



IRRIGATION RESEARCH & EXTENSION COMMITTEE

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FOR IRRIGATION CROPPERS

Water availability risk and the development of the water index futures market

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Objective and desired outcomes of the proposed contribution

To raise awareness of the SFE State Water Indexes and the use of the proposed market in Water Index Futures to hedge risk associated with water availability. The indexes were established in August 2005 and the market is expected to be established during 2006/7.

Abstract

The risk of water availability is a painful reality of life for much of the Australian rural economy. In this sector, risks are borne not only by users of water, but by all parties that make up that rural economy including banks, insurers, processors and suppliers. Unlike for participants in the equity, money or commodity markets, there is no market into which users and investors exposed to water availability risk, can effectively hedge that risk.

The implications of this missing piece of economic infrastructure are profound. Farmers with water availability risk have no means of hedging against drought conditions. Service providers to these farmers therefore assume similar exposure and add the requisite risk premium increasing the cost of doing business for farmers. And finally investors seeking large scale capital investment opportunities either avoid this sector, or are forced to price this risk accordingly. The result is increasingly high costs compounded by even greater inefficiency.

SFE has conceptualised a market in water availability risk which provides parties with this risk a tool to hedge. Key features of the concept are:

1. The development of a series of market benchmarks or indexes of water availability (the SFE State Water Indexes) based on the logical aggregation of key water storage dams. These indexes are excellent proxies for parties facing risk to water availability.
2. The listing of futures contracts on each regional index to provide a market mechanism for parties to hedge against the future value of the index.

The indexes themselves have been developed and marketed in New South Wales under a separate arrangement with State Water . They commenced in August 2005 and now report daily on movements in the six SFE State Water Indexes.

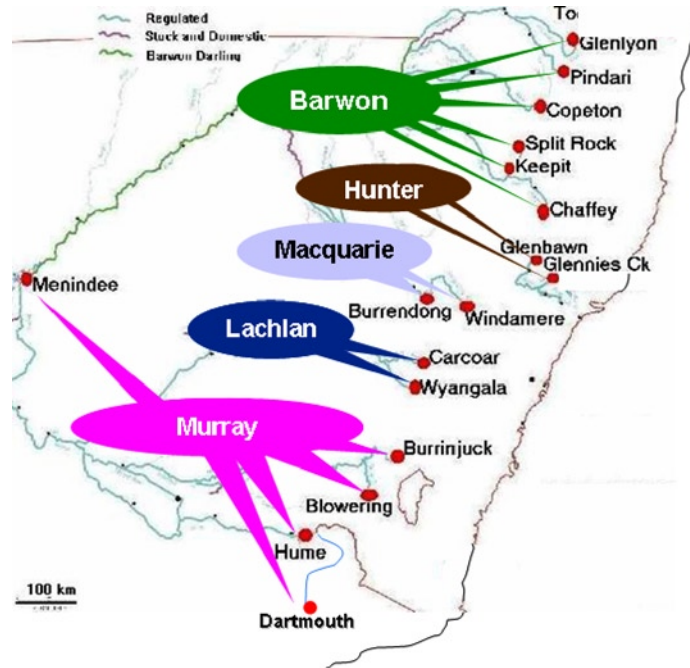
The ultimate objective of the Water Futures Market (WFM) – this being to provide parties that have exposure to water availability risk with the means of hedging that risk – is to reduce the risk premium for parties wishing to invest in rural economic activity and water resource infrastructure. As such, the WFM is a critical piece of national economic infrastructure that will:

- underpin and strengthen the commercial viability of parties with an exposure to water availability
- encourage investment in infrastructure through improved decision making resulting from the discovery of prices relating to future water availability risk
- enhance the public's awareness of available water resources and thus usage
- increase the productivity and efficiency of Australia's water use.

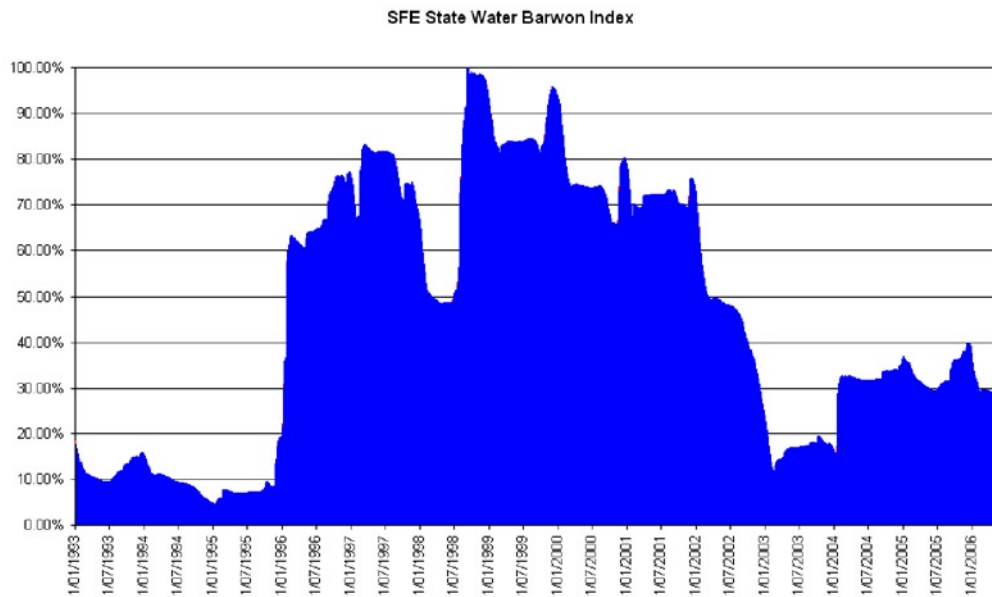
State Water Corporation (State Water) was established as a stand-alone NSW State Owned Corporation (SOC) on 1 July 2004, under the provisions of the State Owned Corporations Act 1989, by the State Water Corporation Act 2004. State Water has been intimately involved in the process of index creation and has worked with SFE in the development of the indexes. SFE and State Water have an agreement for the calculation, provision and distribution of the index data.

SFE State Water Indexes

The graph below indicates the location of the SFE State Water Indexes



Example of the SFE State Water Barwon Index 1/1993 - 6/2006. Index % number represents the aggregate % of full capacity of the storage units in the Index.



<p>How would the SFE Water Futures Contracts provide prices for future water storage?</p>	<p>Assume that there are drought conditions and the SFE State Water Murray Index (SWMI) is at 27.23 (as was the case on 16 July 2004). The fact that the SWMI is currently at this level does not mean that the SWMI will stay at this level into the future. This will depend on water inflows and outflows between today and the particular date in the future. Analysis of expected rainfall and water inflows/outflows will form the basis for setting expectations as to what the likely value of the SWMI will be in the future. For example, analysis might suggest that if there is a return to normal conditions in 6-12 months, the SWMI could be expected to rise to 80.00 (80%) by November 2005.</p> <p>SFE Futures prices would reflect expectations around water inflow and outflow and provide a 'forward price curve' against which parties with exposure to water storage levels can hedge their risk.</p>
<p>Does buying a SFE Water Futures Contract infer actual delivery of water?</p>	<p>No. The proposed SFE Water Futures Market would be a financial market with the Contracts being cash settled. This means that there would be no physical delivery of water. Therefore, neither buying nor selling an SFE Water Futures Contract would provide physical exposure to either deliver or take delivery of actual water. Rather, buyers and sellers would have price exposure to the respective SFE State Water Index that results in realised cash profits or losses. These profits or losses provide monetary offset to exposures faced in the physical water market. For parties holding a bought SFE Water Futures position, this position would result in a loss being incurred if the Futures price falls. (i.e. Buying a futures contract at 60.00 and selling it at 30.00 would result in a loss of \$3,000). If a party has risk to falling water storage levels, then selling SFE Water Futures Contracts would hedge that risk.</p>
<p>What credit risk do buyers and sellers have to other counter parties in the market?</p>	<p>The proposed SFE Water Futures Market would be 'margined' which means buyers and sellers have credit exposure to the SFE Clearing Corporation, not against each other. Margins are provided by both buyers and sellers – usually expressed as an initial margin (being a small percentage of the value of the contract) and a variation margin (being the difference between the current price of the market and the price at which the trade was entered into). Holders of a long position would be required to provide variation margins when the market fell below the price at which the buyer entered the market. Holders of short positions would be required to provide variation margins when the market rose above the price at which the seller entered the market.</p>