Responses to LHWSP CLG questions on notice – November 2020

Questions

1. How much potable water is supplied residential users AND how much water is consumed by residents for drinking purposes and food preparation?

Response:

Total potable water supplied to residential customers was 42.7 gigalitres in 2017/18, 42.1 gigalitres in 2018/19 and 38.2 gigalitres in 2019/20. Water used for specific end uses varies between households depending on the number of people living there, the property type, and the location.

Most end use studies across Australia suggest that 7-8% of water supplied to a household is used in the kitchen and around 5% is from the bathroom basin, so 12-13% is used in food preparation or for drinking purposes. This equates to between 5.1-5.6 gigalitres in 2017/18, 5.1-5.5 gigalitres in 2018/19 and 4.6-5.0 gigalitres in 2019/20 used for drinking purposes and food preparation.

2. For households of Gillieston Heights supplied with potable and recycled water since November 22 2019 how much potable water and how much recycled water are they consuming? How does this compare with the water consumption for the previous corresponding period?

Response:

Total reticulated water consumption for households in Gillieston Heights supplied with dual reticulation has dropped by around 10% following the commissioning of the recycled water scheme as shown in the table below. Potable water consumption dropped by around 40% from 220 to 133 kilolitres per household per year.

Water consumption	Potable only supply system (kL/household/year)	Dual reticulation supply system (kL/household/year)	% of Potable supply only system
Potable water	220	133	60%
Recycled water	0	67	30%
Total	220	200	90%

3. What is the current average water consumption per customer for each of the LGA's

Response:

Average daily consumption over the last 3 years for residents in stand-alone houses in each LGA is shown in the table below. For comparative purposes, this data does not include apartments, villas, or other multi-residential sites due to the difficulty of getting an accurate per head value by LGA for large sites with a single meter.

Note: at an aggregate total population level the average daily consumption is lower when multi-res are included because these sites have very little or no outside watering.

LGA	**Average stand-alone house consumption in 2017-18 (L/person/day)**	**Average stand-alone house consumption in 2018-19 (L/person/day)**	**Average stand-alone house consumption in 2019-20 (L/person/day)**
Cessnock	225	210	192
Dungog	228	199	179
Lake Macquarie	209	194	178
Maitland	227	215	184
Newcastle	194	200	165
Port Stephens	223	223	178
Average (standalone houses, all LGAs)	**211**	**203**	**177**

4. a How many residential customer contract holders does Hunter Water have?

Response:

Hunter Water provided services to 245,170 residential dwellings as at the end of the 2019/20 financial year.

b. How many residential customer contract holders receive pensioner rebates?

Response:

In 2019/20 Hunter Water had 43,663 eligible concession customers.

c. How many residential tenants receive pensioner rebates?

Response:

Hunter Water's pension rebate is provided to mitigate against fixed service charges for eligible customers. As residential tenants are only liable for water usage charges (where individually metered) and are not liable for fixed service charges, the pension rebate is only applied to owner occupied properties.

Tenants that pay for water use are eligible for other forms of assistance, including Hunter Water's Payment Assistance Scheme. Further information is available online at: https://www.hunterwater.com.au/home-and-business/managing-your-account/help-paying-your-bill

d. Do tenants in social housing receive pensioner rebates?

Response:

Hunter Water's pension rebate is provided to mitigate against fixed service charges for our eligible customers. As residential tenants are only liable for water usage charges (where individually metered) and are not liable for fixed service charges, the pension rebate is only applied to owner occupied properties.

e. A social housing providers considered by Hunter Water to be a residential customer or a commercial customer?

Response:

Properties are classified and billed based on the end use of services at the property. Accordingly, social housing properties are treated as residential for billing purposes. However, we maintain billing arrangements and relationship management with our social housing providers that is more akin to commercial customers.

5. In the answers to questions from the CLG meeting on the 24th August 2020, it was stated that a potential scheme to connect Glennies Creek Dam would provide a yield to Hunter Water of 8-12 GL/Yr. If this were to be done by what means would the water be transferred into the Hunter Water network?

Response:

Hunter Water has investigated options to connect to the Lostock Dam system by extracting water from the Paterson River and transferring it to the Hunter Water system. The yield benefit of this option could now be improved by the proposal to link the larger storage of Glennie's Creek Dam with the more reliable catchment of Lostock Dam, currently being investigated by Water NSW.

Three broad schemes were investigated:

- Water transferred to a new water treatment plant and added to the Chichester Trunk Gravity Main;

- Water transferred to a new water treatment plant for treatment and supply to the Maitland area; or
- Water transferred by pipeline to Grahamstown Dam.

The preferred approach for this option will need to weigh up the relative costs and benefits of each option, which will be assessed in the coming months.

6. Is there a proposal to run a pipeline from Raymond Terrace to Lake Liddell? If there is, what propose would it fulfil?

Response:

The shortlisted options being considered under the LHWSP were announced in February 2020 and include a range of options to reduce the demand for drinking water in the Lower Hunter as well as increase the supply of drinking water in the Lower Hunter. Transporting treated effluent from the Lower Hunter to Lake Liddell is not a shortlisted option being considered in the LHWSP.

As part of the Greater Hunter Regional Water Strategy (GHRWS) the Department of Planning, Industry and Environment (DPIE) assessed several regional recycled water schemes, including transfers from Raymond Terrace WWTW and other local WWTWs to Lake Liddell.

The GHRWS recommended two major infrastructure options to progress for business case development: a potable pipeline connecting Singleton to the Hunter Water network and a potable pipeline connecting Lostock Dam to Glennies Creek Dam.

The GHRWS also recommended a large-scale reuse scheme involving the transfer of water from four Hunter Water wastewater treatment works (Raymond Terrace, Morpeth, Farley and Kurri Kurri) to Lake Liddell to service power generation, coal production and agribusiness. However, this option was not recommended by Infrastructure NSW for preparation of a business case at that time as there was uncertainty over long term water demands in the Upper Hunter.

Hunter Water is leading work to further investigate regional reuse opportunities generally, including any benefits these schemes may provide to Hunter Water customers, as part of wastewater masterplanning. These schemes would likely service agribusiness end uses.

7. There are conflicting reports regarding the water quality in the Hunter Paleochannel. Is this water suitable for use as drinking water?

Response:

Hunter Water has constructed 19 monitoring bores to investigate water quality in the Hunter River palaeochannel at Tomago, and sampling and analysis from these bores is ongoing. Hunter Water is working with NSW Health to design and implement a testing regime to understand with confidence the capability of this water to be added to Hunter Water's supply system.

The water quality data collected to date indicates that some areas of the aquifer appear to be suitable for drinking purposes. However, water quality data across the area is variable, in particular salinity levels. The next phase of this project is the installation of three large test bores in areas which have shown promising water quality results to date. These bores will be used to extract high

volumes of water to test the aquifer's production and the consistency of water quality at these points. If the results of this phase are positive, Hunter Water would need to obtain the approval of NSW Health and the Natural Resources Access Regulator (NRAR) before the water could be added to the supply system.

8. How does HW rate the priority need of sewage and waste water treatment and disposal over the next 10 years?

Response:

Hunter Water has a significant investment program across its wastewater systems to service projected population growth and maintain compliance with regulations over the next 10 years. For more information please refer to Hunter Water's 2019 pricing proposal to IPART available online at:

https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Prices-for-Hunter-Water-Corporation-from-1-July-2020?qDh=3

9. What percentage (and volume) of the HW customers water needs will be satisfied by recovery from the sewage and waste water treatment process.

Response:

In 2019-20, Hunter Water supplied approximately 8,300 ML of recycled water. This represented about 12% of the total water supplied by Hunter Water that year.

10. After Tillegra Dam, when did HWC think it was important to investigate dams again for the Lower Hunter?

Response:

Previous response provided to Ms Bowden regarding the including of Dams as an option for the review of the LHWSP and available at https://yourvoice.hunterwater.com.au/LHWP-CLG

Consistent with best-practice principles, and the adopted COAG National Urban Water Planning Principles, the review of the Lower Hunter Water Security Plan is considering all supply and demand options for our region. To ensure that the decision-making process, and the final recommendation to Government is robust, it is important that all options are investigated.

Hunter Water developed a gap analysis at the start of the review covering all option types. For dams, the gap analysis told us:

- viable new dam options are more likely to be off-river storages, or expansions of existing dam schemes, rather than new on-river dams
- it is important to demonstrate that a storage option is the 'best site' available.

Hunter Water engaged the CSIRO to identify potential surface water options for further investigation using their DamSite spatial mapping program to provide automation and objectivity to the analysis.

The program identified thousands of potential dam sites and produced key characteristics of these sites, such as dam wall size, reservoir volume and surface area.

Hunter Water used this initial data to develop a list of sites which were most effective in terms of the dam wall size and reservoir volume. These areas were screened based on land use (including environmental and social impacts) and critical infrastructure, and then again based on the reservoir shape. Reservoir shape is an important measure of how much water is lost to evaporation, and also how much land is inundated to achieve a certain storage volume.

Each site was then assessed for how it would operate, including how the dam would fill and how it would supply water. From this process, a shortlist of potential sites was developed. The shortlist included on-river and off-river storages, however we did not consider on-river storages that would create a new barrier to flows within unregulated (nondammed) rivers. Only dams immediately upstream or downstream of existing dams were included.

Hunter Water then conducted a desktop investigation to understand the feasibility and potential costs/impacts and benefits of the shortlisted sites. Geology as well as potential environmental and social impacts were also investigated in this way.

This process identified two potential sites for further investigation: Limeburners Creek (east of Clarence Town) and Upper Chichester (upstream of the existing Chichester Dam).

11. Since Tillegra Dam, how much has been spent on investigating water efficiency, recycling, stormwater harvesting, dams and desalination?

Response:

Please see below a summary of all investigation costs updated since this question was posed in March 2020 (original response available on https://yourvoice.hunterwater.com.au/LHWP-CLG).

This captures investigations undertaken for this review of the LHWSP, as well as recent drought related costs. While some of these costs have been in response to recent drought conditions, the outcomes of these measures will be incorporated into the review of the LHWSP:

- Water conservation (including drought response): $2.8m
- Recycled water (including stormwater): $1.7m
- Stormwater: included in above
- Dams: $700k
- Desalination (strategy investigations $710k, design and approvals for the Belmont Drought Response Desalination Plant $8.6m)
- Groundwater (including the Tomago Palaeochannel): $2.6m
- Water sharing: $1.1m

The costs listed above do not include investigations prior to 2017 and in particular the investigations feeding into the 2014 LHWP and the $70m Kooragang Island Recycled Water Scheme.

12. **It is understood that the existing pipeline from Chichester Dam has a capacity of 31GL/year, and that the water drawn from the dam is approx 25GL/year. The yield from the investigated Upper Chichester Dam has been estimated at 32GL/year. How is it intended for the extra yield to be transferred from the dam given that a reserve capacity of only 6GL/year exists?**

Response:

The primary constraint on water supply from Chichester Dam during drought periods is lack of water in the dam, not pipeline capacity. During droughts, supply through the pipeline needs to be restricted to ensure that enough water remains in the dam to provide for water users that cannot be supplied from other sources, including the towns of Dungog, Clarencetown and Paterson. Increased storage at Upper Chichester would enable the existing system to supply more water at full capacity throughout drought sequences, which would lead to a significant positive benefit in terms of yield.

The yield benefit of the Upper Chichester scheme has been analysed for two pipeline capacity options: existing 90 ML/day and 130 ML/day. In terms of yield, the larger pipeline option provides a marginal benefit over the existing pipeline, and wouldn't be required from this perspective for many years. If the scheme went ahead it is assumed that the pipeline capacity would be increased opportunistically over time up to 130 ML/day when sections of the pipeline need replacing. Much of the existing pipeline already has this capacity, including the section between Chichester Dam and Dungog Water Treatment Plant.

13. **Hunter Water licence allows for 50GL/year to be taken from Chichester Dam. What percentage is this of the average total flow into the dam?**

Response:

The average annual inflow to Chichester Dam is around 110 GL/year.