cotton Research & Development Corporation / EMS Pathways Project, August 2005
- Time Magazine, “*The Global Warming Survival Guide – 51 Things you can do to make a difference*” April 9 2007
- Ton, P “*The International market for organic cotton and eco-textiles*” PAN UK (2002)
- Toyne P, Cowell C and Mech, T “*Marketing Agricultural Sustainability: Driving Environmental Improvement with Marketplace Benefits from Environmental Labelling*” Rural Industries Research & Development Corporation Publication number 04/050 (2004)
- Wade M, “*Consumers slow to see green*”, Sydney Morning Herald, 11 April 2007, p.13
- Whitten S, Carter M & Stoneham G (Eds) “*Market-based tools for environmental management: Proceedings of the 6th annual AARES national symposium 2003*” Rural Industries Research & Development Corporation Publication number 04/142 (2004)
- Williams A, “*Best Management Practices in the Cotton Industry*” In ‘Proceedings of National Workshop on Environmental Management Systems in Agriculture’, Ed. G Carruthers and G Tinning) pp 90-97, Rural Industries Research and Development Corporation, publication number 99/94, Canberra (1999)
- Williams A, “*Marketing quality and the environment: two sides of the same coin*”, Paper presented at the fourth national EMS in Agriculture Conference, Beechworth, Victoria, October 2005
- Williams A, “*Post Farm Gate BMP (Polishing the Brand)*”, Paper presented to the Australian Cotton Conference, August 2006
- Williams A and Williams J, “*Australian Cotton Industry Best Management Practices Manual*”, Cotton Research and Development Corporation (2000)
- Williams A and Williams J, “*Fostering best management practices in natural resource management — towards an environmental management system in the cotton industry*”, Australian Cotton Growers Research Association, Cotton Research and Development Corporation and Murray-Darling Basin Commission (2001)
- Williams A, Holloway, R and Williams J “*Environmental Management Systems and Agriculture: Theory, Practice and Reality — Experiences from the Cotton Industry*”, Paper presented at the second EMS in Agriculture Conference, Ballina, NSW, 6 – 8 November 2001

Williams A, Leutton R, Rouse A & Cairns R, “*The Australian Cotton Industry: Turning Natural Resource management Policy into on-ground action*”, paper presented to OECD Expert Meeting on Farm Management Indicators and the Environment, Palmerston North, New Zealand, 8-12 March 2004

Woolmark Intelligence, “*Potential Customer Requirements & Demand for ‘Ethical-wool’*”, Report prepared for Queensland Department of Primary Industries and Fisheries and Australian Wool Innovation, 10 July 2006

WWF-Australia, “*Case Study: Development of the Australian Cotton Industry Best Management Practice (BMP) Program*”, WWF-Australia, October 2005

Catchment Plans:

Border Rivers Catchment Action Plan: *unavailable*

Catchment Blueprint for the NSW Border Rivers Catchment, A Blueprint for the Future: NSW Department of Land and Water Conservation (February 2003)

Central Highlands Natural Resource Management Plan: Central Highlands Regional Resources Use Planning Co-operative Limited (December 2003) *Unchanged*

Central Queensland Strategy for Sustainability 2004 and Beyond: Fitzroy Basin Association (May 2004) *Unchanged*

Central West Catchment Action Plan, 2006-2016: Central West Catchment Management Authority, January 2007

Central West Catchment Blueprint: NSW Department of Land and Water Conservation (February 2003)

Condamine Natural Resource Management Plan: Condamine Alliance (August 2004)

Gwydir Catchment Action Plan: *unavailable*

Gwydir Catchment Blueprint, A Blueprint for the Future: NSW Department of Land and Water Conservation (February 2003)

Lachlan Catchment Action Plan: *unavailable*

Lachlan Catchment Blueprint: NSW Department of Land and Water Conservation (February 2003)

Lower Murray Darling CMA Catchment Action Plan: Lower Murray Darling Catchment Management Authority, DRAFT as at October 2006

Lower Murray Darling Catchment Blueprint, Integrated Catchment Management Plan for the Lower Murray Darling Catchment: NSW Department of Land and Water Conservation (February 2003)

Murrumbidgee Catchment Plan: Murrumbidgee Catchment Management Authority (undated)

Murrumbidgee Catchment Blueprint, Integrated Catchment Management Plan for the Murrumbidgee Catchment 2002: NSW Department of Land and Water Conservation (February 2003)

Namoi Catchment Action Plan: Namoi Catchment Authority, January 2007

Namoi Catchment, A Blueprint for the Future: NSW Department of Land and Water Conservation (February 2003)

Queensland Murray Darling Natural Resource Management Plan: Queensland Murray Darling Committee and South West Natural Resource Management Group (2004) *Current draft is 8-2004*

Western Catchment Plan, 2006-2016 (DRAFT version II): Western Catchment Management Authority, Undated

Western Catchment Blueprint: NSW Department of Land and Water Conservation (February 2003).