



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Farm Viability in the Berriquin Irrigation Area

Michael E.S. Young

Institute for Sustainable Agriculture
Department of Agriculture
TATURA, VIC. 3616.

&

H. Ray Dowell

Fisher Dowell Associates
SWAN HILL, VIC. 3585

Farm Viability in the Berriquin Irrigation Area.

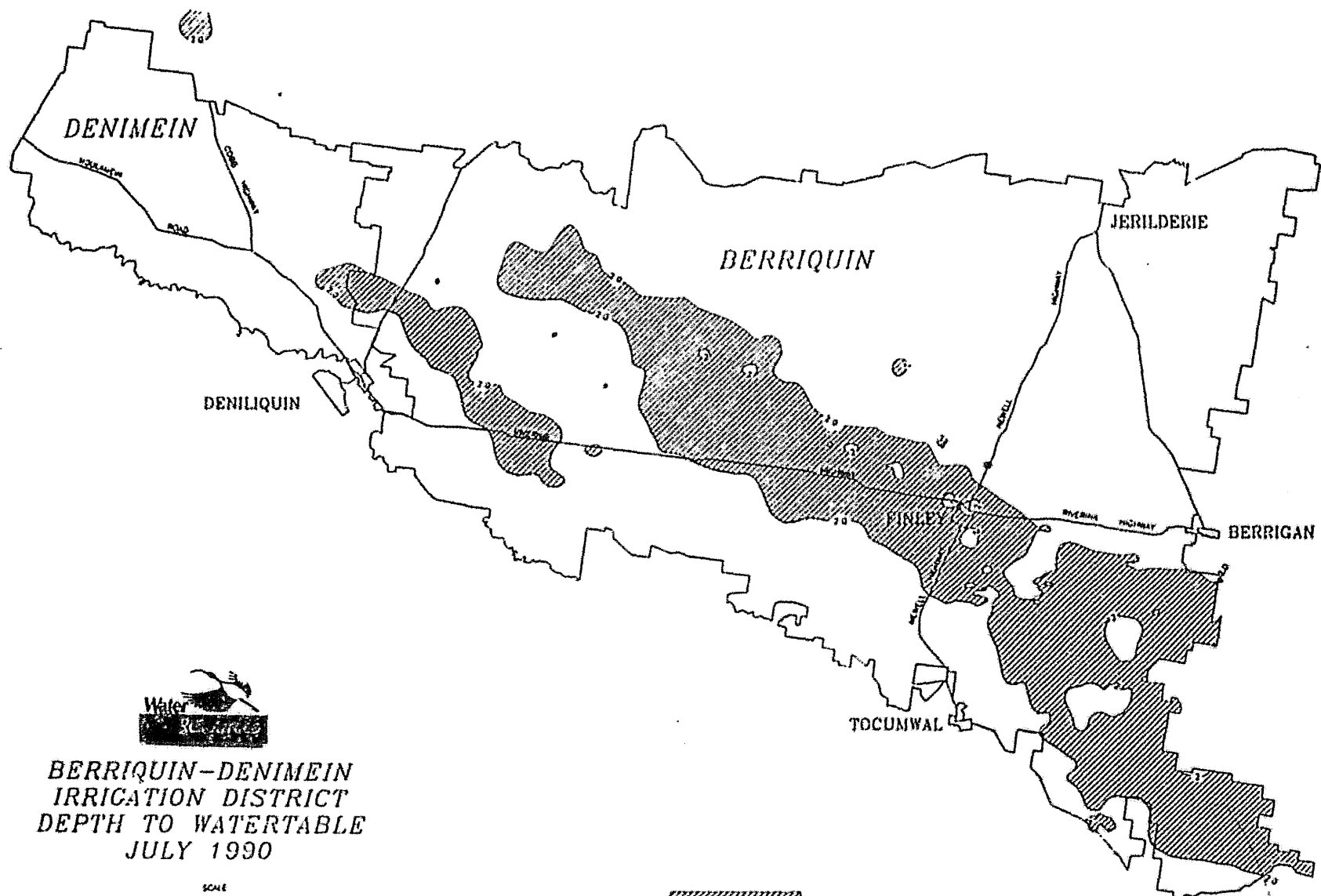
Michael E.S. Young, Leader Salinity Operational Planning,
Institute for Sustainable Agriculture,
Department of Agriculture, Tatura, Victoria.

H. Ray Dowell,
Director,
Fisher Dowell Associates,
Swan Hill, Victoria.

KEY WORDS: Farm viability; Irrigation; Land and water management; Ability to pay.


ABSTRACT

A detailed financial survey of 61 randomly selected farms in the Berriquin Irrigation District was undertaken to determine the ability and willingness of the farmers to pay for and participate in the implementation of a regional Land and Water Management Plan. The sample was stratified to reflect the four major district enterprises (Dairy, Rice, Mixed and Vegetables), together with their geographic location within the five (5) stages of the Berriquin Surface Drainage Program. The results showed high levels of debt in the region and that 66% of farms were unable to cover cash costs, operator's labour and depreciation in the 1990/91 financial year.



**BERRIQUIN-DENIMEIN
IRRIGATION DISTRICT
DEPTH TO WATERTABLE
JULY 1990**

SCALE
0 1 2 3 4 5 6 7 8 9 10 Kilometres

WATERTABLE <2 0m 



Farm Viability in the Berriquin Irrigation Area

Introduction

The Berriquin Irrigation District (BID) is one of four irrigation districts which surround Deniliquin in the southern Riverina of NSW, the others being Denimein, Wakool and Cadell. It occupies some 320,000 ha, comprising around 1,400 holdings owned by about 899 farmers and containing 725 separate farm businesses.

This paper reports on a study undertaken by Fisher Dowell Associates from Swan Hill and forms part of the technical papers that support the preparation of the Land and Water Management Plan being developed under NSW Salt Action by the Berriquin Irrigation District Community Working Group.

This type of study is an essential input into the preparation of a community based land and water management plan because it provides information regarding the financial status of the community who are preparing the plan and who are expected to implement it. This information should be used to guide the planners, both community and government agencies, towards a range of land and water management options that are affordable by all interest groups and therefore have some chance of being implemented, to the benefit of both the State and the farming and regional communities.

This study is different to an economic cost benefit analysis, which evaluates the ability of a particular project to meet treasury investment guidelines, because a financial study aims to identify the impact, on individual farmers in the region, of current commodity prices and input costs across a diverse range of farm enterprise mixes and quite variable capital structures.

The greatest weakness in land and water management policy development to date and, speaking from 10 years experience in both the government and private sector, there has been total disregard for the existence of farm overhead costs, including operators labour, cash overheads, interest and depreciation. All option evaluations, to-date, have assumed that a productivity increase, with an associated increase in farm gross margin, will enable the farmer to afford new land and water management activities. However, if, in spite of the increased gross margin, the individual business is still generating a cash deficit (in the absence of any cash reserves), then the individual will be worse off and would have been irrational to invest in the activity. Unfortunately, with poor use of accounting information after the event, many farmers do not know the cash flow implications of their investment until it is too late. This observation is nothing new for those who regularly deal with farmers and other small businesses.

There are serious enough social impacts when a small urban business gets into financial difficulties but, in the case of a farming business that gets into financial difficulties, there are the additional, potentially serious, environmental impacts that will occur if the landholder is unable to invest at the level needed to overcome the potential degradation of land and water resources. It is therefore in

the government's and community's interest to develop land and water management options that enhance regional productivity but also consider options that facilitate the process of structural adjustment for those who will never be able to afford the generally accepted range of salinity, land and water management options.

Some would argue that market forces will facilitate structural adjustment, as history has shown. However, the natural rate of adjustment is not fast enough to prevent the predicted rate of resource degradation, as many of the financially stressed landholders can linger on by reducing expenditure to a minimum in hope of some miracle upturn in commodity prices. By the time they are forced to sell out, much of the environmental damage is done.

The Berriquin Situation in 1990/91

A detailed financial survey of 61 landholders in the Berriquin Irrigation District was undertaken by the authors during the period from June to August, 1992. The survey collected data on the 1990/91 financial year from a stratified sample of Rice, Dairy, Mixed and Vegetable farms based on the proportional representation of the 750 farm businesses, as they occurred in each of the five surface drainage stage areas in the district. The sample was representative of the population with a 90% level of confidence plus or minus 13.5% error and included 20 rice farms, 13 dairy farms, 19 mixed farms and 9 vegetable farms. The survey involved a two to three hour interview at the farmer's preferred location (mostly at home) and required completion of a detailed financial questionnaire. The questionnaire included detailed income by enterprises, off-farm income, detailed expenses by enterprises (where possible), cash overheads, capital servicing requirements, an estimate of depreciation based on market value of plant and equipment and fixed assets and an estimate of the operators' allowance (based on identifiable number of persons operating the business but not drawing a salary or wages). Detailed asset and liability data was collected.

In addition farmers were requested to respond to three (3) questionnaires relating to:

1. Attitude to investment in land and water management options;
2. Observed changes resulting from undertaking land and water management works;
3. Levels of investment in land and water management works.

The farmers reacted positively to the opportunity to be involved in the Study and the development of the Land and Water Management Plan.

A large Lotus 1-2-3 model was used to analyse the data and to undertake sensitivity analyses of any of the Input or Output parameters, as require in the terms of reference of the Survey. The analysis did not permit the identification of individual landholders in the survey sample and has thus maintained complete confidentiality.

The following table summarises the physical characteristics of the sample farms.

Table 1. BERRIQUIN FINANCIAL SURVEY - PHYSICAL SUMMARY OF SAMPLE FARMS

	RICE	MIXED	DAIRY	VEG	TOTAL
RICE Ha	1489				1489
WHEAT Ha	1280			221.2	1501
BARLEY Ha				112	415
OATS Ha				32	354
TRITICALE Ha				56	380
MAIZE Ha		146			146
TOMATOES Ha				356	356
POTATOES Ha		20		573	593
OTHER CROPS Ha				160	592
PERENNIAL PAST.	362	785	1021	50	2218
ANNUAL IRRIG.PAST.	4679	6808	1671	895	14053
IRRIG.CROP	2432	1771	339	1634	6176
DRYLAND	2549	2143	462	1206	6360
WASTE	232	200	131	116	679
TOT FARM AREA HA	10254	11707	3624	3901	29486
TOT.GRAZ.HA	7822	9936	3285	2267	23310
TOT.EFFECTIVE HA	4681	5719	2070	1676	14148
TOTAL DSE	51066	94090	43490	15228	203774
TOTAL ML	36261	35985	16424	8827	97497
ML ON PASTURE	16796	24650	16424	2548	60418
ML/EFFECT.HA	3.59	4.31	7.93	1.52	4.27
AVERAGE HA	512.7	616.2	278.8	433.4	483.4
MEDIAN AREA HA	460	405	241	338	402
NUMBER OF FARMS	20	19	13	9	61

In retrospect, the 1990/91 financial year has proven to be one of the worst years for farmers in a long time. It was the last year of a period of high interest rates, high inflation, rapidly declining terms of trade (rice excepted) and the complete collapse of the wool and sheep meat market following removal of the floor price scheme. Wheat prices were historically low and it was a very wet year for all crops except rice. It was an exceptionally good year for rice yields.

The consequence of all these adverse production factors was a picture of rice farmers doing reasonably well; dairy farmers showed wide variation in profitability, depending on their level of borrowing to undertake farm development; mixed farmers invariably were clutching at straws, not knowing which way to turn next and rapidly depleting reserves if they were not already in serious debt; and vegetable farmers (both tomatoes and potatoes) were reasonably well off in most cases if their operation was big enough.

a) Net Cash Surplus by Enterprise

The following table summarises the survey results by displaying the number of sample farms of each enterprise with net cash surpluses in the ranges < \$0, \$0 to \$10000, \$10001 to \$20000, \$20000 to \$40000 and > \$40000.

Table 2 . Net Cash Surplus/Deficit by Enterprises

ENTERPRISE	< \$0	\$0-10k	\$10-20k	\$20-40k	> \$40k
DAIRY	6	2	2	2	1
MIXED	13	1	-	3	2
RICE	5	2	4	5	4
VEGETABLES	3	1	1	-	4
TOTAL	27	6	7	10	11

The results indicate that 27 (44%) of the 61 sample farms had negative cash surpluses (deficits) in the 1990/91 financial year. This represented 46% of dairy farms, 68% of mixed farms, 25% of rice farms and 33% of vegetable farms.

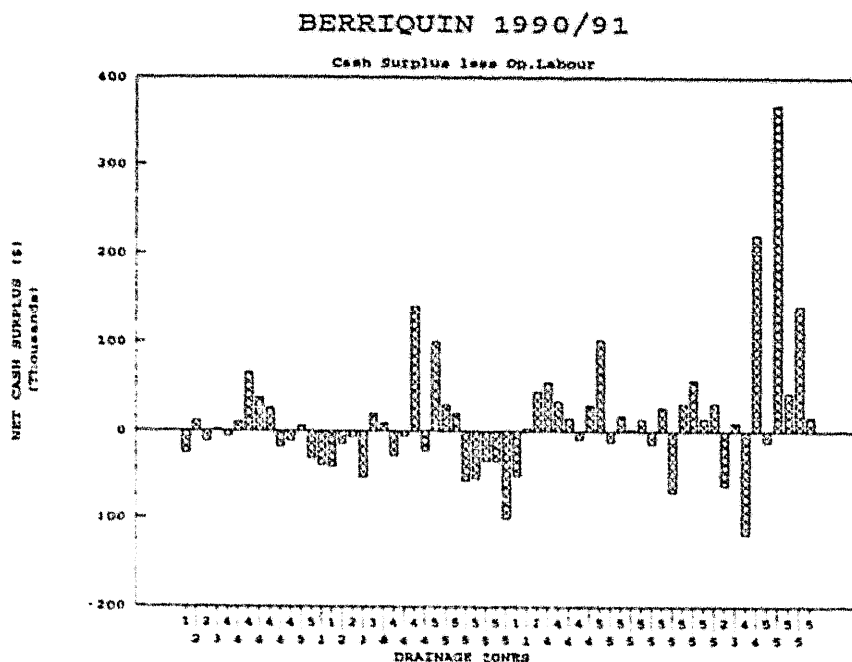
It should be noted that an operators allowance of \$15000 per full time adult worker (not drawing a wage or salary) or dependent household had been deducted. In the sample, this ranged from one to five Dependent Households. It should also be noted that off-farm income was also included.

The cause of the high percentage of negative cash surpluses is a combination of low gross incomes from cereal crops, sheep and wool, variable potato returns and/or high interest commitments. It was observed that there was the whole spectrum of management systems from low cost, low income operations to high cost, high return operations. The maximum net cash surplus observed was

in excess of \$200000 and the greatest cash deficit was more than \$100000. There was no readily identifiable relationship between size of farm and net cash surplus.

However, rice and vegetable farms, on average, were in a better financial position than dairy or mixed farms.

The following figure shows the distribution of Net Cash Surplus/Deficit over the locations by District Drainage Stages.



b) Net Farm Return by Enterprise

Net Farm Return is an indicator of long term viability of a farm business. It is in fact the true farm business profit and includes non-cash items such as depreciation allowance (the annual capital loss due to wear and tear on farm assets) and changes in inventory (livestock, grain and hay stocks).

The results indicate that 40 (66%) of the 61 sample farms were not able to maintain their productive assets in the 1990/91 financial year. This represented 77% of all dairy farms, 84% of mixed farms, 50% of rice farms and 44% of vegetable farms in the sample.

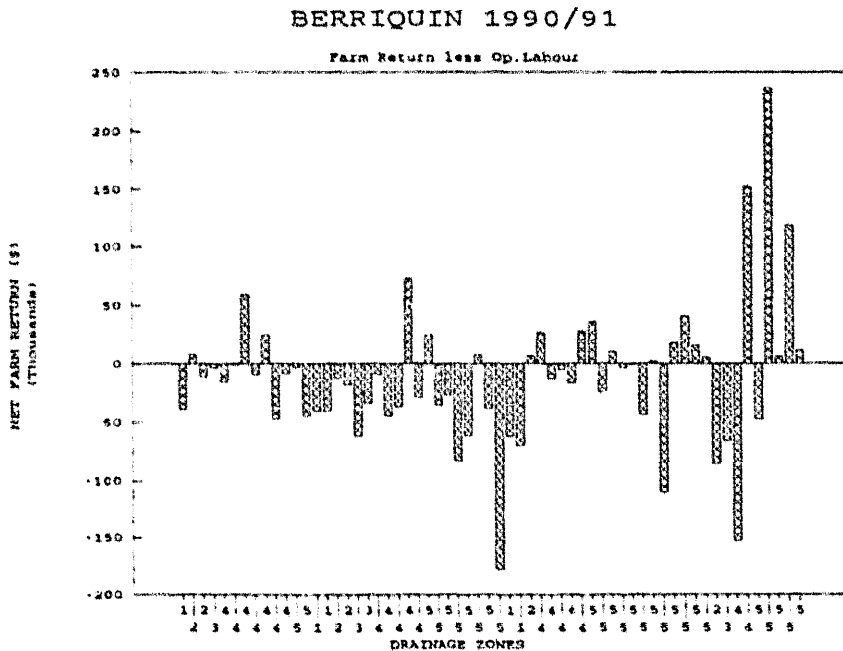
The following table summarises the survey results by displaying the number

of sample farms of each enterprise with Net Farm Returns in the ranges < \$0, \$0 to \$10000, \$10001 to \$20000, \$20000 to \$40000 and > \$40000.

Table 3. Net Farm Returns (Profit) by Enterprise

ENTERPRISE	< \$0	\$0-10k	\$10-20k	\$20-40k	> \$40k
DAIRY	10	1	-	1	1
MIXED	16	1	-	1	1
RICE	10	4	2	3	1
VEGETABLES	4	1	1	-	3
TOTAL	40	7	3	5	6

This table is summarised by the following figure which shows the distribution of net farm returns across drainage zones.



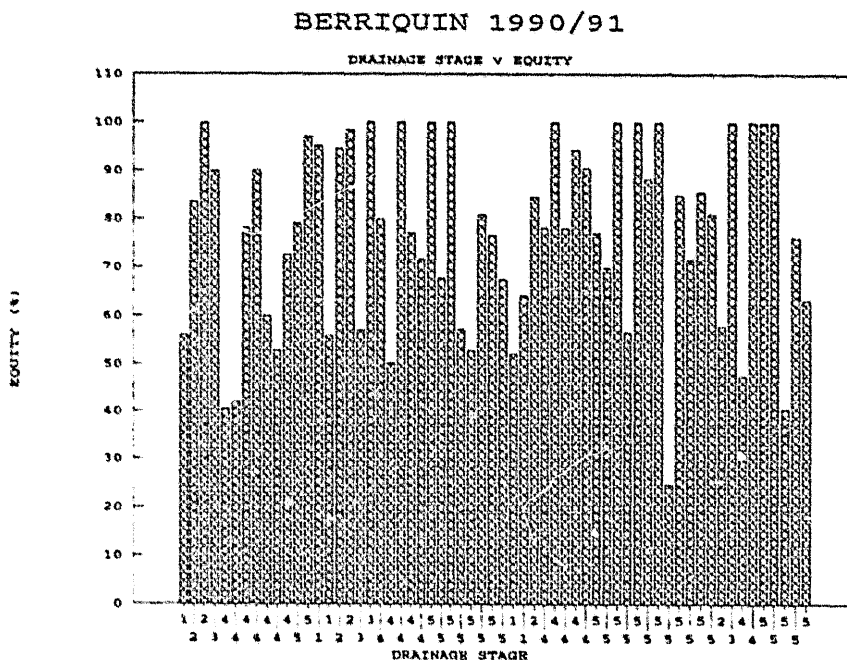
In terms of being able to invest in new land and water management initiatives, 27 of the 40 farmers with negative net farm returns also had cash deficits. The farmers surveyed invested \$1.41 million in 1990/91, of which \$70,000 was their own labour, in on-farm land and water management practices. For some, this investment has contributed to the deficit. Evidence from the survey

indicated that the deficit was primarily being funded by overdraft or non-servicing of loans. The latter situation will prove unviable in the near future if the unpaid interest is capitalised into existing debt, thus making the situation worse quite rapidly.

Debt/Equity in 1990/91

Total debt across the region was surprisingly high and very unpredictable. The associated servicing costs contributed significantly to the low cash surpluses observed in the survey.

The following figure shows the total equity of the sample population.



Sample Farm Equity Levels 1990/91

Four of the farms with lowest equity have subsequently sold some of their assets in an attempt to return to viability.

The average debt levels in the survey sample were as follows:

Dairy - \$237,742	none had 100% equity
Rice - \$205,774	4 or 20% had 100% equity
Mixed - \$233,396	4 or 21% had 100% equity

Vegetables - \$284,557 4 or 44% had 100% equity

Overall Average \$232,814 12 or 20% had 100% equity

Of the farms with no debt:

2 had cash deficits

10 had a net cash surplus

Of the 34 farms with net cash surpluses:

10 had no debt (16%)

24 had some debt (40%) (41% equity to almost 100% equity)

Of the 27 farms with cash deficits:

2 had no debt (3%)

25 had some debt (41%) (24% equity to 99% equity)

This was the result of at least four (4) years of very high interest rates which seriously eroded working capital.

It should be stressed that long term viability is dependent on a business's ability to be profitable, maintain the functionality of all productive assets (including land) and maintaining adequate working capital. Without adequate working capital, a business loses operational flexibility.

c) Off-Farm Income

If off-farm income was deducted from Net Cash Surpluses, 51% of all farms surveyed would have Net Cash Deficits. i.e. an additional 4 farms, 1 mixed, 2 rice and 1 vegetables. Similarly, if off farm income was deducted from Farm Returns, 70% of all farms surveyed would have negative farm returns and would not be viable in the long term. They are very dependent on off-farm income and reserves.

Ability to invest in Land and Water Management Works at 1990/91 Prices

In spite of the apparently depressing survey results so far discussed, even in the 1990/91 financial year, of the 61 farms, 57% had some ability to contribute to additional on and/or off-farm land and water management options. Those with high equity (>80% equity) and a cash surplus >\$20000 represent 20% of the population and will be able to participate in the full range of options available.

The low equity and high cash surplus farms represent 15% of the population and should see debt retirement as their first priority and consequently have limited ability to participate. This group, after having reduced their debt, will have an

increased capacity to pay.

Those with low equity and a small cash surplus (11%) must be considered marginal and at financial risk and have a very limited ability to pay.

Those with cash deficits (43%) must be considered to have no ability to borrow additional funds and no capacity to pay for on or off-farm works under the cost and price regime of 1990/91.

Conclusions

The results of the survey provide very valuable information to planners and policy makers at both state and community level.

The results highlight the need to make provision for strategies which provide options to accelerate the structural adjustment required to achieve the resource management goals of the wider community through implementation of technically and financially feasible land and water management options.

Most agricultural economists and political observers would agree that no business operator, including farmers, has an inherent right to be profitable. They have the right, as individual managers, to make business decisions which may send them broke or increase their profit. It is not in the wider community's interest for the structural adjustment process to be drawn out if it leads to natural resource degradation. The existing Commonwealth Rural Assistance Schemes (RAS C) can accelerate that process and needs to be built into more imaginative land and water management options for identifiable non-viable farmers. The cost of restructuring non-viable farmers out of the industry may be far less than the cost to the wider community if natural resource degradation is allowed to continue. It is worth close consideration during the development of such initiatives as the Murray Darling Basin Commission Irrigation Management Strategy.

Fortunately, in 1993 and beyond, the prospect for grain prices is much brighter than in 1990/91. Interest rates are lower nominally and falling in real terms. Inflation is low and sheep meat prices are stabilising at a reasonable level. Wool prices are expected to stabilise over the next three to four years.

ABARE (Outlook 93) has predicted that producers are expected to return an average farm business profit of \$75(0) compared with average business losses of \$21,600 in 1990/91.

The ability of the Berriquin Irrigation District landholders to pay for new land and water management options has improved substantially compared to 1990/91. This ability will be enhanced if the options provided, particularly those involving major capital works, are at the minimum cost needed to achieve the technical goal i.e. a Rolls Royce is unnecessary if a Volvo will do the job. In the Shepparton Region, for example, this was achieved through a reduction in the construction of Rural Water Corporation arterial drains and an increase in the number of lower cost

community surface drains. This provided a lower cost to the State and a more equitable cost share based on "Beneficiary Pays". It is during this planning stage that the cost effectiveness component of the NSW Treasury Investment Guidelines for the Preparation of Land and Water Management Plans must be applied rigorously, to the benefit of the State and the irrigation community.

References:

Fisher Dowell Associates, *Berriquin Irrigation District, Financial Study*, Fisher Dowell Associates, Swan Hill, September, 1992.