

SEARCH CRITERIA

Model	Model C: Technological Development Model
Industry	Cotton, grains, dairy, fruit, vegetables
Focus/Level	Industry
Purpose	Testing available knowledge, increasing knowledge
Outcomes	Development of a management practice
Special Interest Groups	Other
Design and Implementation	Designed by researchers/experts managed by community/farmers

1. PROJECT TITLE:

Rural Water Use Efficiency Initiative (RWUEI) Adoption Program Queensland

2. FUNDERS:

Queensland Government through the Department of Natural Resources and Mines.

3. PROVIDERS:

The Department of Primary Industries Queensland has provided the employment framework and support for RWUEI officers in the Cotton & Grains industries (linked to the CRC for Sustainable Cotton production) and the Dairy Industry (linked to Queensland Dairy Farmers Organisation). Queensland Fruit & Vegetables Growers Association employs the RWUEI Horticultural officers and the Bureau of Sugar Experimental Stations (BSES) employs the Sugar RWUEI field officers.

4. KEY CONTACTS:

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5. INDUSTRY/ISSUE/GEOGRAPHY:

The project is directed at improving rural water use efficiency use in irrigation across all industries – specifically targeting sugar, cotton & grains, dairy & Lucerne and cotton. It is a Queensland directed project, but because of the involvement of the cotton industry it also impacts on Northern NSW and the Northern Territory.

The project started in 1999 and the first phase will be completed June 2003.

6. PROJECT CONTEXT:

Queensland has 30 major dams delivering 1.8 million megalitres to irrigators across the state. This amounts to up to 70% of the state's water supply. Fewer dams are being built in the face of demand being expected to increase.

Legislative initiatives aimed at monitoring and managing water allocation is one approach being used for rural water use management. It does not however directly impact on the efficiency of available water at the farm level. The key irrigation industries have not had well resourced programs to promote and assist improvement in rural water use efficiency.

The RWUEI was developed to improve water use efficiency and management of available irrigation water to improve the competitiveness, profitability and sustainability of Queensland's rural industries. The goal of the four-year initiative is to increase agricultural production by \$280 million without using extra water.

7. PROJECT NICHE (SPECIFIC OBJECTIVES):

A Synergy Analysis of the RWUEI Adoption Program identified the specific project niche as that of directly working with irrigators across the major irrigation industries to improve on-farm water-use efficiency. This directly complemented the other elements of the total RWUEI which provided financial incentives and research. The analysis highlighted that specific processes which the RWUEI Adoption Program most significantly contributed to the overall goal of increasing water use efficiency when compared with the total processes provided by all players were: recognition incentives; developing awareness of the need for water use efficiency; education of irrigators about improving water use efficiency; developing on-farm benchmarks for assessing improvements; measuring and assessing on-farm systems; and undertaking local trials and demonstrations of improved systems.

8. PHILOSOPHY/APPROACH: TECHNOLOGY DEVELOPMENT MODEL.

The project is primarily based on field officers working with irrigators and researchers to develop and implement the most efficient irrigation approaches for specific industries in specific locations. Different approaches are tested on farm and modifications made. On-farm measurements are made with irrigators to highlight potential gains and to measure improvements.

Another key philosophy is that of partnerships between industry and government. Most of the funding goes through industry organisations and RWUEI field officers work within- or a linked closely to – industry/grower organisations.

9. RESOURCES, MANAGEMENT AND STAFFING STRUCTURES:

The Queensland State Government has provided \$23 million for the RWUEI Adoption program over a four-year period. Industry organisations and participating irrigators provide in-kind support. A Steering Committee made up of Stakeholders in water use efficiency across the state is also in place.

There is a state manager/coordinator based within DNR&M in Brisbane. He works with the state industry coordinators – sugar; cotton & grains; dairy & lucerne; and horticulture. The state industry coordinators have field staff distributed in key industry regions across the state. Each industry has industry advisory groups to set priorities for activities in the regions.

10. PROCESS/METHODS USED:

- The Adoption Program funds trained irrigation field officers to work closely with the irrigators themselves to: develop an awareness of the need for improved water efficiency; understand and monitor their own irrigation systems better; become aware of alternatives and their cost/efficiency implications; and to assist in moving to improved systems.
- Specific activities undertaken across the nominated industries (Coutts & Russell 2001) include:

Demonstration sites; on-farm trials; field days, workshops and grower meetings; newsletters and fliers; discussion groups; benchmarking surveys; testing farmer equipment on-farm – assessing irrigation equipment; providing equipment for growers to share; developing regional Best Management Practice criteria; development of regional and crop plans; provision of technical specialist services – to growers and field officers; developing WUE benchmarks- information sheets/modules; providing self-evaluation workbooks; providing and promoting recording systems; establishing regional management or reference groups; on-farm

water storage consultancy; development of crop models; developing industry policy on minimum standards; and providing training in farm planning.
.Field staff all received training in extension and irrigation at the start of the project.

11. IMPACTS TO DATE (AND EVALUATION APPROACHES USED):

.Evaluation guidelines were originally set up by Barraclough & Co at the commencement of the project under the headings: Water Use Efficiency; Best Management Practice; and Cultural Change. Each industry has tracked participation in different activities/events; collected 'feedback' sheets from participants, undertaken surveys at different levels; and undertaken/encouraged benchmarking on farm. A .Mid-term evaluation was undertaken in November 2001 which collated the data from these evaluations and industry reports under a log frame and using the Barraclough headings.

.At that stage, higher level impacts (actual changes in water use efficiency) were not available. Cotton industry surveys indicated that awareness and participation in the program had exceeded 75% of growers and is now estimated to be greater than 80% in some regions. As well by August 2001, 78% of cotton irrigators had become involved in BMP. An increasing number of irrigators are now achieving irrigation efficiency well in advance of the State benchmarks presented in the Stocktake report compiled at the commencement of the program. In the sugar industry 84% of growers were involved in the program. 80% of growers achieved irrigation BMP compared to a target of 50% for 2002. A survey of 37 dairy farmers in the Darling Downs found that 43.2% had bought new equipment; 40.5 % had updated equipment and 67% had modified irrigation management.

12. EFFECTIVENESS:

The mid-term review (Coutts & Russell 2001) summarised their findings of the program in this way: *The RWUEI Adoption Program is an impressive example of an integrated approach to change management in rural industries. It has achieved a high level of penetration and participation across regions and industries in a short time. There are already indications that the program is making progress towards the required outcomes under the Barraclough report.* In the subsequent Synergy Analysis, the authors stated: *The RWUEI Adoption Program is the only significant project tackling water use efficiency improvement at an on-farm level. It complements the work being undertaken at the systems and water provision levels....There is strong evidence that an on-farm focus is critical to achieving the magnitude being sought for on-farm water efficiency savings in a relatively short time.*

Two cotton producers and industry representatives interviewed described RWUEI field staff as having taken two years to learn enough about on-farm irrigation systems and were now at the stage that they were providing real industry benefit.

13. PROJECT DOCUMENTATION AVAILABLE:

All of the available documentation is available on the Web: www.nrm.qld.gov.au/rwue
This includes milestone reports etc from the different industries involved. Two recent evaluations referred to above are:

Coutts J & Russell R (2001) Mid-Term Review of the Rural Water Use Efficiency Adoption Program, REC UQ Gatton, DNR&M Brisbane.

Coutts J & Russell R (2002) Synergy Analysis of the Rural Water Use Efficiency Initiative Adoption Program, Coutts J&R, DNR&M Queensland.

14. ISSUES:

The first phase of the project is due for completion in June 2003. There is no guaranteed second phase. Most staff employed on the project are in short-term contracts and could be lost to the project prematurely if continuity is not assured.

Central to the argument for the on-going funding of the project is that of public good versus industry and individual good. The project focuses on improved productivity and profitability from farms using irrigation based on using existing water more efficiently and could be seen to be an individual benefit. The heavy use of existing water supplies by farms is a strong case however for the public good component – particularly as government water management policies have an increased negative impact on farming operations. It is also clear that other government or industry programs do not have the resources or will to provide the concerted resources needed for this activity.

- Issues relating to off-farm improvements to water quality and flows would appear to be a necessary public good component to include in a new phase of the project.
- Measuring improvements at the overall industry level is fraught with difficulty. Different seasons, market and environmental pressures as well as lack of accurate across industry measurements makes this a problem. Estimates based on available measurements with seasonal adjustments and extrapolated from adoption and research data would appear to be needed to provide an assessment of change at this level.

15. COMMENTS/CONCLUSIONS:

The successful cross-industry nature of the project makes it quite unique and worth serious consideration. The on-farm component and the support of industry committee appears to have been keys to the successes indicated to date. It does raise the question as to whether a return to 'projectised' (as opposed to ad-hoc) on-farm presence and activities is needed to tackle improvements in environmental management in farming systems in Australia.

16. REVIEW METHODS:

- Undertaking two desktop evaluations involving interviews with key informants within the RWUEI Adoption Project and associated bodies.
- Reviewing available reports and literature in the project.
- Forwarding the analysis summary to project managers for proofing, additions and challenge.