



## Project Final Report

Project No.  
BG3666.01

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### Project Administration

**Project Title**  
(Use the same title as  
in original project  
application)

“Across the Fenceline”

**Name Of  
Organisation**

Harden Murrumburrah Landcare Group

**Contact Address**

Harden Shire Council, East Street  
PO Box 145,  
Harden. 2587

**Project Manager**

Louise Hufton

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**Project Duration**

Actual Start

Month Year

5 /2007

Actual Finish

Month Year

10 /2008

### Total Project Funding Details

## Expenditure Statement

	(a) <b>MCMA funds</b>	(b) <b>Proponent Contribution</b> (funds and in-kind)	(c) <b>Other Contributor HMLG</b> (funds and in-kind)	(d) <b>Other Contributor CSIRO</b> (funds and in-kind)	<b>Total</b> (a+b+c+d)
<b>INCOME</b> (do not include GST component)					
Funds received	\$9,112.97		2000.00	9,000.00	21,112.97
<b>EXPENDITURE #</b>					
- Capital - Labour & technical support	\$9,112.97				
			2000.00	9,000.00	21,112.97

## Describe the project and its outcomes

Drought – therefore lack of moisture made installation difficult and delayed.

This project has converted an existing project ‘Across the Fenceline’ from CDMA to Next G technology, updated old data collection and collation technology and updated how the information is delivered to the farming community. The Jugiong Creek catchment has been in below average rainfall conditions for the past 7 years and this project provides land managers with a valuable layer of information in which to make informed decisions on crop and pasture establishment and management based on available soil moisture.

Climate change research indicates that southern NSW will suffer a substantial decrease in rainfall & increasing temperatures, HMLG is a proactive group looking for solutions and best management practice to deal with impending change. This tool will greatly assist land managers more efficiently use available water.

### OUTCOMES

- ❖ HMLG has secured its future data flow by conversion to Next G technology
- ❖ Assess the impacts of land management practices on deep drainage and soil moisture
- ❖ Communicating actual levels of soil moisture and deep drainage to landholders through daily updated web page
- ❖ Field days and a seminar to demonstrate the benefits of this level of information in future land management decision making
  
- ❖ The data will provide farms and advisors an opportunity to evaluate the effects of their land and crop management practices on the nature resource.
- ❖ In the current dry conditions, the data assist farms and advisors to make informed decisions on crop and pasture establishment and management based on available soil moisture
- ❖ Allow landholders to more strategically change their land management practices to reduce the risk of failure
- ❖ Encourage faster uptake of land management practises that are more sustainable
- ❖ Greater understanding of farming systems and water use efficiency under a number of different land management practices and soil types
- ❖ Improve water quality and ecosystem management as subsoil moisture is understood
- ❖ Improve longterm ecological and economic sustainability in land use practices
- ❖ Identify effective strategies to overcome problems associated with soil moisture levels be they to high or too low.

### MONITORING

Web page at [www.clw.csiro.au/fenceline](http://www.clw.csiro.au/fenceline) provides daily updates of available soil moisture within the root zone. When conditions are wet enough, it also provides daily updates on deep drainage.

Information seminar held to show landholders how to understand the information and how they can use it to benefit them in their decision making.

Information gained and analysis of information will be included in regular newsletters to landholders and advisors.

This project has successfully installed an array of instruments on five farms in the Jugiong Creek catchment that will indefinitely record the impacts of conventional and changed land-use practices on deep drainage and dryland salinity. The instrumentation consists of soil moisture sensors, drainage meters, rain gauges, data loggers and telemetry. At each farm a data logger and telemetry unit is installed on a fence line that divides two or three paddocks. Data on water use of the different land uses across the fence line were first recorded in late 2002. Delivery of the data to all interested parties via the world wide web commenced in 2004. Installation of deep drainage meters commenced in 2004 but was not completed until mid 2007 following a delay related to the manufacture of these new, innovative instruments. Deep drainage was observed in 2005 [see <http://www.clw.csiro.au/fenceline/projects/garangula/Paddock1-Drainage.html> ].

*Change of ownership of one of the properties on which measurement sites were first established (at Binalong) required the relocation of this site. The new site (KiaOra near Bookham) was established in mid 2007, but full instrumentation of the site was only completed in October 2008. This was partially because of unavoidable damage to the soil water sensors when they were removed from the Binalong site. Then installation was delayed because of the dry conditions, but eventually improved installation techniques were developed that enabled their successful installation in the dry subsoil conditions.*

The "[Across the Fenceline](#)" web pages are currently being revised in the light of experience and feedback since their initial implementation and will be completed by the end of 2008. A community meeting will be held early in the new year to explain the new technology and how landholders can access and use the information to assist with farm management decision based on soil moisture.

## Project Performance against objectives/milestones.

Please provide information on the overall achievements of your project against your planned objectives and milestones.

### ACHIEVEMENTS

What did you set out to do?	Comment on the extent to which your objectives were met.	How did you measure your achievements, eg photos, surveys, attendance at seminars.
Deploy drainage meters in different production systems	Soil moisture sensors, rain gauges, data loggers and telemetry have been successfully installed. Installation of soil moisture sensors were delayed due to dry hard soil conditions (drought) until more reliable installation techniques were developed.	Instruments were installed and all functioned to specification.  Improved design of drainage meter.  Site visits have occurred as part of Prograze and group pasture walks
Monitor the array of instruments	Monitoring began in late 2002 and is continuing.	Data collected, stored, and displayed on publicly accessible world wide web site
Bring together farmers and researchers to raise awareness of dryland issues.	Researcher Dr Warren Bond from CSIRO has addressed the project participants	Several meetings between farmers and researchers.

Develop links with other projects	CSIRO's GRDC-funded project "Objective measures for managing the risk of deep drainage" used 4 of the 5 sites, providing complementary information. DPI project long term pasture & production Bookham	Other research projects connected with this project allowing synergies and sharing of information and results.
Communicate the measurements and project outcomes to community.	Public meetings have been held to discuss project direction and plan the web page design.	Articles written and published. Meetings were held and well attended.
Web site delivery of data	Initial web site has been operational since 2004. It is currently under revision, expected to be completed by the end of 2008.	Information and data from the project readily accessible to all participants, others in the district, as well as to other interested parties.

### Extra notes for the project:

- Links to other projects – One of the five sites for the deep drainage equipment has been the Binalong Landcare Topdressing Lime/Grazing Demonstration. For the past 7 years this demonstration has been investigating the effects of lime movement and super application on a native pasture grazed by merino wethers. Over this time animal and pasture production have been closely monitored and an annual economic analysis calculated. (See attached summary - Binalong Landcare Topdressing Lime/Grazing Demonstration – September 2004 Update). This demonstration has been strongly supported by DPI.
- The Bookham Grazing site is also used by DPI as a regular visiting site for the Prograze & Lanscan courses together with a number of other farmer groups across the Murrumbidgee Catchment. This will expose drainage meter technology to a large range of farmers and encourage the uptake of moisture and drainage soil monitoring and knowledge.

### Comments from participants in the project.

The drainage meters have been installed along with equipment needed to carry out automatic measurements. The data that is to be collected will be invaluable in providing information as to water movement below the plant root zone under differing fertiliser/lime grazing treatments on native based perennial pastures.

**Fiona Leech, Extension Agronomist, NSW Agriculture, Yass.**

The Drainage Project will enable Land Managers in the area to determine the amount of water that is leaking into the water table with different land uses. This knowledge will then allow more informed decisions to be made over a micro-catchment on a suitable mix of land uses so as to reduce the amount of water leaking into the ground water system and leading to dry land salinity.

**David Cusack, Mount View, Galong**

Whilst the dry conditions have limited the value of the results to date, I have no doubt that the project will be of immense value to all growers in the district once normal seasonal conditions resume. Especially in relation to warnings re potential leaching of nitrates in crop & subsoil drainage of water & nutrients from under perennial pastures.

**Jim Wright, Agricultural Consultant, Harden District Rural Advisory Service**

This project is the culmination of a lot of hard work and detailed planning. It allows the use of the latest technology to produce meaningful information on how to maximise our production systems by fully understanding and then utilising available moisture.

**Tony Flanery, Lowlynn, Galong.**

Paul's drainage work is essential, in order to determine water use efficiency, which has been guesswork up until now. Having been associated with his work at the CSIRO site at "Oxton Park" for the last year, I have been able to focus on the drainage effect of individual rainfall events, and the effect crop growth stage has had on these events. Any management decisions that can reduce profile leakage will increase production will benefit the bottom line for both the producer and the environment, particularly relating to salinisation.

**P. O'Connor, Oxton Park, Harden. 2587**

This project has provided an excellent opportunity to deploy cutting edge and innovative technology to address the needs of land managers. The interaction between researchers and land holders has provided valuable advances in the application of the latest technology to provide practical information. Although initially conceived in a wetter period when excess water was the issue, the project has been able to adapt to providing valuable information for farm management in the current exceptionally dry conditions.

**Dr Warren Bond, CSIRO Land and Water, Canberra**

## Participation

How many people have been actively involved in your project

15

Category	Name of Group	Type of Involvement	Number of Participants
Community Group	Harden Murrumburrah Landcare Group	Provided sites and management of sites once drainage metres have been installed	4
	Binalong Landcare Group (Bookham site)	Provided site and management of site	1
	Harden Murrumburrah Landcare Group	Administration Committee	1 5
Research Organisation	CSIRO – Land & Water	Installation of drainage meters.	
Private Consultants	Delta Agribusiness	Technical support	1
	Harden District Rural Advisory Service	Technical Support	1
	Department of Primary Industries	Technical Support	2

## Implementing Regional, Catchment and Local Area Planning

In what way has your project contributed to the development or implementation of a regional strategy or plan?

Jugiong Creek Catchment has been listed as high priority areas for water quality and salinity in the Murrumbidgee Catchment, this project aims to provide a tool that will assist farmers manage water quality, water use efficiency & water tables in our catchment.

## Future Action

How is your group planning to maintain the project after funding has ceased?

The site is to be managed by the landowners on whose land the drainage metres have been established. CSIRO will maintain the instruments should there be any technical faults.

## Group Declaration:

I declare that I am an authorised representative of the recipient organisation that the information given on this form is complete and correct, and that expenditure of moneys paid under the financial agreement has been solely upon the project and in accordance with the terms of the Agreement and its conditions.

<b>Name (please print)</b>	Peter Holding		<b>Name (please print)</b>	Louise Hufton	
<b>Position in Organisation</b>	Chairman of subcommittee HMLG – ‘Across the Fencline’ project	<b>Phone</b> 63821808	<b>Position in Organisation</b>	HMLG Community Support Officer	<b>Phone</b> 63863954
<b>Signature</b>		<b>Date</b>	<b>Signature</b>		<b>Date</b>

