Future implementation of Total Channel Control

While the questionnaire results indicate a majority of irrigators reported positive experiences with TCC and CA, a sizeable minority reported negative experiences – indicating that there is not a uniform view about the technology and its farm impacts, and the relationship and communication process between G-MW and irrigators. Also, although CA represented far less change for irrigators than TCC, a similarly sizeable minority of irrigators reported negative perspectives about their relationship and communication with G-MW – indicating there are issues beyond changes due to TCC.

A positive relationship between G-MW and irrigators is central to the success of water reform in the CG district. This study has found that an open and trusted approach to communication needs to accompany the installation of TCC and CA, if the negative impacts are to be anticipated and reduced, and enduring benefits are to accrue – for irrigators and G-MW.

The key findings from this study can assist target extension and other support to the irrigators in most need, and aid in predicting the impact on farmers in other areas where it is proposed that TCC be installed.

Before installing TCC in other areas, the irrigators interviewed suggested there should be greater investment in:

- remedial communication with CG2 irrigators to resolve outstanding issues;
- in-depth analysis of how and where TCC will be most effective (eg. consider whether small and inactive water licence-holders warrant TCC);
- upgrading and/or maintaining channel infrastructure (including spurs) to a operating standard to allow TCC to be effective;
- personal consultation with individual irrigators – prior to and during the introduction of TCC;
- support to manage the impacts of change (eg. provide more evidence of TCC’s operation and accuracy) and compensation for errors in operation;
- whole farm planning to ensure TCC is viewed in a whole-farm context;
- gradual and staged introduction of TCC, so deficiencies can be rectified and shared learning can occur; and
- development of a ‘water banking’ system which allows irrigators to move water savings in the current season to future years.

Using ‘champions’ of TCC to promote the system to other farmers needs to be considered carefully, with effective communication likely to be achieved by engaging irrigators who share a common background to other farmers, and have had an experience with TCC that other farmers can identify with.

A copy of the full report is available from the Water for Rivers website at www.waterforrivers.org.au.

For further information about the study reported in this summary report please contact:

Dr Digby Race
Senior Research Fellow
Institute for Land, Water and Society,
Charles Sturt University,
PO Box 789, Albury, NSW 2640.
Tel: (02) 6051 9940
Email: drace@csu.edu.au

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Disclaimer

The views expressed in this report are solely the authors, and do not necessarily reflect the views of Charles Sturt University, Water for Rivers or any other individual or organisation consulted during the study.
Background

The Australian, New South Wales, South Australian and Victorian governments have contributed funds to an independent research organisation – Water for Rivers, to recover 212 gigalitres (GL) of additional water for the Rivers, to recover 212 gigalitres (GL) of additional water for the Snowy River and 70 GL for the River Murray by mid-2012. Water for Rivers has identified channel automated in Victoria as an effective approach to water recovery. Water for Rivers is working with Goulburn-Murray Water (G-MW), the Department of Sustainability and Environment (DSE), and Rubicon Systems Australia (Rubicon) to assess an initial pilot project and implement a trial project in the Central Goulburn (CG) district of north-central Victoria to automate the: a) main and secondary channel regulation gates and outfall structures; and b) outlets to individual farms, by replacing the manual Dethridge wheels.

The combination of both technologies (a and b) is termed Total Channel Control (TCC) and was anticipated to provide a range of benefits to irrigators, G-MW and water savings for the environment. The CG2 area was selected for the pilot project and initially comprised of 51 licensed irrigators when TCC was installed in 2002. In the larger area of CG3&4, with about 220 licensed irrigators, only the automated channel regulators – termed Channel Automation (CA), were installed in 2005. This option was chosen to provide a comparison with the TCC option.

G-MW and irrigators in the CG2 area are arguably at the ‘coal face’ of water reform, with there being limited past experience or precedent to guide how water reform should be implemented within the CG irrigation area. In a sense, TCC is both a symbolic and practical expression of an approach by the Australian and Victorian governments to water reform, and G-MW has carriage of some unwelcome changes. G-MW and farmers involved in TCC deserve to be given greater public acknowledgment for their work in delivering water reform, especially during the difficult climatic period currently faced by the community in the CG area.

The introduction of TCC represented a dramatic change to the supply management and delivery of water for irrigation in CG2 – an area that had seen little change in this process in the previous 50 years. A further complication was that this change was implemented during an extended period of below average rainfall. In 2006, Water for Rivers contracted a research team from the Institute of Land, Water and Society (ILWS) – Charles Sturt University, to gather and analyse the experiences of irrigators in relation to TCC in the CG2 area, and CA in the CG3&4 area. Prior to the implementation of TCC, there had been partial investigations of TCC completed before CA was introduced into the CG3&4 area. Water for Rivers had the impression that despite the initial ‘teething’ problems, most farmers appeared to have adapted to the introduced irrigation system. However, the research team wanted to confirm this view prior to supporting any additional implementation of this technology.

Research approach

The ILWS research team interviewed 70 irrigators who had experience of either TCC or CA, and a further 14 relevant staff from G-MW, Rubicon, DSE and Department of Primary Industries (DPI) – with a total of 84 people interviewed for this study. Most irrigators in the CG2 area were interviewed (36 interviewed of a total of 42 license-holders), while a diverse sample of irrigators in the CG3&4 area was interviewed (34 interviewed of a total of 420 license-holders).

During the interviews with irrigators a mix of qualitative and quantitative data were collected, with the qualitative data providing the primary source of information. As a secondary source of data, irrigators were asked to complete a questionnaire that recorded demographic and farm business attributes, and asked their views on broad topics relating to TCC or CA. The ratings by irrigators to the questionnaire allowed the researcher to quantify the perceptions of irrigators (either positive or negative), and as a means of obtaining additional data to cross-relate information obtained in the personal interviews.

The focus of this report is on the experiences of irrigators in CG area in relation to TCC and CA. The views of additional stakeholders were incorporated into the analysis in so far as they added further depth or clarification of issues raised by the irrigators. The research team did not analyse the engineering capacity or effectiveness of the technology used in TCC and CA, nor undertake an economic analysis of the impacts of the technology.

Key findings

Total Channel Control in the CG2 area

The interviews with irrigators in the CG2 area revealed a wide range of experiences with TCC – with considerable variation between irrigators, and over time. Most irrigators reported initial enthusiasm and support for TCC, yet for many it had failed to operate to the performance initially promised by G-MW and Rubicon. The problems with TCC most commonly reported were with the Snowy River: • inaccurate water measurement and allocation; • unreliable opening and closing of Flume gates, and; • undetected leaks in the channel system causing a loss of supply.

Often difficulties with the TCC system were only revealed during the peak of the irrigation season – the period when many irrigators are most sensitive to irrigation failures. Also, there was a common view that many of the failures with the TCC system were borne personally by farmers. Both G-MW and Rubicon staff acknowledge that early versions of TCC included deficiencies (eg. sensor ‘drift’).

However, while failures within the TCC system were still being reported during the last irrigation season, for some irrigators TCC has improved during the four years of operation. For the farthest advantage of TCC reported by irrigators was automated water delivery, ensuring farmers to spend less time directly managing irrigation. The ordering system was reported to be an improvement on the previous system for several farmers. The ability to place water orders remotely suited several irrigators.

This study found a strong link between irrigators’ experiences with TCC and the level of water usage and enterprise type. For instance, the study’s profiles revealed dairy farmers typically use more water and are highly dependent on water compared to other farm enterprises, and often reported negative experiences with TCC. Conversely, farmers with lower water usage and small properties tended to view TCC favourably.

This study explored the views of irrigators in relation to the TCC technology, farm impacts, their relationship with G-MW, and the communication between G-MW and irrigators about TCC. Generally, irrigators more regularly reported negative experiences with TCC during the interviews than indicated by the results of the questionnaire (completed by them at the conclusion of the interview). However, the questionnaire results indicate more irrigators in the CG2 area had positive experiences with TCC than those who had negative experiences.

Channel Automation in the CG3&4 area

The experiences of farmers interviewed about CA in the CG3&4 area did not appear to correlate with their water usage or farm enterprise. Most irrigators reported ‘teething’ problems early on in the 2005-06 irrigation season, however most issues were resolved by January 2006.

Negative impacts reported about CA appeared to correlate to the capacity and quality of specific pools in a channel, rather than the location of the irrigator on the channel system. Also, some irrigators reported problems due to sensor ‘drift’ – with these sensors expected to be upgraded in the coming season.

While some irrigators reported CA had made water allocation fairer within the CG3&4 area, G-MW staff were more confident that it was a fairer approach to water allocation than previously.

Of the irrigators interviewed for this study in the CG3&4 area, more reported positive experiences with CA, mainly associated with there being a more reliable water supply within channels – both during the interviews and in their responses to the questionnaire.

Figure 1: Perceptions held by CA irrigators

Figure 2: Perceptions held by TCC irrigators

Table: Comparison of CA and TCC perceptions

G-MW

Positive

Negative

CA technology

Farm impacts

Relationship with G-MW

Communications about CA
35
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
CA Technology

Farm Impacts

Relationship with G-MW

Communications about CA

Figure 1: Perceptions held by CA irrigators (n=23)

Figure 2: Perceptions held by TCC irrigators (n=31)