

Australian Macadamia Society Presentation Question and Answers

February 2021

Sunwater was invited to present to the Australian Macadamia Society in Bundaberg on 17 February 2021. This document shares the questions from attendees, Sunwater’s responses, and additional information to provide clarity where available.

If you have further questions about the scheme and the works at Paradise Dam please contact us on 3120 0270 or paradise.dam@sunwater.com.au. General customer enquiries can be directed to 13 15 89.

Question	Answer
Reliability	
<p>1 How does Sunwater measure if the scheme reliability is being achieved?</p> <p>How is reliability calculated? Over what time frame is that based?</p>	<p>The Burnett Basin Water Plan 2014 (the water plan) is underpinned by the Department of Regional Development, Manufacturing and Water’s (DRDMW) Integrated Quantity and Quality Model (IQQM) with a simulation period based on over 100 years of climatic data (from 1890 to 2008) and extensive stream flow data from the 1950s onwards.</p> <p>The performance indicator used to test/set the reliability of a water allocation in the Bundaberg Water Supply Scheme (BWSS) is the monthly supplemented water sharing index. This statistical measure is defined as the percentage of months in the IQQM simulation period in which the <i>allocations are fully supplied</i>. Water security modelling is always based on full utilisation as is the right of the water users.</p> <p><i>Allocations are fully supplied</i> – this does not mean 100% Announced Allocation (AA) but is based on an assumed monthly water use demand pattern. In the BWSS the</p>

	Question	Answer
		<p>demand pattern assumes slightly higher use through the summer months and the reverse during winter months.</p> <p>The water plan defines the water allocation security objectives (WASO) which underpins the reliability of all water allocations in the BWSS.</p> <ul style="list-style-type: none"> • For the high priority (HP) water allocation group, a minimum long-term monthly reliability of 99% • For the medium priority (MP) water allocation group, a minimum long-term monthly reliability of 90% <p>Modelled reliability pre-essential works at Paradise Dam</p> <ul style="list-style-type: none"> • high priority – 100% • medium priority – 93% <p>Modelled reliability during essential works (with all unsold water quarantined)</p> <ul style="list-style-type: none"> • high priority – 100% • medium priority – 93% to 95% <p>A 93% reliability means that if we looked back over the water plan simulation period (1 July 1890 - 30 June 2008) the assumed monthly demand would be possible 93% of the time (e.g. of 1404 months in the simulation period, water would be available to medium priority water users for 1,306 of those months).</p>
2	If customers receive low AA across a year how is reliability for that year recorded?	<p>At the start of the water year (1 July) Sunwater undertake a resource assessment of available water in all the BWSS storages and determine the AA based on the water sharing rules stated in the BWSS Operations Manual. AA cannot decrease once determined but can increase up to 100% if inflows occur. Low AA does not indicate that the WASO is being impacted – by nature, medium priority water allocations do indicate that during dry conditions, there will be times of supply interruptions.</p> <p>The water plan is developed on historical data and captures numerous climatic cycles and conditions. Once the water plan is in place, the Minister for Water must assess the effectiveness of the water plan every 5 years and decide whether the plan continues, requires amending or replacing. At 10 years, the Minister must decide whether to extend the water plan or replace it. A water plan must be replaced after 20 years.</p>

	Question	Answer
3	<p>What does Sunwater determine to be a reliable ratio of water allocation to storage size?</p> <p>Sunwater advertises water as a reliable supply but we frequently have three years of dry weather.</p> <p>In 2001 we have 5% AA , but since Paradise Dam was built we haven't often had less than 80%.</p> <p>Comment: Paradise Dam gave confidence to invest in permanent crops and now investment is on hold.</p>	<p>Each catchment has very different characteristics which is the main factor in determining the amount of water allocations (yield) which can be sustained at the determined reliability (WASO). Storages can be used to increase the reliability of water allocations or, as is the case with Paradise Dam, used to increase the volume of water allocations sustained by the BWSS.</p> <p>The Burnett River is fortunate in that it sits at the bottom of one of Qld's largest coastal catchments. This enables larger yield volumes compared to storage size (unlike the Kolan which has a large storage but has a much smaller catchment, resulting in a much smaller yield). Whilst the Burnett River has regularly seen inflows in the last decade, looking further back, particularly through the millennium drought in the early 2000's, annual inflows are not guaranteed. After the construction of Paradise Dam, it took 3 years before an inflow of significance (50% capacity) and 5 years before an inflow event resulted in 100% capacity. This information is available on Sunwater's website: https://www.sunwater.com.au/water-data/historical-dam-capacity/</p> <p>Due to a large percentage of water allocations created by the construction of Paradise Dam still being unsold prior to the essential works, there was a large underutilisation of the scheme water resulting in an inflated reliability.</p>
Announced Allocations		
5	<p>Low AA and long periods of low AA are very problematic for tree crops. Growers can't grow crops without regular access to water. A lot of people are deferring putting in more tree crops because of the uncertainty about the future of Paradise Dam. Does 93% performance mean a failure to provide water 7% of the time.</p>	<p>Yes, over the modelled water plan simulation period (1890 – 2008), 7% of months did not meet the required demand.</p> <p>We are experiencing record storage lows across Queensland with 67.4% of the State (including the Burnett region) fully drought declared (source: https://www.longpaddock.qld.gov.au/drought/archive/)</p> <p>Sunwater understands that this is a significant concern, especially for permanent tree cropping.</p>
6	<p>If we run out of water in Paradise Dam will we just have town water left?</p>	<p>There are several water users who hold HP water allocation including the council as well as irrigation and industrial customers.</p>

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		The HP AA is currently on 100%. Due to the nature of the water sharing rules, a reserve equal to the volume of HP water allocations is set aside for the upcoming water year.
7	What is the MP AA forecast for the next water year?	<p>Allocations for the next water year will be announced in July 2021. Forecasting ahead of this time is challenging as it is subject to many variables and unknowns such as inflows, weather conditions and customer usage.</p> <p>Sunwater undertakes announced allocation forecasting in the 1-2 months before the start of the next water year.</p> <p>This follows the collection of Q3 customer meter reads and the publication of the annual newsletter in June that includes allocation forecasting.</p>
8	Is it possible that silt build up in the storage will impact the available water?	<p>The best information we have about the storage is the survey conducted before the dam was constructed.</p> <p>Sunwater has conducted LIDAR and bathymetric surveys more recently, but they were not conclusive.</p> <p>Drought conditions have provided an opportunity to do assessments across a number of our storages and we know that information gathered is only relevant until the next inflow and that conditions can change quickly.</p> <p>Generally, Sunwater assumes about 1% of any storage is impacted by siltation.</p>
9	The reduced level of Paradise Dam is going to impact areas affected by salt water intrusion from groundwater.	The water plan states a number of outcomes related to protecting the groundwater resource from seawater intrusion. If the options assessment identifies a significant change to Paradise Dam, it is expected that DRDMW will consider the potential risk to these water plan outcomes in their periodic reviews.
Water Trading		
10	Comment: Water trading is a nightmare and is too complicated and has too many hurdles.	Sunwater acknowledges the complexity of water trading and is working to make information available to assist customers. Please contact 13 15 89 with any specific questions and we can provide assistance.
11	The ongoing dry conditions, exacerbated by the water releases that Sunwater had to undertake for the Essential Works, have led to a unique and difficult situation that calls for creative thinking and solutions. Can more be done	Sunwater is looking into the entitlements that aren't used and giving consideration to how to best encourage those holders to temporary transfer their water.

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Question	Answer
to encourage allocation holders who aren't using their water to make that available?	
Transfers from Fred Haigh Dam	
<p>12 How is water from Fred Haigh Dam allocated to the Burnett River sub-scheme and how much water can be transferred?</p>	<p>Fred Haigh Dam is a bulk capacity share with two accounts – one for the Kolan sub-scheme and one for the Burnett River sub-scheme. As inflows come into Fred Haigh it is put against those two accounts with 85% to the Kolan sub-scheme and 15% to the Burnett River sub-scheme.</p> <p>When Kolan customers order water it only comes from the Kolan account. When Burnett customers order water it only comes from the Burnett account.</p> <p>Sunwater maintains a monthly account balance of the two accounts which is published online (refer to the Announced Allocation tab on this webpage). Currently there is approximately 50,000 ML that could be transferred from Fred Haigh to the Burnett sub-scheme.</p> <p>If Paradise Dam was unable to maintain supply to customers on the Burnett River, Sunwater would look to commence transfers from Fred Haigh using water from the Burnett sub-scheme account.</p> <p>From the 1970s prior to construction of Paradise Dam the scheme was operated by transferring water south from Fred Haigh Dam to the Burnett River when necessary to maintain supply to the Isis and Woongarra systems.</p>
<p>13 Can the Burnett sub-scheme share from Fred Haigh Dam ever increase beyond 15%?</p>	<p>The capacity of Fred Haigh Dam is 562,045 ML.</p> <p>The storage capacity of Fred Haigh Dam is split 85% to the Kolan sub-scheme and 15% to the Burnett River sub-scheme.</p> <p>When inflows are received into Fred Haigh, they are split 15/85% into the Burnett and Kolan sub-scheme accounts respectively. Once one of the accounts is full any further inflows all fully go into the other account. When the dam is spilling both accounts are full.</p> <p>There would need to be a regulatory change to amend the 15/85% split. Changing the bulk capacity share in Fred Haigh will likely have significant impacts on Kolan River customers and environmental flows and Sunwater does not intend to amend the bulk capacity share rules for Fred Haigh Dam.</p>

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Question	Answer
Detailed Business Case to make a recommendation on the future of Paradise Dam	
<p>14 Comment: A lack of water availability has put a cap on growth in this region. Employment will be impacted, and Building Queensland needs to understand the significant social impact.</p>	
<p>15 Why hasn't Sunwater communicated about the delays to the reporting on the future of Paradise Dam?</p>	<p>A range of activities currently underway – including roller compacted concrete testing, anchor trials, geotechnical and water demand studies – will inform an assessment of the long-term options for Paradise Dam.</p> <p>Sunwater is working with Building Queensland and Government and will communicate further information as soon as possible.</p>
Communications	
<p>16 Customers are keen to get any information that helps them to plan for their business. Suggestion that updates about Paradise Dam are shared to all customers.</p>	<p>Sunwater shares regular updates about the Paradise Dam project on our website and the Paradise Dam Facebook Page and engages with community representatives via the Paradise Dam Community Reference Group and Paradise Dam Industry Forum. Sunwater can also share the link to Paradise Dam project updates with scheme customers.</p>