

Development of SFE State Water Indexes A Discussion Paper

What is the purpose of this discussion paper?

State Water is exploring the possibility of publishing a number of indexes that simply describe how much water is in our storages.

There is a wide range of options for calculating and grouping these indexes. The information provided in this discussion paper is to be read in conjunction with information contained in the relevant Fact Sheets and Frequently Asked Questions (FAQs).

The Sydney Futures Exchange (SFE) is working in collaboration with State Water on the development of these indexes and futures contracts.

State Water is now seeking your feedback on three options for these indexes. This will assist us in choosing the best indexes.

What are water indexes?

State Water publishes the percentage of storage capacity of each of its 20 storages every day. This simple index goes up and down depending on inflows and storage releases. For example, if Burrendong Storage is half full, the simple index is 50%.

State Water is proposing new water indexes that combine a number of

storages. These new indexes would range between 0% and 100% of the active storage capacity.

Further, these water indexes can be weighted and seasonally corrected, allowing for more informed interpretation of the state of a valley or a group of valleys.

What water indexes are proposed?

There are three options:

1. Ungrouped – individual storages;
2. Grouping storages in a valley. For example, combining the storages that together supply a valley can create a useful index. For example Split Rock Storage and Keepit Storage both supply the Namoi Valley, so an index based on the combined volume of these storages would be a better description of the water available in the Namoi Valley.
3. Grouping into combined valleys. The valleys themselves can be grouped to create an index. For example, three valleys in northern NSW can be combined into a "Barwon Index".

(See the *Proposed Options for Water Indexes* table on the following page.)

**Proposed Options for
Water Indexes**

OPTION 1 Existing Storage Indexes	OPTION 2 Possible Valley Indexes	OPTION 3 SFE State Water Indexes
Glenlyon	Border	Barwon Index
Pindari		
Copeton	Gwydir	
Split Rock	Namoi Peel	
Keepit		
Chaffey		
Windamere	Macquarie Cudgegong	Macquarie Index
Burrendong	Lachlan	Lachlan Index
Carcoar		
Wyangala		
Lake Brewster		
Burrinjuck	Murrumbidgee	Murray Index
Blowering		
Dartmouth	Murray Lower Darling	
Hume		
Menindee Lakes		
Glenbawn	Hunter	Hunter Index
Glennies Creek		
Lostock	Paterson	
20	9	5

Valley indexes can be created with or without the smaller storages in that valley. For example the Namoi Valley Index could also include Chaffey Storage and the Lachlan Valley may include Carcoar Storage and/or Lake Brewster.

The SFE State Water indexes integrate the weather and operations of a large area, but they lose the detail that valley indexes and storage indexes provide.

What do Water Indexes represent?

The Indexes are a good indicator of general seasonal conditions and overall water availability.

The levels in our storages rise and fall with the weather. In fact the levels are affected by weather upstream and downstream of the storages over the last year or two. The storage level on any particular day is the net result of the weather over this period.

The weather on the catchment upstream affects the inflows, so the storage acts like a “big rain-gauge” for that catchment. The weather downstream of the storage also affects its levels through the water supply demands placed on the storage.

The Indexes therefore have the potential to be a good indicator of how the weather is impacting on any regional businesses that are also affected by the weather.

What are “Seasonally Corrected Indexes”?

The simplest index option merely quotes the daily value for the individual or combined storages in the Index. However, our storages rise and fall with the seasons.

The Murray storages are usually at their lowest in autumn, after the low summer inflows and high irrigation demands,

and highest in spring after the high inflows and low winter irrigation demands.

This means that an index of 50 in autumn may mean average conditions while an index of 50 in spring may be an indicator of poor seasonal conditions.

State Water can produce indexes that correct for these seasonal differences. These indexes would be an index that relates to the calculated index to what would be *expected* on that day over the long term.

These indexes would be calculated as a percentile of the full range of expected storage levels on that day of the year. An example of a seasonally corrected

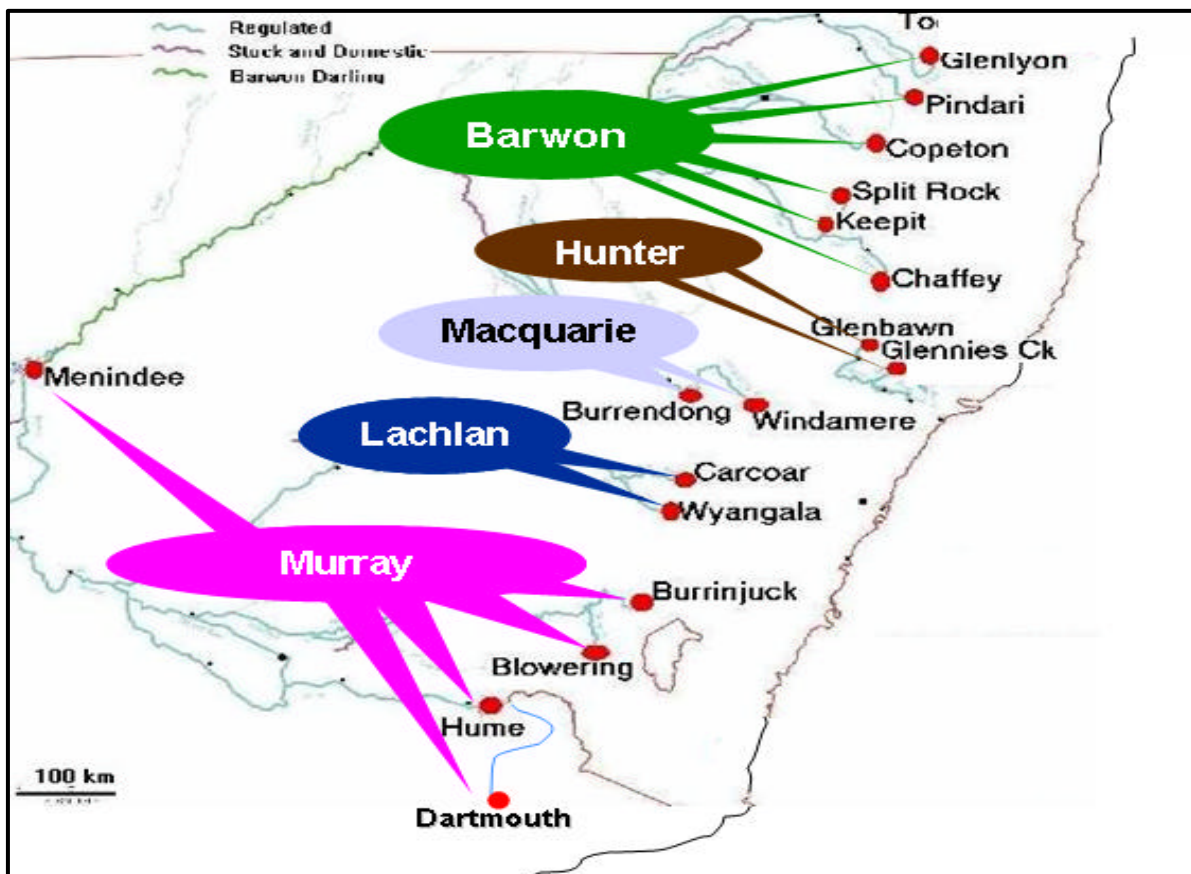
storage index (the Murrumbidgee) can be found in the Fact Sheets.

Who is affected by general seasonal conditions?

Almost all rural businesses are affected by the weather. Droughts impact on the whole rural community.

Dryland farmers and graziers are directly affected by general seasonal conditions. Irrigators are also affected by the seasons, but high security irrigators are protected to some extent by the reliability of their allocations.

All businesses that support agriculture are affected by the level of farm activity. These businesses include machinery and farm supply businesses as well as rural consultants, advisors,



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contractors and services.

Regional communities, as a whole, are also affected by seasonal conditions as rural business slows down during droughts. This, in turn, can affect retail, medical and educational facilities.

Who would use Storage Indexes?

State Water

We will use the Indexes to effectively communicate the availability of water situation at a storage, valley or regional level.

SFE, finance and business sector

The Sydney Futures Exchange is exploring the possibility of listing *futures contracts* on the Water Indexes. Such a futures market would enable businesses to hedge their business risk to the Indexes, which in turn reflect general climatic conditions, especially water availability. Other financial institutions such as banks, insurers, and financial consultants could use the market to provide financial products related to the weather via these indexes. Most rural businesses are affected by climate cycles that produce droughts and better seasons. These businesses need to be able to hedge their operational risks against these climatic factors. There is potential for the development of a wide range of financial and insurance products based on the futures market.

Land managers

Depending on what Water Indexes are used, they can provide a direct

indicator of seasonal conditions in a particular region of the State. Land managers can assess their position using the Index and seek to protect their business.

Media

Water Indexes provide a clear summary of water storage levels that can be quoted as a single number or presented as a chart to describe trends. A SFE Water futures market would provide an indicator of future water availability.

This would be similar to spot indexes and futures prices for such other commodities such as cattle, sheep, wool and cotton.

Government

Water Indexes provide an objective indicator of seasonal conditions at a valley or regional level. Local, State and the Commonwealth Governments could use these indexes as triggers for the planning and implementation of social and industry assistance and natural resource management programs.

How would State Water publish the Indexes?

State Water currently publishes storage levels through a wide range of media outlets as well as through the website:

www.waterinfo.nsw.gov.au.

We are proposing to publish the new indexes on the State Water website:

www.statewater.com.au

We seek your comment on other means of distributing Water Indexes.

SFE State Water Indexes Discussion Paper Feedback Cover Page

We suggest you might like to address these issues in your feedback on Water Indexes (these are not compulsory):

1. How clear is the Water Indexes Discussion Paper? Do you require further information not already available in the Fact Sheets or FAQs?
2. Other than the Storage Indexes (currently available) and SFE State Water Indexes, what valley indexes would be useful? Why?
3. Would you require the inclusion/exclusion of smaller storages in your valley? Why?
4. Would seasonally-corrected indexes be of greater benefit than some of the simpler indexes based on daily values of the storages? Has the seasonally-corrected index been adequately explained (please read Fact Sheets)?
5. How would you envisage using the Indexes in the management of your business? Would a futures market based on the SFE State Water Indexes assist you in understanding forward water availability?
6. Can you see broader applications for the Indexes and the potential market based on these Indexes, beyond the scope of your immediate business?
7. Other than the State Water website, how else would you like storage index information distributed? Eg. media (which media), faxstream services, subscription services etc.

Place this cover page on top of your written feedback

Name:

Organisation:

Address: Post code:

Phone: Email (optional):

Have you completed the survey? Please return with your feedback.

RETURN FEEDBACK BY COB 5 AUGUST TO:

By Reply Paid Post:
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