



**Australian Government**

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**Department of Agriculture, Fisheries and Forestry  
National Landcare Programme**

**SUSTAINABLE INDUSTRY INITIATIVES**

**FINAL REPORT**

**COTTON CATCHMENT COMMUNITIES  
COOPERATIVE RESEARCH CENTRE**

**SEPTEMBER 2008**

**The Sustainable Industry Initiatives are a component of the  
Australian Government's National Landcare Programme**

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**This final report has been prepared in accordance with the requirements of the Department of Agriculture, Fisheries and Forestry Sustainable Industries Initiative Programme.**

**By the:**

**Cotton Catchment Communities Cooperative Research Centre and Rob Welsh, Resource Management Specialist NSW Department of Primary Industry Industries Narrabri**

**October, 2008.**

## 1.0 FINAL REPORT

### 1.1 Project Administration Details

#### *Grant Details*

Project Title:	Natural Resource Management delivery in the Australian Cotton Industry
Proponent Organisation:	Cotton Catchment Communities Cooperative Research Centre
Project Start Date:	1 <sup>st</sup> October 2006
Project Completion Date:	30 <sup>th</sup> September 2008

Please provide a brief project description.
The project was designed to increase the adoption of natural resource management best practice on farm, through working collaboratively with Regional NRM Bodies to achieve on ground change and develop regionally specific resources to improve the NRM skills and knowledge of growers.

#### *Financial Statement*

Total Sustainable Industry Initiatives funding received:	\$641,000
Total expenditure:	\$641,000
Are there any unspent funds? If Yes, state the amount:	No

Financial Statement
<i>See following page</i>

NRM Delivery in the Australian Cotton Industry  
 Financial Statement - Expenditure 2006-07 to 2008-09

Item	2006-07		2007-08			2008-09	
	SII Contribution (Cash)	Industry, State DPIs & NRM Bodies Contribution (In-kind)	SII Contribution (Cash)	Namoi CMA, Greening Australia & Condamine Alliance (Cash)	Industry, State DPIs & NRM Bodies Contribution (In-kind)	SII Contribution (Cash)	Industry, State DPIs & NRM Bodies Contribution (In-kind)
<b>Total salaries &amp; on-costs</b>	\$ 59,880		\$173,935			\$ 48,540	
<b>Total operating</b>	\$ 7,930		\$ 27,855			\$ 6,400	
<b>Total Publications</b>	\$ 16,280		\$ 51,245	\$ 28,000		\$ 49,500	
<b>Total Meetings/Training Events/Workshops/ Education</b>	\$ 20,835		\$152,700	\$100,000		\$ 5,500	
<b>Total Evaluation</b>						\$ 20,400	
<b>Total In-kind contribution</b>		\$144,350			\$323,900		\$ 85,750
<b>TOTAL</b>	<b>\$104,925</b>	<b>\$144,350</b>	<b>\$405,735</b>	<b>\$128,000</b>	<b>\$323,900</b>	<b>\$ 130,340</b>	<b>\$ 85,750</b>

<b>Total Cash Contribution - SII Programme</b>	<b>\$641,000</b>
<b>Total Cash Contribution - other collaborators</b>	<b>\$128,000</b>
<b>Total In-kind Contribution - partners</b>	<b>\$554,000</b>

## 1.2 Project Performance

### *Performance against Objectives, Milestones and Key Performance Indicators*

Describe (providing evidence) how your project performed against the objectives, milestones and key performance indicators listed and signed onto in the Funding Agreement. Also state if the time frames and expected outcomes of the project were met.

The Cotton Catchment Communities CRC, (Cotton CRC), Sustainable industries Initiative project, “Natural resource management delivery in the Australian Cotton Industry”, (SII Project), adopted as its project delivery mechanism a number of key sub-projects addressing NRM issues in the Cotton Industry. These key sub-projects were used to achieve the overall project objectives and address milestones and key performance indicators.

The SII Project objectives are:

- a) Establish collaborative partnerships between Regional NRM Bodies and the Australian Cotton Industry for NRM outcomes.
- b) Develop, coordinate and enable the delivery of NRM outcomes through best management practice in land and water management.
- c) Develop and promote regionally adapted resources to improve growers’ knowledge and skills in NRM practices.
- d) Increase the adoption of practices that deliver on industry and catchment natural resource targets.

These objectives have been achieved through the successful establishment and delivery of the following six key sub-projects involving collaboration and cooperation with industry organisations, research agencies, NRM Bodies, Government, and landholder groups. These projects are outlined in more detail in Appendix 3.1 to this final report.

#### **1. Biodiversity in cotton landscapes**

This project was established to provide practical information to cotton growers and the wider community on the management of biodiversity within productive cotton systems. It has been a collaborative project with Namoi CMA and Greening Australia, with support also provided by the Cotton Research and Development Corporation (CRDC), Australian Cotton Growers Research Association (ACGRA) and Cotton Australia. This significant collaboration with Greening Australia is the first for the Cotton Industry.

The project produced the ‘2008 Biodiversity in Cotton Landscapes’ calendar with 5000 copies printed and distributed to all growers, extension officers, researchers, industry organisations, regional NRM bodies, government departments, 65 schools, councils and other community groups. In addition, 12 fact sheets on biodiversity were produced and 2 field days on the benefits and management of biodiversity in cotton production systems were conducted. The ‘2008 Biodiversity in Cotton Landscapes’ calendar is available on the Cotton CRC website at:

[www.cottoncrc.org.au/content/Catchments/Noticeboard/Biodiversity\\_Calendar\\_2008.aspx](http://www.cottoncrc.org.au/content/Catchments/Noticeboard/Biodiversity_Calendar_2008.aspx)

Biodiversity fact sheets are also available on the Cotton CRC website at:

[www.cottoncrc.org.au/content/Catchments/Publications/Biodiversity/Biodiversity\\_fact\\_sheets.aspx](http://www.cottoncrc.org.au/content/Catchments/Publications/Biodiversity/Biodiversity_fact_sheets.aspx)

The SII Project external evaluation, recently conducted by independent consultants, indicates the biodiversity calendar was highly valued by all stakeholders. It was seen as an effective and non-threatening way to increase interest and confidence in addressing NRM issues on farms. The evaluation found tying the fact sheets with the calendar information effectively provided a clear link to further information. The project was completed on time and exceeded many of the expected outcomes.

## **2. Increased adoption of water use efficiency (WUE) best management practices in the Condamine Catchment**

This project was established to provide training and incentive funding in WUE measures to groups of growers and consultants in the Condamine Catchment. This was a collaborative project between the SII Project and Condamine Alliance in which Condamine Alliance provided significant additional funding. Cotton Australia was contracted to deliver the project.

Cooperation and in-kind resources were also provided by staff from the Queensland DPI&F and members of the Cotton CRC national cotton extension network.

The project resulted in a further 12% or 2344 hectares of land under irrigated cotton in the Condamine Catchment implementing best management practice in water application. An additional 2 storages are now managed according to best practice. The project also resulted in a 25% increase in the number of cotton consultants in the region with skills and knowledge in water use efficiency principles and application. These consultants work with a further 100 growers in the region so there is the strong likelihood that the consultants will work closely with these additional growers to improve their WUE. This is an important legacy of this sub-project.

The SII Project external evaluation indicated the Condamine WUE project as one of the most effective project activities undertaken, particularly in terms of collaboration and achieving the desired outcomes. The involvement of cotton consultants and growers plus the provision of incentives to effect change was seen as very successful.

## **3. Integrated Sustainability Initiative (ISI)**

The ISI project was a collaborative project with Border Rivers Food and Fibre (BRFF). This project provided information and training to growers in NRM issues with an emphasis on water quality monitoring and assessment in the Border Rivers catchments. BRFF delivered the project with additional technical and financial support provided by Border Rivers-Gwydir CMA. The project aimed to link resource condition to land use practices.

The collaboration with a water user group such as BRFF, rather than a specific industry group, facilitated extension of NRM to networks that the Cotton CRC would normally not have access to, therefore broadening the impact of the SII Project. A key objective of this project is to help landholders participate in and understand environmental monitoring and management of natural resources. To achieve this, the ISI project created a learning environment to build capacity and to assist landholders with understanding concepts and implementing practical NRM on-farm. The value of grower participation in water monitoring from established sites was a feature of this project. Impacts reported by the SII Project evaluation include: increased WUE with growers overhauling their pump systems, improved tail water management, and greater attention to water quality issues. Fuel savings were also noted as an environmental and economic benefit stemming from the project.

## **4. CottonLinks Forums**

The CottonLinks Forums were an initiative of the SII Project held 6 monthly to bring together representatives from the Cotton Industry, Regional NRM Bodies, Government agencies and community groups to discuss common NRM issues, receive project updates and examine future collaborative efforts. CottonLinks Forums were held in July and November 2007 at Narrabri and at Dubbo in May 2008. Cotton Industry representatives at CottonLinks have included Cotton Australia, CRDC, ACGRA and Cotton CRC. The Regional NRM Body representation includes individuals from Fitzroy Basin Association (CHRRUP), Queensland Murray Darling Association, Condamine Alliance, Namoi CMA, Central West CMA and Western CMA. The CottonLinks Forums also included representatives from government agencies including DAFF, NSW DPI and QLD DPI&F. The SII Project evaluation indicates attendees to the forums highly valued the opportunity to network with other groups, improved knowledge and awareness of common NRM issues, such as climate change and used the knowledge gained to access other

networks.

### **5. Improving knowledge of Groundwater Systems.**

The SII Project initiated a sub-project to develop and conduct grower and community workshops in catchments that access groundwater for cotton production. The project, conducted in association with the Water Research Laboratory School of Environmental and Civil Engineering UNSW, provided technical information to increase the knowledge among water users of how groundwater systems work and the management of those systems. Workshops were held in 7 locations throughout cotton growing regions and were attended by 90 growers, extension staff and representatives from Regional NRM Bodies and local councils. This sub-project also produced 6 factsheets on groundwater topics for ongoing extension of resource management of groundwater systems. The fact sheets are available on the Cotton CRC website at [www.cottoncrc.org.au/content/Catchments/Publications/Groundwater/Understanding\\_Groundwater.aspx](http://www.cottoncrc.org.au/content/Catchments/Publications/Groundwater/Understanding_Groundwater.aspx)

Workshop feedback sheets showed significant shifts in participants' understanding, attitudes and motivation towards improved groundwater management. Survey respondents to the SII Project evaluation indicated this shift resulted in increased instances of information seeking by growers, improved groundwater monitoring and improved aquifer management.

### **6. The Cotton CRC website Catchment Pages**

The Cotton CRC Catchment web pages were a key delivery mechanism for much of the NRM related information generated by this SII project. The SII project was instrumental in its development and SII project staff worked closely with the site managers to assist with the coordination and development of web content. The website was designed to highlight cotton production on a regional and catchment scale, while providing an easily accessible source of NRM information for growers, industry representatives, collaborative partners, students and the broader community. Cotton industry research and extension officers have provided NRM technical information on this key NRM extension mechanism, along with communication and web design support from the Cotton CRC. Additionally, Regional NRM Bodies and research organisations have collaborated through the provision of information and links to their websites and Catchment plans. The SII Project evaluation report indicates there has been a significant increase in the access of NRM information since the project began. Whilst still only relatively new (18months), the site is developing a reputation as being the key source of NRM related information for the cotton industry. The development and maintenance of this site will continue well beyond the life of the SII project.

In addition to the six key sub-projects, SII project staff were also actively involved in the development of specific NRM resources, workshops, field days and communication activities. Through these additional activities, staff were able to contribute to smaller collaborative projects, foster existing industry / regional NRM body relationships and promote the SII project to the broader community. Some of the key project activities included:

- a) Publication of an Ecosystems Services Brochure highlighting the benefits of NRM to production systems and lifestyle, June 2007.
- b) Presentations at Fertcare training day for consultants and agronomists, Moree, July 2007.
- c) Presentations at the Cotton CRC Science Forum, Narrabri, August 2007.
- d) Facilitation of the Cotton CRC field tour and trade display at the NSW State Landcare Forum, Tamworth, October 2007.
- e) Presentations at Healthy Soils Forums at Narrabri, Goondiwindi and Hillston, November, 2007.
- f) Promotion of Cotton Industry NRM activities in the December, 2007 and March, 2008 editions of Australian Landcare Journal.
- g) Facilitation of the Cotton CRC Soils Database workshop at Tamworth, December, 2007 with participation from Border Rivers-Gwydir CMA, Namoi CMA, Lachlan CMA and

NSW DPI.

- h) Contribution to the Schools Write-a-Reader competition conducted by the Cotton CRC where regional primary schools are invited to develop a booklet on the practical measures to implement improved biodiversity management in their area. The entry judged the best will be published and distributed to primary schools through cotton growing regions as a valuable teaching and reference resource. This is a collaborative project with Border Rivers-Gwydir CMA.
- i) Contribution to the Lower Gwydir wetlands field tour, July, 2008.
- j) Contribution to the development and production of the Best Management Practice manual on measures to control Lippia. Lippia is a highly invasive weed infesting large tracts of riparian and wetland areas of the Murray Darling Basin. This is a collaborative project with various CMAs, NRM Bodies, and Government agencies coordinated by the National Lippia Working Group.
- k) Contribution to the development and production of Fish on Cotton Farms booklet. The production of the booklet is a collaborative project with Murray Darling Basin Commission, NSW DPI, and Namoi CMA.
- l) Contribution to the Namoi floodplain plant Identification booklet. This is a collaborative project with Namoi CMA and NSW DPI.
- m) Contribution to the Cotton CRC 2009 Cotton Communities and Biodiversity Calendar.

Through this unique combination of sub-projects and activities, the SII Project has clearly achieved the objective of establishing collaborative partnerships between Regional NRM Bodies and the Australian Cotton Industry for NRM outcomes. The project has gone further and included collaboration with other organisations such as Greening Australia and BRFF in projects and involved local government in project activities. The external evaluation found the SII Project impacted at a visible level on collaborative partnerships as a result of the high level of engagement in developing project activities as well as directly from initiatives such as the CottonLinks Forums. The SII Project has demonstrated what can be achieved if these efforts are continued and refined.

The improved knowledge and skills, increased grower involvement in BMP programs and management, and provision of information on best practice NRM through publications and website development is a significant outcome of the SII Project. The project evaluation report indicates many positive comments by people surveyed of improved knowledge and awareness of NRM issues in the Cotton Industry. The report reinforced the project direction in emphasising the need to integrate NRM with production to provide an effective mechanism for practical implementation.

Resources have been developed to improve growers knowledge and skills in NRM practices, e.g., through the Biodiversity Calendar and the website. The external project evaluation shows the other project areas have demonstrated the development and promotion of useful training, resources and tools in their resource areas. The evaluation called for more local practical examples and case studies. It also suggested the project has been an effective pilot of a number of extension approaches that can be used to improve NRM knowledge and skills in the broader cotton communities.

Adoption of NRM practices is evident in the results from project components. The Condamine WUE project has seen a 12% increase in the area of irrigated cotton and an additional 2 storages managed according to BMP in water application. This is supported by well documented case studies of increased consultant capacity, on-ground changes by growers and case study economic analysis of practice changes. Increased monitoring of water flows and quality in the BRFF area is contributing to adoption targets for sustainable water use in that area. The SII project evaluation points out there is strong anecdotal evidence of changes in awareness, understanding, information seeking and some practice change as a result of the implementation of project areas. The SII Project addresses a number of NRM issues over a wide area using a number of different extension

mechanisms. Adoption is possible using these mechanisms and integrating NRM into production best management practice.

All project milestones and key performance indicators (KPIs) were achieved. Many of the project milestones and KPIs were applicable over the life of the project. Individual activities, such as development and delivery of workshops, field days and publications contributed to various KPIs until 100% completion later in the SII Project.

In many instances the targets and measurable indicators for KPIs were exceeded, e.g., KPI 4L “the provision of information and resources to up-skill private and public grower advisors”; measurable indicator – “advisors attendance at two SII Project presentations and one SII Project field day”. The result far exceeded this, with 21 consultants and advisors participating in Understanding Groundwater Systems Workshops, five consultants participated in the Condamine WUE project. In addition advisors also attended field days and presentations given by SII Project staff at the Cotton CRC Science Forum, three Healthy Soils Forums, Fertcare Environmental Assessment day and Birds in Cotton field day.

Under Milestone 8a and 8b of the SII Project, 50% of cotton growers are aware of catchment targets within their region and 50% of cotton growers are aware of incentive and environmental credit-based programmes in their regions. The SII Project has established links to Regional NRM Bodies websites and catchment plans on the Cotton CRC website catchment pages. Providing these links has enabled growers to access information on catchment targets and incentive programmes through their own industry network. Regional cotton extension newsletters such as “Cotton Tales” have featured promotion of grower involvement in incentive schemes available from NRM Bodies, e.g., the following promotion of water use efficiency incentives in the Gwydir valley Cotton Tales newsletter in July 2007.

#### Water Use Efficiency Incentives

The Border Rivers Gwydir CMA has Incentive funding for EM Surveys (up to \$10,000) and validation of existing EM information (up to \$1000). Incentive funding is also available for irrigation evaluations, C-Probes, seepage and evaporation meters and irrigation practice change (eg sealing leaking channels).

Applications Close 31st August 2007

For further information contact Nicole Gammie (Catchment Officer – Salinity ) 67219841

Incentive programmes have been promoted to growers and advisors through SII Project activities such as the Understanding Groundwater Systems workshop series, BRFF ISI project, Condamine WUE project and through SII Project presentations at other forums and seminars like the Healthy Soils Forums. Incentive programmes designed for growers have been developed by the Cotton CRC in collaboration with CMAs. Namoi CMA have been particularly active in this; developing collaborative incentive programmes targeting cotton growers in the Namoi Valley.

## ***Programme Objectives***

Demonstrate how your project contributed to the objectives of the Sustainable Industry Initiatives (page 7) and the National Landcare Programme (page 10). Briefly describe the broader significance of the project outcomes for sustainable agriculture and NRM.

### **Sustainable Industries Initiative Objectives**

*The objective of the Sustainable Industries Initiative Programme is to enhance the profitability and sustainability of portfolio industries through:*

- *industry ownership of NRM issues*
- *increased numbers of resource managers and industries adopting NRM, sustainable agricultural practices and industry best management practice*
- *widespread recognition of industry best management practice as sustainable*
- *greater industry participation in regional planning and activities*

#### *1. Industry ownership of NRM issues*

Key cotton industry organisations have taken an active role in the SII Project since its inception indicating the industry's recognition and ownership of NRM issues. Cotton Australia, CRDC, ACGRA and the Cotton CRC have been involved in the project at a strategic Steering Committee level and at the operational level providing input and participation in project activities, forums and outputs.

The SII project has provided the cotton industry with an opportunity to work more closely with regional NRM bodies to trial and implement different methods of collaboration in order to collectively address the key NRM issues that both industry and regional NRM bodies face. Despite the current difficulties of a dramatic reduction in cotton production due to drought conditions and the geographic spread of the industry, the project has had success in bringing various groups together to address these NRM issues. The external project evaluation indicates the project has contributed to improving awareness of sustainability and resource management issues in the Cotton Industry and in improving cross-sector engagement and collaboration.

#### *2. Increased numbers of resource managers and industries adopting NRM, sustainable agricultural practices and industry best management practice*

Engagement of cotton, grains and fodder producers, cotton and irrigation consultants/advisors, local government representatives, extension officers and regional NRM body representatives in SII Project activities has led to an increased number of landholders and resource managers incorporating NRM best practice into their management systems. The messages delivered have helped reduce some of the barriers to adoption. The increasing numbers seeking NRM information on the Cotton CRC website points to possible future improvements in adoption rates. Project activities such as the publication of the ecosystem services brochure, biodiversity calendar and factsheets, groundwater workshops and factsheets and the training programs as part of the BRFF ISI and the Condamine WUE projects will contribute to the ongoing practice change beyond the life of the SII Project.

#### *3. Widespread recognition of industry best management practice as sustainable*

The SII Project has worked with industry and regional NRM bodies to both implement and promote sustainable best management practices. For example, a key outcome from 2008 Biodiversity Calendar project has been the incorporation of recommended best practices for improving biodiversity into the revised cotton industry BMP program. The project has also highlighted successful biodiversity management on cotton farms to the industry and the wider community.

The SII Project also facilitated the Irrigation and Riparian Field tour and the Cotton CRC trade

display at the NSW State Landcare Forum held in Tamworth in October 2007. These events provided a unique opportunity to showcase the achievements in on-farm NRM and the practical implementation of the Cotton Industry BMP to the wider community with delegates to the forum from throughout NSW and interstate.

The continual addition of NRM information on the Cotton CRC website catchment pages and the links to the industry and community pages is an ongoing mechanism for promotion of industry best practice to growers, advisors and the Australian and international community.

#### *4. Greater industry participation in regional planning and activities*

The collaborative arrangements of various SII Project activities, Steering Committee membership and the CottonLinks Forums have provided a framework for continued cooperation and networking opportunities in regional planning. The Cotton Industry and the irrigation industry generally is an important component of the land and resource use patterns of many inland catchments. The industry provides significant social, economic and environmental benefits to these catchments. The close contact by regional NRM bodies with key industry organisations and growers provided through the SII Project will enhance future cooperation in planning activities. Similarly, the recognition and understanding by industry organisations of the needs and objectives of regional NRM bodies and other catchment organisations enables the industry to take an active role in regional planning issues.

### **National Landcare Programme Objectives**

*The aim of the National Landcare Programme (NLP) is to increase engagement by industry and resource users, including community landcare groups, in landcare and Natural Resource Management (NRM) activities, with a focus on developing alliances with sustainable primary industries. Industry groups not currently engaged will be targeted and the Programme extended to industry organisations and other industries such as the forest, fishing and processing industries.*

A key objective of the SII project was to establish collaborative partnerships between regional NRM bodies and the cotton industry. This project has achieved this objective through the series of sub-projects that it has implemented and invested in. The level of collaboration between industry and regional NRM bodies has been strengthened as a consequence. The SII project has also established new relationships with NRM organisations that previously have limited engagement with the industry.

Specific examples of collaboration that have been viewed by both industry and regional NRM bodies as highly successful are the 2008 Biodiversity calendar and the Condamine Alliance WUE project. The common themes behind their success has been the successful utilisation of all participating organisations skills and resources and a clear demonstration of both the production and environmental benefits that can be derived from management change.

A legacy from this SII project is that both industry and regional NRM bodies now have a clearer understanding of the key ingredients required to establish successful partnerships. It is likely that the models upon which these projects were developed will be used to establish other projects addressing common NRM issues.

### ***Planning Processes***

Describe the success of the project Implementation Plan, Risk Management Plan and Communication Plan.

Within the Project Implementation Plan for the SII Project many of the scheduled activities aligned to individual milestone tasks were ongoing over the life of the project. This has facilitated activities/projects and collaborations to be developed and delivered over that time. The project was able to deliver against these milestones within the estimated timeframes. The initial difficulties experienced in recruiting suitable staff caused minor delays to the achievement of initial milestones but this was largely resolved through consultation with DAFF representatives. The initial milestones were achieved once project staff were appointed.

The development of the Risk Management Plan provided a clear direction for overcoming possible disruption to the project. Some challenges were experienced and overcome. Delays to project staff recruitment, which carried a critical risk rating in the Risk Management Plan, resulted in subsequent delays in completion of some initial milestone activities. There was a change in the project team, with the departure of the Resource Management Officer (RMO) in January 2008. The RMO was replaced in the same month, resulting in little disruption to the project.

The project did not experience any issues with regional NRM bodies, industry or government agencies failing to engage in the project. The continuation of the drought, although focusing attention on efficiency gains particular in water use, did result in some on-ground changes being postponed, particularly where significant system changes or capital investment was involved by growers.

The Communication Plan was successful in focusing project activities on the key stakeholders and target audience. With a large number of project partners, (4 industry organisations, 9 Regional NRM Bodies and 3 Government agencies) and other community groups, communication planning was essential. The project was able to communicate with its varying audiences through a range of mediums including local newspapers, NRM publications (eg Landcare magazine), industry publications (CottonTales, Cotton Chat etc), regional NRM body publications (Condamine Alliance eNewsletter) and the Cotton CRC website. The website was a key delivery mechanism for many of the publications developed through this SII project.

### **1.3 Outputs Produced**

What has the project produced? How has the product been used so far and how will it be used in the future?

In support to the broad range of extension activities this project has been involved in, there have been numerous extension related publications developed to ensure growers have continued access to the knowledge resulting from this work. Throughout the course of the SII project, the following publications have been produced:

- Ecosystem Services Brochure (available on Cotton CRC website)
- 2008 Biodiversity in Cotton Landscapes Calendar (available on Cotton CRC website)
- 2009 Biodiversity and Community Calendar (available December 2008)
- Biodiversity Fact Sheets
  - i. 'Cotton onto Critters - Getting to know your natural workforce.'
  - ii. 'Help biodiversity work for you - Create a harmonious work environment.'

- iii. 'Value it, enjoy it, share it'.
- iv. 'Monitor to manage – How happy is the natural workforce?'
- v. 'Keep it messy mate – Diversity in the workplace.'
- vi. 'Get connected – Networking the natural workforce.'
- vii. 'Give grasses a go – Discover a new work force.'
- viii. 'Plan, prepare, plant – Entice your workforce back.'
- ix. 'Restore your river country – The lifeblood of your workforce.'
- x. 'Cover up – Protect your hidden workforce.'
- xi. 'Use water for wildlife too – Provide a stimulating workplace.'
- xii. 'Let nature do what nature does – supporting your natural workforce.'
- Groundwater – notes for cotton growing regions (available from Cotton CRC)
- Groundwater fact sheets (available on Cotton CRC website)
  - i. 'What is groundwater?'
  - ii. 'Water and time.'
  - iii. 'Groundwater myths'
  - iv. 'Irrigation bores - best management practice.'
  - v. 'DIY groundwater monitoring.'
  - vi. 'Groundwater modeling matters.'
- Lippia Control Best Management Practice Manual (available October 2008)
- Birds on cotton farms book (reprint)
- Fish on Cotton farms book (available 2009)
- Lower Namoi Floodplain Plant ID book (available 2009)

Many of these publications have resulted from collaborations with Regional NRM Bodies, Government agencies, research and industry organisations. A principal feature of these publications was their integration of NRM information into the farming production system. Through using this approach, growers are more able to see both the production and environmental benefits that can be derived from improved land and water management and this will aid with the longer term inclusion of NRM associated practices into growers farming activities. The Cotton CRC website and National Extension Team will be the key avenues for the continued use of these publications for extension to industry and the community following the conclusion of the project.

In addition the project has produced the following review documents:

- Review of the drivers and barriers to adoption of NRM and BMP in the Australian Cotton Industry.
- Review of the skills and knowledge in NRM across the Australian Cotton Industry.
- Review of skills and knowledge of Regional NRM Bodies available to the Australian Cotton Industry.
- Review of Regional NRM Bodies' catchment plans.
- Situation statement of the key NRM priorities and targets for Regional NRM Bodies in Australian Cotton Industry regions.

## 1.4 Industry Uptake and Partnerships

### *Industry Involvement*

How were industry and community involved in this project? How have the project outcomes contributed to industry and community needs? Describe uptake and use of the project activities and/or outcomes by industry/land managers/others.

Key Cotton Industry organisations were actively involved in the SII Project. Cotton CRC, CRDC, ACGRA and Cotton Australia representatives are members of the project steering committee providing direction and support at the strategic level and at the operational level as part of some project teams. The industry organisations through the project have contributed significantly to increased cooperation and collaboration with Regional NRM Bodies.

The project has engaged with all sectors of the Cotton Industry as well as with Regional NRM Bodies, local councils, schools and agribusiness. This engagement has occurred through the established sub-projects as well as project staff involvement in other activities such as grower and community forums, school programs and specialised NRM training projects. For example, 90 land and resource managers, including growers, advisors and council water managers across 7 cotton regions, participated in workshops to increase their knowledge of groundwater systems and build capacity for ongoing sustainable use of the groundwater resource.

The SII project has also facilitated the adoption of NRM practices through a number of its sub-projects. This has been largely achieved through collaboration with regional NRM bodies and linking into existing industry programs such as the Best Management Practices program. For example, using a combination of Condamine Alliance incentive funding, the industry's BMP program and industry extension resources, there has been a 12% increase in the area of irrigated cotton in the Condamine Catchment being managed according to the principles of best management practice in water application. The project resulted in a 25% increase in the number of cotton consultants in the Condamine region with skills and knowledge in water use efficiency principles and application.

The SII project has contributed significantly to the development of the Catchment pages of the Cotton CRC website which is a key delivery mechanism for NRM related information for the Cotton Industry. The website statistics and project evaluation show that since the inception of the SII Project there has been a large increase in the numbers of people seeking NRM and catchment information on the Cotton CRC website catchment pages. This can be directly attributed to the role the SII project has played in the site development and promotion of NRM activities.

### *Industry Strategy*

Describe how the funding received has helped contribute to the industry's broader NRM strategy (or key NRM goals). Now that the project is complete, what are the future priorities for NRM activity within the industry?

The Cotton Industry is committed to the sustainable use of land and water resources for its long terms sustainability and this is evidenced through its investment in the BMP program and NRM research and extension. The SII Project funding has contributed to this industry focus through the establishment and successful achievement of key collaborative projects with regional NRM bodies and industry. These collaborative efforts have resulted in:

- on-ground changes

- an increased capacity and knowledge of industry to continue to implement NRM practices
- the establishment of partnerships with regional NRM bodies and proven examples of successful industry / regional NRM body collaboration
- incorporation of NRM activities into cotton production systems rather than as separate issues to be addressed.

These activities have been an important contribution to the industry's broader NRM strategy of working more collaboratively with regional NRM bodies to ensure cotton farms are sustainable into the future. As the industry moves forward, the partnerships established through this project will be vital to ensure a more collaborative approach to NRM. An important legacy of the project already is that a working party of industry and regional NRM body representatives has been established. The focus of this group is to examine opportunities for addressing the potential NRM issues that will arise from climate change and develop strategies that these organisations can implement in order to share knowledge and resources. This will be a future priority for the industry as well as addressing issues around sustainable farming and maintaining biodiversity.

The project has promoted biodiversity conservation and habitat management as integral to sustainable cotton production systems. The challenge for the future is to maintain the momentum created by innovations such as the Biodiversity Calendar and continue to highlight the importance of biodiversity to landholders so it is more actively incorporated into their farm management decisions.

### ***Project Partnerships***

Who were the project partners? Include a list of groups or individuals who contributed significantly to the technical, financial or administrative aspects of the project. Did the partners effectively play their role?

The partners in the SII Project played their role effectively.

Partners include:

- Cotton Catchment Communities Cooperative Research Centre
- Australian Cotton Growers Research Association
- Cotton Research and Development Corporation
- Cotton Australia
- Department of Agriculture, Fisheries and Forestry
- NSW Department of Primary Industries
- Queensland Department of Primary Industries and Fisheries
- Fitzroy Basin Association
- Condamine Alliance
- QLD Murray Darling Association
- Border Rivers-Gwydir Catchment Management Authority
- Namoi Catchment Management Authority
- Central West Catchment Management Authority
- Western Catchment Management Authority
- Lachlan Catchment Management Authority
- Murrumbidgee Catchment Management Authority

All the project partners were members of the project Steering Committee. Most project partners became involved in project activities either by attendance and participation at forums, workshops, etc., or by contributing resources to collaborative projects such as the Biodiversity in Cotton Landscapes project and the Condamine water use efficiency project.

Although the large geographical spread of the industry and the project partners can be challenging in terms of engagement, the SII Project employed innovative measures to enable partners to attend project activities. These measures included; scheduling of face to face steering committee meetings with CottonLinks Forums and provision of a charter flight for northern partners to attend the Climate Change CottonLinks Forum in Dubbo. Also the SII Project extended direct invitation to Regional NRM Bodies' staff to participate in other project activities, such as the Understanding Groundwater Workshop series and the Soils Database training workshop.

## 1.5 Communication

How have you communicated your project outcomes? Can the learning's be shared with other industry groups?

Communication of project outcomes is an ongoing process. Mechanisms such as industry newsletters, and mainstream media coverage have been used to promote project activities and achievements. The Cotton CRC website has been the key means for ongoing communication. The challenge will be to maintain the currency of information with the loss of project staff at the conclusion of the project.

The Cotton CRC views this project as extremely successful and will continue to communicate the project outcomes through its Catchment and Adoption programs. Additionally, the use of a series of sub-projects to address the project milestones has resulted in an enormous range of outputs that will continue beyond the life of the SII project. The information generated from these projects will continue to be promoted to the industry and community through the cotton industry's National Extension Team

Key learning's from the project, as determined by the external evaluation, that would be applicable to other industries include:

- Strategic and centralized coordination of efforts in NRM extension to industry is more effective than an ad-hoc and disjointed approach.
- Small focused projects (such as the Biodiversity in Cotton Landscapes) as part of a suite of NRM projects can yield excellent results, particularly in raising awareness of important industry NRM issues.
- Targeted more resource intensive projects using participative approaches, (such as the groundwater workshops and the Condamine WUE projects), have the potential to make significant advances in addressing NRM issues in the industry or region.
- Cooperation and collaborations between industry, NRM Bodies and other community groups can be successful at addressing specific NRM issues and contribute to the objectives of all contributing organisations.
- Capacity building of consultants and advisors is a successful strategic approach to building NRM into integrated management approaches on-farm.
- The strategic and targeted use of incentives in a high priority area can facilitate wider and faster change to management practices.
- Use of economic analysis of practice changes can be an effective tool to aid adoption.
- Websites require innovative "triggers" and current information to be an effective extension tool and information source for stakeholders.
- Local applications and examples remain a key to facilitating on-ground change in primary industries.

The SII project employed a range of unique partnerships and it is important that these key learnings are extended to other industries to demonstrate successful models for collaboration and the achievement of outcomes for both industry and regional NRM bodies.

## 1.6 Project Summary

How would you describe the results of your project for interested parties? What do you think would be useful for them to know about your project? Provide a brief summary that outlines the objectives, activities and outcomes of the project and a brief assessment of the success of the project. Present the information in a manner suitable for publication in newsletters, websites etc.

The Sustainable Industries Initiative project ‘Natural resource management delivery in the Australian Cotton industry’ was a joint project between the Department of Agriculture, Fisheries and Forestry and the Cotton Catchment Communities CRC. The project was established to assist the cotton industry address a number of key NRM issues which are fundamental to the long term sustainability of the industry. The specific project objectives were to :

- a) Establish collaborative partnerships between Regional NRM Bodies and the Australian Cotton Industry for NRM outcomes.
- b) Develop, coordinate and enable the delivery of NRM outcomes through best management practice in land and water management.
- c) Develop and promote regionally adapted resources to improve growers’ knowledge and skills in NRM practices.
- d) Increase the adoption of practices that deliver on industry and catchment natural resource targets.

To achieve these objectives, the project has looked to engage with a range of industry and regional NRM bodies to implement projects that achieve both catchment and production benefits as well as increase the knowledge and capacity of growers, consultants and extension staff. The key activities the project has been involved in include:

1. The ‘Biodiversity in cotton landscapes’ project which was a collaboration between Namoi CMA, Greening Australia, Cotton CRC and the SII project. The project aimed to develop a 12 month extension project to provide practical advice to cotton growers and the broader community on the management of biodiversity within productive cotton systems. Each month, the calendar highlighted a biodiversity theme and provided helpful hints on managing for biodiversity, benefits for the grower and ideas to measure biodiversity outcomes. Accompanying the calendar was a series of fact sheets that provided a greater level of detail regarding those practices recommended on the calendar.

The project was considered to be highly successful and key outcomes from this project have included anecdotal evidence that growers have implemented some of the recommended practices on their farm, incorporation of the biodiversity information generated from the project into the cotton industry’s BMP program, and the project being used as an example of best practice in NRM extension by DAFF.

2. The ‘Increased adoption of water use efficiency (WUE) best management practices in the Condamine Catchment’ project was established in conjunction with Condamine Alliance and delivered by Cotton Australia. The project aimed to link grower and consultant training to catchment body incentive funding to improve water use efficiency in the Condamine Catchment. Consultants received training so they could better advise their grower clients on how to improve water use efficiency and the incentive funding was made available for growers to pay for advice and implement on-farm changes which was also tied to the industry’s BMP program. Case studies evaluating the economic and environmental benefit of changed practices were undertaken.

Using this unique model, a total of 13 growers and 5 consultants completed the program and this led to a further 12% or 2344 hectares of land under irrigated cotton in the Condamine Catchment implementing best management practice in water application. The 13 participating growers successfully completed the Land and Water Module of the BMP program and, as part

of that process, implemented action plans in response to identified risks or areas of concern.

3. The 'Integrated Sustainability Initiative' (ISI) project was a collaboration with the Border Rivers Food and Fibre (BRFF) organisation and aimed to provide growers with information and training in NRM with an emphasis on water quality monitoring and assessment in the Border Rivers catchments. The project was delivered by BRFF and also involved financial and technical support from the Border Rivers-Gwydir CMA. The project worked with growers to generate farm maps detailing soils, vegetation and biodiversity as part of farm management systems. Landholders were shown the significance of NRM in farm management systems, in particular, the Cotton BMP program. Using this cooperative approach, water quality data sets have been developed for the region and reports issued to landholders 6 monthly.
4. The CottonLinks Forums were an initiative of the SII Project and aimed to bring industry and regional NRM bodies together to discuss common NRM issues, receive project updates and examine future collaborative efforts. The forums were held 6 monthly and have created important links between the industry and regional NRM bodies. A key outcome from this activity has been the establishment of a working group representing both industry and regional NRM bodies to review the effectiveness of past collaborations with recommendations for future cooperation.
5. The development of specific Catchment pages on the Cotton CRC website has been a key activity of the SII project. The Catchment pages highlights cotton production on a regional and catchment scale, while providing an easily accessible source of NRM information for growers, industry representatives, collaborative partners, students and the broader community. Collaboration with the SII Project on this key NRM extension mechanism has come from the Catchment Program Leader, Cotton Resource Centre Coordinator, Communications Officer, Environment Team and researchers. Additionally NRM Bodies and CMAs and research organisations have collaborated through the provision of information and links to their websites and Catchment plans. Since its development, the number of NRM documents being accessed has increased significantly.

The success of these projects was broadly attributable to the provision of technical and financial resources by all participating organisations. As a result of the SII project partnerships and networks between the industry and regional NRM bodies were strengthened. The project has emphasised the need to integrate NRM with production to provide an effective mechanism for practical implementation and achievement of on-ground NRM outcomes. The independent evaluation of the SII Project evaluation found that the project has been an effective pilot of a number of extension approaches that can be used to improve NRM knowledge and skills, not only in the Cotton Industry but in other agricultural industries and the broader community.

## 1.7 On-Going Action

### *Further Work*

Did the project raise any further issues which should be addressed? For example, the need for further collaboration, education or research.

The SII project successfully trialled a number of different approaches to collaboration with regional NRM bodies to achieve both production and environmental benefits. The approaches used were unique in that they were able to access and efficiently utilise the resources, technical skills and knowledge of all participating organisations. Given that engagement models have now been developed and successfully implemented for selected NRM issues, there is a need for further collaboration by industry and regional NRM bodies to address other NRM issues facing the industry and the catchments in which it operates.

The SII project has also worked to increase the NRM skills and knowledge of the industry through working with growers, consultants and extension staff. The NRM capacity of these people has been improved however, there is a clear need to maintain NRM skills and knowledge in the industry to ensure the momentum built through the SII project is continued.

The SII Project has demonstrated that through investment in staff and strategic NRM collaborative activities, regional NRM bodies and the cotton industry can work together to achieve real on-ground change. There remains the need to build on this success with further funding for staff and targeted NRM projects.

### *Maintaining Project Outcomes*

How will your group maintain the project's outcomes in the longer term, now that funding for this project has concluded?

During the SII project development, it was deliberately and strategically integrated into the Cotton CRC's Catchment and Adoption programs to ensure that the project's outcomes were not lost beyond the life of the project. Consequently, the knowledge, partnerships and collaborations established with regional NRM bodies through the SII project will continue to be maintained through these two program areas in a number of ways including the:

1. continued use and promotion of the SII project developed NRM resources by industry extension staff, consultants and growers.
2. establishment of collaborative partnerships with regional NRM bodies and the Cotton CRC using similar project frameworks so that both production and catchment outcomes can be achieved.
3. continuation of the CottonLinks forums as a means of providing industry and regional NRM bodies with an avenue for regular communication.

The SII project has enabled the Cotton CRC and participating regional NRM bodies with an opportunity to pilot a range of different NRM extension approaches. These varying approaches have largely been successful and the lessons learnt through this SII project have provided the cotton industry and regional NRM bodies with an improved understanding of how to collectively work together to achieve joint outcomes. Additionally, the collaborative nature of the SII sub-projects has led to the establishment and strengthening of partnerships and given these participating organisations a solid foundation from which to build further cooperative projects. The value of this is immeasurable.

## 2.0 DECLARATION

This report must be signed by the Grantee or representative.

In order to maximise the benefits of the National Landcare Programme, information relating to all projects is regarded as being in the public domain and is publicly available on request. Nevertheless, under Commonwealth privacy legislation, personal information cannot be divulged without the consent of those involved.

Do you consent to the inclusion of contact name and telephone details in response to public information requests concerning this project?
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Type here (Yes or No): Yes
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I declare that the information given on this form is complete and correct:

Signature of Grantee or representative:	
Printed name of Grantee or representative:	Ms Letitia Cross
Position in Organisation:	Adoption Program Leader
Date:	7 October 2008

### 3.0 ATTACHMENTS

#### 3.1 NRM delivery in the Australian Cotton Industry - key projects and outputs.

1. The ‘**Biodiversity in cotton landscapes**’ project was established by the SII project to provide practical information to cotton growers and the wider community on the management of biodiversity within productive cotton systems. The ‘2008 Biodiversity in Cotton Landscapes Calendar’ was produced and distributed to growers, industry organizations, extension officers, CMAs/NRM Bodies, government agencies and parliamentarians, schools and local councils . Each month the calendar has highlighted a biodiversity theme and provided helpful hints on managing for biodiversity, benefits for the grower and ideas to measure biodiversity outcomes. The 2008 Biodiversity in Cotton Landscapes Calendar is also available on the Cotton CRC website at:

[www.cottoncrc.org.au/content/Catchments/Noticeboard/Biodiversity\\_Calendar\\_2008.aspx](http://www.cottoncrc.org.au/content/Catchments/Noticeboard/Biodiversity_Calendar_2008.aspx)

The calendar has been complemented with detailed fact sheets on each monthly theme. Fact sheets are also available on the Cotton CRC website at:

[www.cottoncrc.org.au/content/Catchments/Publications/Biodiversity/Biodiversity\\_fact\\_sheets.aspx](http://www.cottoncrc.org.au/content/Catchments/Publications/Biodiversity/Biodiversity_fact_sheets.aspx)

Greening Australia and Namoi CMA were brought into the collaboration, with support also provided by the Cotton Research and Development Corporation (CRDC), Australian Cotton Growers Research Association (ACGRA) and Cotton Australia. In-kind contributions include the Cotton CRC Environment Team, the Cotton CRC Communications Officer, Cotton Resource Centre Coordinator and Catchment Program Leader. Researchers from Cotton CRC and CSIRO have provided valuable technical content for the project. The collaboration of Greening Australia with the Cotton Industry in this project is a significant paradigm shift from traditional associations with the industry. It demonstrates the Cotton Industry’s willingness to address native vegetation and biodiversity issues on cotton farms.

An online survey was conducted by the project team on the Cotton CRC’s website to evaluate the effectiveness of the biodiversity project. The results indicated that 84% of respondents to the survey use the Biodiversity Calendar and 58% accessed the biodiversity fact sheets on the Cotton CRC website. A further 84% of respondents also said they now have a greater understanding of biodiversity on their properties. Of the grower respondents, 80% have implemented some of the helpful hints and monitoring tools on their farms.

An external SII Project evaluation, conducted by Coutts J and R Consultants, indicates as a result of the project there is a growing awareness of biodiversity issues amongst individual growers and the wider community. There is also some evidence of practice change amongst growers, e.g., starting to take care of native vegetation areas. The evaluation also indicated growers and the community are now more aware of biodiversity management practices that are already happening in the Cotton Industry, what can be done on their own properties and the realization simple management changes can make a difference to biodiversity outcomes.

The biodiversity in cotton landscapes project addressed the following SII Project milestones: **KPI 2c, 3b, 3c, 4j, 4k, 4l, 4o, 4q, 4r, 4s, 5c, 6a, 6b, 6f.**

2. The “**Increased adoption of water use efficiency (WUE) best management practices in the Condamine Catchment**” project was established to provide training and incentive funding in WUE measures to groups of growers and consultants in the Condamine Catchment. This was a collaborative project between the SII Project and Condamine Alliance in which Condamine

Alliance provided significant additional funding. Cotton Australia delivered the project as a consultant. Cooperation and in-kind resources have also been gained with staff from the Queensland DPI&F and members of the national cotton extension water team. Training in overhead irrigation systems, improved surface irrigation techniques and Cotton Industry BMP program has been undertaken. Incentive funding for on-farm change in irrigation practices has been made available to participants in the project. Case studies evaluating the economic and environmental benefit of changed practices were undertaken.

A total of 13 growers and 5 consultants completed the program provided by this project. The project has resulted in a further 12% or 2344 hectares of land under irrigated cotton in the Condamine Catchment implementing best management practice in water application exceeding the 10% expected outcome from the project. An additional 2 storages are now managed according to best practice. The 13 growers completed the Land and Water Module of the BMP program and, as part of that process, implementing action plans in response to identified risks or areas of concern. This represents a 6.5% increase in the number of growers with skills and knowledge in water use efficiency principles and application. Although not achieving the expected 10% increase, due to the loss of some consultants and their growers for personal reason not related to the project, it is a significant lift in the skills and knowledge base among growers in the Condamine Catchment.

With the 5 consultants from 5 separate organisations involved, the project has achieved a 25% increase in the number of cotton consultants in the region with the skills and knowledge in water use efficiency principles and application. The external SII Project evaluation indicated this project was well received and the collaboration between groups and the access to training and incentive funding for growers and consultants helped the learning and adoption of improved WUE practices.

Consultants now feel more confident in their capacity to impart information on WUE and economic analyses of practice change to growers as a result of their involvement in the project. Growers are also more confident in planning and implementing practice change. The increased adoption of best management practices in WUE in the Condamine Catchment project addressed the following SII project ongoing milestones:

**KPI 2c, 2d, 3a, 3b, 4j, 4k, 4l, 4o, 4p, 4q, 4s, 5a, 6b, 6c, 6f.**

3. The **“Integrated Sustainability Initiative”** (ISI) project has been a collaborative project with the Border Rivers Food and Fibre (BRFF) organization, providing information and training in NRM with an emphasis on water quality monitoring and assessment in the Border Rivers catchments. BRFF delivered the project in addition to Border Rivers-Gwydir CMA providing technical and financial support. The project aimed to link resource condition to land use practices.

The collaboration with a water user group such as BRFF rather than an industry group has facilitated extension of NRM to networks that the Cotton CRC would normally not have access to, therefore broadening the impact of the SII Project. Cross-industry links were established with participation in project activities available to a range of industry groups including cotton, grains, fodder and livestock producers.

A key objective of this project is to help landholders participate in and understand environmental monitoring and management of natural resources. To achieve this, the ISI project created a learning environment to build capacity and to assist landholders with understanding concepts and implementing practical NRM on-farm. The project worked with landholder groups to generate farm maps detailing soils, vegetation and biodiversity as part of farm management systems. Landholders were shown the significance of NRM in industry farm

management systems, in particular, the Cotton BMP program. Water quality data sets are established and reports issued to landholders 6 monthly. Water samples are tested for pH, nitrates, phosphates, salinity (EC), turbidity and macro-invertebrates.

Cooperative networks and information exchange have also been established between the ISI and QLD Department of Natural Resources and Water, NSW Department of Water and Energy, QDPI&F, NSW DPI and local councils. The ISI also provided technical and data support to cotton industry NRM extension in the Border Rivers Catchment.

Results of the external SII Project evaluation showed the ISI provided practical benefits to growers, took into account their interests in project activities and created a greater awareness of the effective use of water monitoring. The ISI project addressed the following SII project ongoing milestones:

**KPI 3a, 3b, 3c, 4j, 4k, 4l, 4o, 4p, 4q, 4s, 5a, 6b, 6c.**

4. The **CottonLinks Forums** are an initiative of the SII Project held 6 monthly to bring together representatives from the Cotton Industry, Regional NRM Bodies, CMAs, Government agencies and community groups to discuss common NRM issues, receive project updates and examine future collaborative efforts.

CottonLinks Forums have been held in July and November, 2007 at Narrabri and May, 2008 at Dubbo. Cotton Industry representatives at CottonLinks have included Cotton Australia, CRDC, ACGRA and Cotton CRC. Regional NRM Body representation includes individuals from Fitzroy Basin Association, Queensland Murray Darling Association, Condamine Alliance, Namoi CMA, Central West CMA and Western CMA have attended CottonLinks Forums. CottonLinks Forums also included representatives from government agencies including DAFF, NSW DPI and QLD DPI&F. The CottonLinks Forums have created important links between the Cotton Industry, Regional NRM Bodies, and Government agencies to facilitate the delivery of consistent NRM information to the Cotton Industry and exchange information on future initiatives and funding opportunities.

As with all forums, seminars, etc., the challenge is to secure attendance from a wide stakeholder representation. To address this, the latest CottonLinks Forum was centred around the Climate Change theme and was held on 29 May 2008. Dubbo was chosen as venue; the first forum held away from Narrabri. In addition to facilitate the attendance by northern participants, the SII Project provided a return charter flight from Toowoomba to Dubbo for the forum. For the first time representatives from the three Regional NRM Bodies in cotton areas of QLD had come together with representatives from CMAs in NSW and Cotton Industry organizations to discuss future cooperation and collaboration with the cotton industry.

A working group was formed to review the effectiveness of past collaborations with recommendations for future cooperation. This group has met twice by teleconference since the forum.

A summary report of CottonLinks Forum feedback sheets indicated;

*“Overall, participants were positive of the forum, agreeing it had met their expectations and had increased their understanding of climate change issues. Participants also agreed that the forum had enhanced networking opportunities and provided an opportunity to exchange ideas. They also agreed that after this or previous CottonLinks Forums, they were now more likely to approach Cotton Industry organizations or CMAs/NRM Bodies when planning projects in cotton areas.”*

The SII external evaluation consultant's report indicates the strengthening collaboration and relationships between Government, Industry, Regional NRM Bodies and growers as an important outcome of the CottonLinks Forums. The evaluation also indicated this collaboration has flowed through to enhance other sub-projects.

The CottonLinks Forums addressed the following SII Project ongoing milestones: **KPI 3d, 4j.**

- 5. Improving knowledge of Groundwater Systems.** The need to improve the knowledge and understanding of the science of groundwater flow systems and the management of those systems was identified in groundwater scoping studies initiated by the Cotton CRC in a number of cotton growing valleys.

To address this, the SII Project, in association with the Water Research Laboratory School of Environmental and Civil Engineering UNSW, initiated a project to develop and conduct grower and community workshops in catchments that access groundwater for cotton production and provide technical information to increase the knowledge among water users of how groundwater systems work and the management of those systems.

One day workshops were held at Hillston, Narramine, Gunnedah, Narrabri, Moree, Goondiwindi and Dalby attended by 90 growers, extension staff and representatives from Regional NRM Bodies, and local councils. A report on the workshop feedback sheets indicates: *"Participants strongly agreed that the workshops increased their understanding of groundwater systems and demonstrated the need for the ongoing sustainable use. They agreed that they were now more likely to seek further information and training in measures to address sustainable water use on farms."*

In addition to the workshops 6 factsheets on groundwater topics were produced for ongoing extension of resource management of groundwater systems. The fact sheets are available on the Cotton CRC website at [www.cottoncrc.org.au/content/Catchments/Publications/Groundwater/Understanding\\_Groundwater.aspx](http://www.cottoncrc.org.au/content/Catchments/Publications/Groundwater/Understanding_Groundwater.aspx)

In the survey conducted for the SII Project external evaluation, respondents described the groundwater project including the workshops and technical information as very useful in providing practical information to growers and Regional NRM Bodies. Respondents indicated as a result of the project there is a growing awareness of groundwater issues and workshop participants are equipped with the tools to better understand and manage groundwater systems. Ongoing impact of the groundwater project, according to survey respondents, is an improvement in the way growers manage groundwater and increased awareness of the issues involved in sustaining the resource. As a result of the project, some growers have been proactive in seeking further information from relevant agencies.

The improving knowledge of groundwater systems project addressed the following SII project ongoing milestones: **KPI 2c, 3a, 3b, 4j, 4k, 4l, 4o, 4q, 5a, 5b, 5c, 6a, 6c, 6d.**

- 6. The Cotton CRC website catchment pages** development has been facilitated by the SII Project. The website highlights cotton production on a regional and catchment scale, while providing an easily accessible source of NRM information for growers, industry representatives, collaborative partners, students and the broader community. Collaboration with the SII Project on this key NRM extension mechanism has come from the Catchment Program Leader, Cotton Resource Centre Coordinator, Communications Officer, Environment Team and researchers. Additionally NRM Bodies and CMAs and research

organizations have collaborated through the provision of information and links to their websites and Catchment plans.

Some other highlights of the website include;

- Interactive maps which take the reader directly to each specific catchment.
- Established links to Regional NRM and CMA websites.
- Reciprocal links to research organizations such as the Water Research Laboratory School of Civil and Environmental Engineering UNSW.
- Established links to the catchment plans in each cotton growing region.
- The links to Regional NRM Bodies provides an avenue for growers and industry staff (through an industry site) to gain access to information on services and incentive schemes provided.
- Easy access to details of current environmental research being undertaken.
- NRM/environmental publications, reports and fact sheets are listed on the site.
- Coming events, field days and workshops are promoted through the online Biodiversity Calendar.
- A “What’s New” tab keeps visitors up-to-date on emerging features, recently published reports, fact sheets or significant events.
- Easily accessed repository for catchment /environmental publications, fact sheets and management tools.

The catchment pages development has achieved greater prominence of NRM and catchment issues on an industry website. It provides a single location for seeking NRM publications, latest reports and fact sheets, coming events and specific catchment information. This dual information approach of providing technical industry and NRM information side-by-side will lead to more involvement by cotton growers in catchment schemes and improved on-farm resource management.

Website and Web search engine statistics has demonstrated:

1. Users are accessing the Catchment pages directly as well as navigating from the industry pages.
2. Some users are accessing the Cotton CRC website for specific NRM information.
3. Others after initially accessing for industry/production information are then taking the opportunity to gain information from the catchment pages.
4. The Biodiversity Calendar is the highest accessed page on the Cotton CRC site, including the Home Page.

The SII Project external evaluation indicates the website catchment pages are being used in a number of practical ways including as a source of useful information for those involved in the industry, a way of publicising events through the calendar and creating a positive image of the industry to the wider community. The site is easy to navigate, relevant and informative and provides useful links to other NRM information.

The development of the websites catchment pages addressed the following SII project ongoing milestones:

**KPI 3a, 3b, 3i, 4c, 4j, 4k, 4l, 4m, 4q, 4r, 4s, 5b, 5c, 6a, 6e.**

7. **Other SII Project activities** include:

- a) Publication of Cotton Industry NRM activities in the December, 2007 and March, 2008 editions of Australian Landcare Magazine.
- b) Presentations at Fertcare training day for consultants and agronomists July, 2007.
- c) Presentations at the Cotton CRC Science Forum, Narrabri, August, 2007

- d) Presentations at Healthy Soils Forums at Narrabri, Goondiwindi and Hillston November 2007.
- e) Facilitation of Cotton CRC Soils Database workshop at Tamworth, December, 2007 with participation from border Rivers-Gwydir CMA, Namoi CMA, Lachlan CMA and NSW DPI.
- f) Contribution to the Schools Write-a-Reader competition conducted by the Cotton CRC where regional primary schools are invited to develop a booklet on the practical measures to implement improved biodiversity management in their area. The entry judged the best will be published and distributed to primary schools through cotton growing regions as a valuable teaching and reference resource. This is a collaborative project with Border Rivers-Gwydir CMA.
- g) Contribution to the development and production of the Best Management Practice manual on measures to control Lippia. Lippia is a highly invasive weed infesting large tracts of riparian and wetland areas of the Murray Darling Basin. This is a collaborative project with various CMAs, NRM Bodies, and Government agencies coordinated by the National Lippia Working Group.
- h) Contribution to the development and production of Fish on Cotton Farms booklet. The production of the booklet is a collaborative project with Murray Darling Basin Commission, NSW DPI, and Namoi CMA.
- i) Contribution to the Namoi floodplain plant Identification booklet. This is a collaborative project with Namoi CMA and NSW DPI.