Part 2  Influences and Participants

4. Keys to market behaviour

Disparate returns from water

Permanent trade in Victoria peaked at over 24,000 ML in 1998/99, and then eased back to about 22,500 ML in 2000/01 (see attachment 3). Part of this may be more apparent than real, since trade is more frequently being held over to come into effect on 1 July.

The easing probably reflects, though, growing confidence amongst dairy farmers that the temporary market can provide water at a reasonable cost and risk, and also a recent cooling off in wine-grape demand.

It is likely permanent trading will, to a degree, come in surges every few years or decades, in response to medium-term changes in the fortunes of various industries - commodity prices, irrigation technologies, marketing arrangements, and so forth. There could well be times of more intense adaptation and restructure, with quieter periods in between.

This process has been observed in NSW cotton valleys, where trade has become infrequent following the establishment of cotton as a monoculture. If, say, a new fabric were to displace cotton in world markets, or a virulent pest attacked local cotton crops, there could be a new time of transition, before another period of relative stability.

Nevertheless, given that trade is driven by divergences in the value of different water uses, and such divergences in Victoria remain striking, it would seem that permanent trade has a fair way to roll yet, before any settling down.

Within the Goulburn-Murray region, for example, it is estimated that almost 40% of all irrigation water is currently applied to low-return grazing and cropping. Only 4% is currently applied to horticulture.

Prices for water paid by premium horticultural enterprises give some indication of possible future returns. In the Barossa Valley water commands as much as $8,000 a ML (some has been bought on the Murray, and transported to the Barossa using off-peak capacity in the pipeline for urban supply - which works out a lot cheaper); in McLaren Vale in early 2001 one lot of groundwater sold for $14,000 a ML.

With the big divergence in returns that exist in Victoria, it is surprising in some ways that movement is not more rapid. However, considerable capital outlays are required to set up high-value enterprises. Many farmers who struggle in older, lower-value enterprises don’t have the capacity to invest in changes themselves, but are not prepared to give up their businesses.

There is further inertia because farms are also homes, located in communities, not readily abandoned. On the other hand, the demographics of farmers suggest that changes will persist in coming years. Farmers are typically in their 50s, and less than a half of them are confident that any of their children will take over their farm.

Commodity prices and the other industry fundamentals that affect returns as a whole and from water in particular, likewise have a strong influence on the temporary water market. This includes, for example, in the case of dairying, the cost of hay and other feed supplements, which can to an extent be an alternative to water in maintaining milk production.

Of temporary sellers during 1998/99 surveyed in Pyramid-Boort and Torrumbarry, more than a third cited “commodity prices low this year” as being important in their decision to sell. Conversely, of the temporary buyers, more than a quarter cited “commodity prices very good” as important in their decision to buy, and some cited “one-off opportunity to sell more of a certain product”.

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16 Bjornlund and McKay (2001), long version, p.30 – studying farmers in Pyramid-Boort and Torrumbarry. This was true even of the (temporary) buyers, the group most positive about the future. Farmers may be little different in this from owners of other small, family-owned businesses, like shops.
17 Bjornlund and McKay (2001), long version, pp.57-59. For sellers, this factor was as common as “we always have excess water”, and only surpassed by “if I sell permanently the value of my property will decline”. For buyers, the only two factors more influential were “low sales allocations” and “can’t afford to buy permanently”.

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The temporary buyers tended to be dairy farmers, whereas the sellers did not. The temporary market, just like the permanent one, provides an opportunity to move water to where it will earn a higher return, but in this case in response to short-term fluctuations in economic circumstances.

**Water scarcity and trading controls**

The temporary market is volatile, because it is heavily influenced by the short-term availability of water, plus local rainfall and temperature that affect demand for water. The permanent market is influenced by perceptions about scarcity over the longer term, e.g. resource changes brought about by gradually changing climatic conditions.

In both cases, scarcity of water underpins the market. There is no trading where entitlements are still freely handed out, or where usage can increase in an unfettered way, without any need for entitlements.

In Victoria the market began after new rights (except “winter-fill” licences on unregulated streams) had long since stopped being issued over the counter. Usage was still growing through take-up of entitlement, especially of “sales” water made available on top of basic rights, but “sales” water was not necessarily to be relied on, especially as usage grew.

The mid-1990s saw the start of a string of dry years. At the same time the Cap in northern Victoria put an end to creeping usage growth. From now on, any uptake would be at the expense of other water users, who had been enjoying access to large quantities of “sales”. Seasonal allocations were tightened.

The Cap has underlined the fact of resource scarcity, rather than created it. Indeed, the Cap has been acting to prevent growth in usage giving rise to ever more serious scarcity. It has thus protected existing water users’ rights.

Cap implementation through a consultative process of defining bulk water entitlements has clarified the rights of individual farmers, both in their minds and legally. This precision about what people are entitled to has helped trade develop: people know to live with the rights they have or else use the market to make adjustments, confident in what it is they are trading.

Just when scarcity started to hit Victoria and the Cap was being announced, the main barriers to trade came down. After a tentative start, with the door opening slowly first just to temporary transfers, and a couple of years later to very limited permanent ones (e.g. only within three separate parts of the Goulburn-Murray irrigation district), the door was flung wide open.

Thus in the mid-1990s, the rules and legislation were broadened to provide much greater scope for trade: down Waranga Western Channel, out of irrigation districts, from the Goulburn to the Murray, into the Sunraysia region, past Barmah Choke, to urban water authorities, between States. More than half the trade occurring now is only possible because of these changes.

The philosophy has been that trade should be as free as possible, as long as there are no adverse effects. A few adverse effects became apparent quite quickly, however, leading to some toughening of the rules, some clamping down on certain sorts of trade. Two illustrations of this (explained further in chapters 6 and 9):

- as part of an “interim” Cap, because of concerns about trade accelerating utilisation, trade of “sales” water was heavily restricted in two steps: in late 1995 (just after Parliament had legitimised this trade) and in 1997;
- following realisation that water was being sold out of Victoria cheaply and unfairly, end-of-season temporary trade to NSW (where the water was allowed to be carried over for use in the next season) was suddenly outlawed in 2000.
4. Keys to market behaviour

Market awareness and services

Many farmers initially adopted a cautious approach to water trading, preferring to wait and see before entering the market. This partly reflected a lack of awareness about how the market worked, and would perform in the future. By 1996, only 20% of irrigators had been involved in any form of trading.

However, this turned around in the space of three years. Out of the farmers in the Pyramid-Boort and Torrumbarry irrigation areas with more than 50 ML of water rights, as many as 78% had been involved in trade of some kind or another - mostly temporary - by mid-1999. Participation in the market is now widespread.

Nearly 40% of the trading farmers (including those with less than 50 ML of water rights) had been involved in more than five trades in the 7½-year period from early 1992 to mid-1999, including nearly 20% in more than ten trades. For many farmers trading is becoming a standard business strategy, no different from adjusting other inputs and outputs.

Accordingly, in the 1998/99 season it was common for a farmer both to buy and to sell water on the temporary market, in many cases ending up with net trade of zero. Quite a few farmers bought early in the season, when allocations were very low, and then as allocations improved - they reached 200% on the Murray - were able to sell again.

Some farmers have changed their risk position by permanent trade, and are then making adjustments annually the other way. Thus, in 1998/99, 11% of all temporary buyers had at some time sold water permanently, and likewise 11% of all temporary sellers had previously bought water permanently.

18 Bjornlund and McKay (2001), based on G-MW’s records. Altogether 1,737 farms had >50 ML water rights. Of those involved in trade (including those with less than 50 ML of water rights), 17% had sold permanently and 14% had bought permanently, and 65% had sold temporarily and 61% had bought temporarily.
Trade is still taking place to a large extent between neighbours and friends and through other private and informal connections. These avenues were the methods of contact for 36% of substantial temporary traders in Pyramid-Boort and Torrumbarry in 1998/99, while a broker was the method of contact for 29% of these traders.19

In these two irrigation areas, brokers were used substantially more by the buyers than by the sellers. The two areas (especially Torrumbarry) were net importers of water on the temporary market that year, with nearly 40% of buyers obtaining water from NSW (mainly) or South Australia. A lot of the trade from farther-off localities and from interstate was handled by brokers.

There are about a twenty water brokers operating in Victoria, mostly having branched out from real estate or farm consultancy businesses. As just noted, in the temporary market they are valued for arranging longer-distance and interstate trade. In addition, brokers handle a high share of the permanent market, which is comparatively thin, involves more significant decisions, and requires more complicated processing.

The big new avenue for temporary trade evident in the above diagram is the Northern Victorian Water Exchange, then in its first year. The Exchange has played a major role in the three years since it started. It acts as a scanner, picking up what is happening in the temporary market; moreover, it has provided information back to traders that has helped to modify market behaviour. This merits a full account.

**Northern Victorian Water Exchange**

Irrigator concern about paucity of information on prices, together with some uneasiness in areas that were losing water about the role of brokers, led to the establishment by Goulburn-Murray Water (G-MW) of the Northern Victorian Water Exchange in August 1998. Its role is to link up temporary sellers and buyers of water, and provide reliable market information.

The Exchange proved immediately popular with irrigators, being responsible for 15% of all temporary trade in the Goulburn-Murray region in the first year, 25% in the second year, and 31% in the latest year, 2000/01 - when 938 farmers bought and 829 sold on the Exchange. Moreover, the prices set each week have been published in local papers and act as a guide for traders generally.

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### Table 3: Illustration of trader matching & price setting on the Exchange

**Northern Victorian Water Exchange**  
*Date of exchange: 21 Sept 2000*

**Temporary transfer of water rights / licences**  
**Trading zone: Zone 1 – Greater Goulburn**

<table>
<thead>
<tr>
<th>Price per ML</th>
<th>ML for sale</th>
<th>Total ML in exch.</th>
<th>Reg no.</th>
<th>Price per ML</th>
<th>ML to buy</th>
<th>Total ML in exch.</th>
<th>Reg. no.</th>
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<td>300.0</td>
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</tbody>
</table>

*(15 more offers, from $60 to $90)*

**Pool price determined:**  $40.00 per ML  
**Volume traded:**  1,421.0 ML  
**Offers to sell unsatisfied:**  1,930 ML;  
**Price range:**  $45.00 to $100.00.  
**Offers to buy unsatisfied:**  549 ML;  
**Price range:**  $25.00 to $40.00.  

No offers were eliminated by ballot.  
Offer to buy B25304 was chosen by ballot to be reduced by 99.0 ML.

*I declare that the above water exchange has been conducted in accordance with the rules of the NVWE.*

*Signed by Water Exchange Controller:………………………………… Date: ……………………………*

**Note:**  Shaded offers are the offers that were successful.
The Exchange provides quick turnaround. Offers must be brought or faxed in by 10.00 a.m. on a Monday, G-MW pre-processes them by the Wednesday, the exchange takes place on Thursday morning with the results out by noon, and successful buyers have their water first thing on Friday. The Exchange provides money to the sellers (for the sale, net of fees\(^2\)) and collects money from buyers over the next 12 days.

Trading zones have been delineated, showing where trade can always take place (see chapter 7). For each of these trading zones, the sell offers are listed starting with the lowest asking price, together with the cumulative volume to be traded, and the buy bids are listed likewise, except starting with the highest bid price.

All trade in a zone takes place at a single "pool" price (halfway between the highest successful seller asking price and the lowest successful buyer bid price). Moving down the lists of sellers and buyers, the maximum volume of water is found, such that sellers get their asking price or more, and buyers pay what they were prepared to or less (see table 3).

Crucial to the Water Exchange’s acceptance is that it is operated at arms-length from G-MW and has a high level of integrity. Offers to buy and sell are turned into anonymous registration numbers and treated strictly according to rules (e.g. a ballot to decide between the last sellers or the last buyers, if required). There is outside supervision of the exchange process, and independent auditing.

Other exchanges have been set up in southeast Australia, with a variety of methods for matching. For instance, a private exchange runs a "continuous auction" via the Internet, enabling a buyer to accept a seller’s posted offer at any time. While this may suit some traders, there is some luck - or perhaps time spent scouring the web-site, or money spent paying a spotter - at work in determining who gets the best deals.

The rural water authorities in Victoria are now jointly working to set up an upgraded version of the Northern Victorian Water Exchange, to be called Watermove, which will cover a greater geographical area, and handle permanent transfers as well as temporary ones.

At the same time it is acknowledged that, as far as practicable, trade-approving authorities should give equal access and processing turnaround to all water exchanges, as well as to brokers and to individual traders.

**How the market is evolving**

Various influences on the temporary market are evident in diagram 3, which shows what happened in the most active trading zone, Greater Goulburn, during the first year of the Water Exchange.

The highlights in 1998/99 were:

- When the allocation to meet water rights opened at an exceptionally low 40%, some horticulturists were anxious their plantings wouldn’t survive and purchased water at up to $199 a ML.
- Very little water sold at these high prices early in the season.
- As the seasonal allocation rose and horticulturists were satisfied, the price dropped back and hovered at around $90, which appeared to be the price at which dairy farmers were prepared to buy temporary water.
- Prices offered by dairy farmers were influenced by the cost of purchasing hay and other feed as an alternative to buying water to grow feed.

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\(^2\) Fees for sellers are 3% of the sale value achieved, but not less than $30 or more than $500; fees for buyers are $25, plus the $65 fee to G-MW for approving the transfer. (There’s an extra fee of $67 if water comes from Sunraysia.) 10% Goods & Services Tax is payable on all the Water Exchange fees, but not on the $65 transfer fee.
Towards the end of the season, dairy farmers appeared to be entering the market to buy enough water for the next watering only (i.e. they were hoping that autumn rains would remove the need to buy again).

Prices dropped significantly towards the end of the season as people who weren’t needing to use their whole entitlements realised that opportunities to sell were decreasing.

Before the start of the 1999/00 season, a brochure was mailed out to G-MW customers. The brochure contained the above graph of what had happened in 1998/99 together with a brief analysis. This improved information helped the market to behave more maturely, as shown in diagram 4, on next page.

Highlights in 1999/00 were:

- Sellers placed more water in the market early in the season when they expected the price to be higher.
- Prices softened to $65 a ML in September, but then came back up to $90, since allocations only reached 70% in late October and the prospect of higher ones was fading.
- The price hovered for several weeks at this sort of level, apparently influenced by the cost of feed again, plus allocations not reaching 100% water right until January.
- The previous year’s results gave buyers confidence that water would be available in the second half of the season.
- Prices fell earlier and the volume of trade increased as sellers understood what was happening from the previous year’s experience.

• Though the opening allocation at 35% was even lower than in 1998/99, it sparked less reaction as horticulturists waited to see further allocation and price developments.

In 2000/01 these changes progressed even further, with prices staying below $50 a ML after the second exchange, and staying relatively steady for most of the season. This is a sign of a more established, dependable market.

Realisation by farmers that prices have been higher early and lower later may even be leading to deliberate selling and buying in the one season, with a consequent smoothing of the price (a function that could one day be performed by financiers or other intermediaries).

The low overall prices in 2000/01 reflect specific factors such as heavy rain in spring, and perhaps small dairy farmers getting their “deregulation money” and getting out.\textsuperscript{21} They also parallel the settling down of permanent transfer prices. It looks like dairy farmers are seeing water as not so urgent a problem, and choosing to switch funds to other farm improvements - including water-saving measures. They are organising themselves to get by with lower allocations.

With extended dry conditions, temporary prices would rise again.\textsuperscript{22} Presently they are below the financing cost of permanent water, no doubt partly as a result of the greater risk still seen to attach to temporary buying. Such divergence could prompt a little growth in the background level of temporary trade. Even some horticulturists, now they know they can outbid other market participants, might use temporary water as a standard input.

\textsuperscript{21} Barry Lierich, Tatura Milk, cites this as one reason milk production across northern Victoria has dipped slightly in 2000/01 – though in most cases farms &/or herds are taken over by neighbours, who are using deregulation money to expand. (Other reasons for the dip are humidity-induced damage to clover, and early herd culling influenced by beef prices.)

\textsuperscript{22} Indeed, as this guide goes to press, prices in the Goulburn system, having kept at around $50 a ML in the first half of the 2001/02 season, in January shot up to nearly $150 and in March to over $200 a ML. Irrigators there are going through their fourth season with allocations of only 100% water right; and this time it has been extremely dry, with no rain interrupting demand. Moreover, hay, grain and meat prices have been high, which has made buying feed a less attractive alternative for dairy farmers, and raised demand for water from cropping and grazing farmers.
5. Communities and individuals in the market

Trading of water occurs across a rural landscape and amidst a community fabric that are steadily changing. Water trading is just one of several factors influencing the changes. This chapter takes a closer look at the areas and people trading, keeping in mind this evolving backdrop.

Places where water is moving

The areas gaining and losing water through trading are shown in table 4, which is the basis for the map 3. The table and map show in more detail the directions of trade that were outlined in chapter 2.

The biggest gain through the permanent market, in volume terms, has been to Sunraysia private diverters. Much of this water is going to large-scale, high-tech, major-outlay horticultural developments on former dryland farms.

One issue with all this new activity is that it is needing to be further from the River Murray and/or served with excellent drainage, in order to minimise salinity impacts. Efforts are being made to have coordinated, rather than piecemeal, development and services.

The very large Goulburn-Murray irrigation district, which consists of all the gravity-fed irrigation from the Goulburn and Murray Rivers and covers almost 60% of farmers’ entitlement in Victoria, has had mixed fortunes. In some ways it has been ripe for restructure and development via the water market.

The district takes in several thriving dairying localities - where some farmers have been relying more heavily than has been sustainable on “sales” water to support higher production. It also has some concentrations of horticulture; and many farms big enough to have land that has not been irrigated in the past. The Rochester and Central Goulburn areas have both had substantial increases in their entitlement.

The western or mid-river areas in particular - Pyramid-Boort and Torrumbarry - have been home to much grazing and crop growing, nowadays often of relatively low value, and have suffered from saline groundwater close to the surface. Parts of these two areas have lost a significant amount of entitlement, which has contributed to the general decline affecting many isolated rural communities, and has created some anxiety about trade.

On the other hand both these areas also contain extensive tracts of good soil, and higher ground suitable for expansion. Trade internal to each area has been very significant. Active steps are being taken to promote the opportunities for development within or adjacent to the areas: prime development zones have been identified, where new irrigation enterprises are being facilitated.

As mentioned earlier, there has been some success: in 2000/01 Pyramid-Boort imported nearly 1,500 ML net. Torrumbarry is still losing entitlement, but (as with Pyramid-Boort) there has been a tremendous amount of internal trade; moreover Torrumbarry has consistently been a net buyer on the temporary market - a sign of the dairying that flourishes around Cohuna.
Table 4:  Permanent and temporary trade into and within irrigation areas and river groups

<table>
<thead>
<tr>
<th>Area or river group</th>
<th>Entitlement 30/6/01 (ML)</th>
<th>Total permanent trade 1991/92 to 2000/01</th>
<th>Ave. temporary trade 1994/5-00/1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Into area</td>
<td>Internal</td>
<td>Out of area</td>
</tr>
<tr>
<td>Sunraysia R Murray</td>
<td>203,327</td>
<td>38,025</td>
<td>12,741</td>
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<tr>
<td>Sunraysia districts (incl. FMIT)</td>
<td>189,079</td>
<td>2,633</td>
<td>571</td>
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<tr>
<td>Nyah &amp; Tresco districts</td>
<td>19,568</td>
<td>1,600</td>
<td>488</td>
</tr>
<tr>
<td>Murray/Kiewa/Ovens/Mitta R</td>
<td>159,307</td>
<td>1,477</td>
<td>5,098</td>
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<td>* Torrumbarry</td>
<td>358,744</td>
<td>2,166</td>
<td>17,823</td>
</tr>
<tr>
<td>* Murray Valley</td>
<td>259,103</td>
<td>1,366</td>
<td>3,178</td>
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<tr>
<td>Horsham, savings, Wimmera R</td>
<td>35,017</td>
<td>1,203</td>
<td>1,520</td>
</tr>
<tr>
<td>Werribee &amp; Bacchus M. districts</td>
<td>13,037</td>
<td>123</td>
<td>58</td>
</tr>
<tr>
<td>Macalister district</td>
<td>117,044</td>
<td>119</td>
<td>465</td>
</tr>
<tr>
<td>Thomson &amp; Macalister R</td>
<td>24,074</td>
<td>515</td>
<td>885</td>
</tr>
<tr>
<td>Other rivers, south of Divide</td>
<td>181,262</td>
<td>30</td>
<td>1,887</td>
</tr>
<tr>
<td>Environmental entitlement</td>
<td>27,600</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Urban (incl. coal-fired electricity)</td>
<td>600,000</td>
<td>1,174</td>
<td>900</td>
</tr>
</tbody>
</table>

Notes: For permanent trade:
* % increase = volume into an area minus volume out (i.e. net increase), as % of 30/6/01 entitlement minus net increase (i.e. entitlement at beginning of period, insofar as change has been via trade).
* % effectively internal = actual internal, plus the volume into an area which is matched by the volume out, as % of the same base as for % increase.

For temporary trade, the table shows average annual trade over recent years. Entitlement doesn’t change, so the base used is 30/6/01 entitlement.

Entitlement consists of water rights only in districts, all licences, and urban entitlements; it does not include “sales”.

For sources and detailed notes, see attachment 3. As explained there, the Sunraysia figures are under review.
Map 3: Permanent trade into, within and out of areas and river groups

Legend
- Towns
- Irrigation areas / districts
- Storage, weirs
- Channels, pipelines
- Internal trade volume
- Trade into
- Trade out

A trade into (or out) is half a trade, since it is a trade out of (or into) somewhere else; the volumes in table 4 are halved.
Profile of buyers and sellers

Within existing irrigation districts - like the Goulburn-Murray district - trading of water has been associated with a gradual growth in the size of family farms. Where irrigation is spreading out across former dryland farms - as in Sunraysia and on higher land near Boort - water trading often means a more sudden transition, to enterprises that are run by corporations.

Similar changes in the nature of farming are happening across the spectrum, not just in irrigated agriculture. Farms have been getting bigger and bigger ever since the original settlements, which were sometimes based on pieces of land too small to be economic even then. Now the pace of change has accelerated, with farms forced to increase production and cut unit costs in order to compete in a worldwide marketplace.

Just ten years ago, the average size of a dairy herd in Victoria was about 90 cows, but extraordinarily quickly this has doubled to 180 cows - about the limit for a husband-and-wife team to manage, even using the latest technology. With the dismantling of the old market controls - which gave farmers assured quotas and prices for fresh milk and assisted the more competitive ones (mainly in Victoria) in the export market - the average will soon be 250 cows.23

Farmers are becoming people running businesses: spending more time inside, using computers, tracking markets, on their mobile phones, investing in new equipment, organising. “Globalisation, technology, ageing - they’re all going to have a big impact on what we know as family farms over the next five to ten years,” notes one. “The farmers of yesterday, in one way or another, have limited existence.”24

In horticulture, where initial outlays are high, the family farm is already giving way to large company undertakings. These companies may be owned by big business interests in capital cities, or set up to provide urban investors with the tax benefits of being primary producers.

An example of the latter kind of company is Timbercorp, which is establishing 1,200 hectares of olives near Boort and 1,000 hectares of almonds in Sunraysia. These large companies may invest as much as $100 million in one development; $10 million for the water alone. They employ a manager, and a nine-to-five workforce. As one large family-farm pumper has commented, this is a new class of diverter.

In existing irrigation districts, changes are gradual. Neil Barr found that the decline in farm numbers in Pyramid-Boort and Torrumbarry in the mid-to-late 1990s was just 2% a year, around the national average.

There were high exit rates from farms, especially small ones, but these were largely offset by high entry rates. Neil Barr concluded that the assets of small farms, especially housing, act as a barrier to consolidation into more competitive units. The water market provides a way around this, allowing significantly faster restructuring.25

Surveys have been done of buyers and sellers in the Goulburn-Murray irrigation district. Henning Bjornlund and Jennifer McKay first studied permanent traders in the district (except for the Murray Valley area). This work has shown clearly what was understood from circumstantial or anecdotal evidence, that water has been trading to higher-value dairying and horticulture, with the buyers using water more efficiently.26

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23 Information from Max Fehring, President of United Dairyfarmers of Victoria 1999-01.
25 See Barr (2000).
26 Bjornlund and McKay (1999), (2000a), (2000b). They sent questionnaires to all traders from Jan 1992 (when trade started) to the end of 1993; then they arranged detailed telephone interviews of 100 of those who had bought and 100 of those who had sold from 1994 to 1996; the data used here is from the second period. 71% of the sellers were cattle or sheep producers, though sometimes water came from a minor cropping component, 69% of the buyers were dairy farmers. 75% of buyers had re-use schemes at the time of purchase and a further 8% had installed them since, while only 37% of sellers had these schemes.
The buyers were existing farmers who were gradually building up their water rights, as part of being competitive. On average they bought about 70 ML, and ended up with 290 ML; while (starting with not much less) the sellers sold about the same, and ended up with 130 ML. A lot of the sellers used the proceeds to cover annual expenses, rather than to pay for upgraded irrigation efficiency or other improvements: the viability of their farms was gradually eroding.

More recently, some of these permanent buyers and sellers were contacted again. Quite a few buyers had since bought more water, or bought land with water right. Many of those *not* buying further water preferred temporary buying: for its tax advantages and relative ease (especially now the Water Exchange was operating) and because they did not need the water every year.

In the large gravity districts dairy farmers have been major buyers of water. To stay viable they are needing to milk a larger number of cows – and produce more milk for each megalitre of irrigation water.
Again, some of the sellers had continued to sell, or sold irrigated land, even stopped irrigating. Those not selling further water said that selling would adversely affect their drought security or reduce the value of their property, or that they expected the market price to go higher, or that they preferred the annual income and ease of selling temporarily.

In this latest study, farmers with over 50 ML of water right, who temporarily bought or sold more than 40 ML net in 1998/99, and farmers who had never been involved in trade of any kind, were interviewed (this time investigation being confined to the western areas, Pyramid-Boort and Torrumbarry). The interviews furnished interesting insights into these three sorts of players, and a glimpse at the broader human drama of which trading is part.

The temporary buyers generally operate the larger, more productive properties, their average water rights being 565 ML. Half of them have all their irrigated land in dairy, the other half have some cattle and cropping as well. They tend to be older with fewer children at home, and often they have left school early to work on the family farm. They are active in the community and in training events.

On looking at attitudes to challenges like water trading and the Cap, the buyers were found to cluster into fairly distinct groups. These reflected where people were up to in making their enterprises competitive:

a) Quite a few feel threatened by the pressures to invest and upgrade. These are the ones with slightly smaller farms, given over to dairying, and they are buying to defend their existing production in a time of resource constraint.

b) Over a half are striving hard to expand. They hold bigger water rights, and are keeping usage at over 180%, buying water temporarily since they’re highly geared and that’s all they can afford.

c) The rest seem reasonably comfortable. They have the largest properties and incomes, are in cropping and grazing as well as dairying, and are buying to maintain 130% usage.

The temporary sellers generally have farms managed in a less go-ahead way, with 424 ML of water rights on average. They tend to be engaged in lower-value production, though a very few are in dairying or horticulture. The sellers are not homogeneous:

a) Nearly half are smaller, struggling farmers, who irrigate land mostly for cattle or sheep, not very efficiently; who perceive their long-term viability to be dubious, and who are very dependent on off-farm income.

b) A few are rural residents, often from a farming background, but who hardly use their water, instead selling each year to supplement off-farm income.

c) The rest own larger, well-managed properties, which they aim to improve. However, they either do not want to expand immediately, or are selling to finance development, or have bought water permanently for droughts and are temporarily disposing of excess.

Of the non-traders, one group is quite well-off, not readily distinguishable from many buyers. But on the whole these have the smallest farms, with only 244 ML of water rights on average, mostly used for grazing or cropping with a few for dairying. These people tend to be new to the land, less involved with the community. Some farm as a hobby, while quite a few consider themselves commercial irrigators, but are battling.

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27 Bjornlund and McKay (2001). Interviews were with a sample of 100 out of the 158 who sold more than 40 ML net, 100 out of the 204 who bought more than 40 ML net, and 100 out of the 386 who had done no trade, temporary or permanent, at any time since 1992. The findings reported here are consistent with the idea of “the disappearing middle” – stratification of farms into larger, semi-viable, and vulnerable, with some of the latter using survival strategies that ultimately diminish the possibility of their adapting; see Barr (1999).