Yuwaya Ngarra-li Briefing Paper:

Walgett's Drinking Water

2023

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Executive summary

Ensuring safe drinking water in Walgett has been a long-term priority for the Dharriwaa Elders Group (DEG) and the Walgett Aboriginal Medical Service (WAMS). Their work has raised awareness of systematic water mismanagement which, exacerbated by both drought and flood, has rendered surface water supplies unreliable and produced high levels of water insecurity for Walgett residents. As a result, Walgett's long term drinking water security relies on regular and prolonged extraction of groundwater from the Great Artesian Basin (GAB).

By engaging external experts, DEG and WAMS have been able to provide evidence that consumption of local groundwater containing high concentrations of sodium on an ongoing basis is unhealthy, especially in communities managing chronic conditions such as hypertension and kidney disease. The advocacy of the DEG and WAMS since 2018, including around the installation of a Reverse Osmosis (RO) facility to reduce the concentration of sodium, has been directed at finding a long-term supply of safe drinking water for all residents of Walgett and the nearby Namoi and Gingie villages. However, Walgett continues to experience water insecurity and quality issues and associated health risks.

This Briefing Paper documents a timeline of events in Walgett's recent history of drinking water management. It sets out the context in which drinking water is accessed, the associated risks, and the story of community advocacy pivotal to change. Its purpose is to inform efforts to improve water security and quality for residents in Walgett and the nearby Namoi and Gingie Villages, including the following urgent actions called for by DEG and WAMS[1]:

- Desalination solutions for towns relying on groundwater and evaporating rivers
- Potable water supplied to Aboriginal communities
- Fluoridation of potable water supplies
- Accessible safe public drinking water sources
- Australian Drinking Water Guidelines that include a health guideline for sodium rather than just referring to 'palatability'
- Drinking water community education campaigns conducted by Aboriginal community controlled organisations (ACCOs) supported by quality community education resources.
- Wastewater recycling and other water efficiency measures and infrastructure for remote Aboriginal communities
- Greater engineering capacity in Walgett and regional and remote communities to enable the functioning of critical community water infrastructure

[1] Dharriwaa Elders Group & Walgett Aboriginal Medical Service (2019) *"Issues paper – Water Quality"*, September.

- Declaration of a climate emergency and requirements made of local governments for Climate Resilience Plans which incorporate measures for managing vital community water infrastructure during increasing natural disasters and water scarcity
- Sustainable management of surface and groundwaters to ensure the health and wellbeing of all species

While the timeline set out in this Briefing Paper begins in earnest with the rivers running dry in 2018, the story of mismanagement starts long before. Much of the articulation around the water crisis and associated issues can be found in DEG's published statements and submissions.

Glossary

Term	Definition
ACWSP	NSW Aboriginal Communities Water and Sewage Program
ADWG	Australian Drinking Water Guidelines
DPIE	Department of Planning and Primary Industries
DWMS	Drinking Water Management System
GWI	Global Water Institute
LALC	Local Aboriginal Land Council
NWI	National Water Initiative
TDS	Total Dissolved Solids
WSC	Walgett Shire Council
WWTP	Walgett Water Treatment Plant

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Context

Access to safe[2] drinking water continues to be a challenge for residents in Walgett, creating an ongoing health risk. The combination of climate change and systematic water mismanagement across the Murray-Darling Basin has threatened both the quality and quantity of Walgett's surface waters. While drought impacts overall flow, upstream industry threatens river quality and quantity through over-extraction and pollution. When the rivers run dry or are unsafe, the town switches its supply to bore water from the Great Artesian Basin (GAB) which has high sodium levels.

Data collected by the DEG and UNSW shows sodium levels coming from the GAB in Walgett are regularly in excess of 300 mg/L (Rosewarne et al., 2021). Remarkably, there are no standards for safe sodium levels in the Australian Drinking Water Guidelines (ADWG), only palatability guidelines of less than 180 mg/L (Rosewarne et al., 2021), and the indicative statement: "*Medical practitioners treating people with severe hypertension or congestive heart failure should be aware if the sodium concentration in the patient's drinking water exceeds 20mg/L*" (ADWG, 2011, 932).

The lack of health standards in the ADWG has meant there has been no mechanism to ensure responsibility by all levels of government to invest in the infrastructure, skills and systems required to ensure equitable access to safe drinking water. Access to safe water, sanitation and hygiene is the most basic human need for health and well-being (UN SDG6). The objective of SDG 6.1 is to ensure that by 2030 is to achieve universal and equitable access to safe and affordable drinking water for all. All levels of Australian government have a responsibility to meet the objectives of SDG 6.1, however, in Walgett the burden and cost of access to safe drinking water has been shifted to individuals in the community that experience disproportionately higher levels of disadvantage and chronic disease.

This failure to ensure safe drinking water in Walgett is fundamentally an infringement of human and Indigenous rights (DEG, MLDRIN and EDO, 2020). There is no reason why a high income, developed country such as Australia should not achieve the objectives of SDG6.1 for all citizens, Moreover, compliance with specific regulatory instruments, namely the *Public Health Act 2010* and *Public Health Regulation 2012*, which require suppliers of drinking water to develop and implement a quality assurance program in accordance with the ADWG (WSC, 2020).

DEG's advocacy around a solution to reduce high levels of sodium coming from the GAB was initiated in 2018. This led to successfully securing a commitment from the NSW Government to build a RO system in Walgett.[3] However completion of the construction of the facility in May 2020 was followed by its premature closure in September 2020, due to waste disposal issues. There is little publicly

[2] Safe drinking water is taken as water that does not represent any significant risk to health over a lifetime of consumption. It must meet chemical, biological, and physical quality standards – and is therefore relative to the standards and guidelines in place.

[3] https://www.dailytelegraph.com.au/news/nsw/walgett-running-out-of-water-as-drought-continues-in-country-nsw/news-story/eb1e1b9e6b86192df703d2373afe84a4

available information on the exact details surrounding this, but what is certain is that Walgett continues to experience water insecurity and quality issues and associated health risks.

This document seeks to outline the story of community advocacy that was successful in delivering a RO facility to Walgett, and the available details of the installation and current status of the RO system. It also aims to build understanding around why, despite large capital investment, there has been little progress in tackling Walgett's access to safe drinking water, and what can be done to address that.

Walgett's drinking water sources

The Walgett Shire Council operates both a raw water and a drinking water supply. The raw water system comes from the Barwon River Intake, and the raw water that is taken for Walgett's drinking water supply is sourced from the Namoi River.

- **Town water**:
  - **River**: Raw water for Walgett's drinking water supply system is sourced from the Namoi River, one of the Murray-Darling Basin's major NSW sub-catchments (WSC, 2020). Water quality in the Namoi is often affected by industrial farming practices and the presence of blue-green algae (WSC, 2020). To maintain safe standards, it must be treated.
    - Filtered – passing through Walgett's Water Treatment Plant (WTP)
    - Unfiltered – when operational of technical capacity is lost, a separate distribution system is used to pump raw water to residents (see A.1)
  - **Bore**: The second raw water source for Walgett comes from the Great Artesian Basin Bores. These have high Total Dissolved Solids (TDS) and sodium.
    - Filtered – passing through Walgett's WTP
    - Unfiltered – when operational of technical capacity is lost, it will bypass Walgett's WTP (see A.1)
- **Rainwater**: individually owned tanks, collecting rainwater from roofs to supplement water source.
- **Hydro-panel water**: Hydro-panels, fixed on the top of roofs or beside houses, use solar power to extract drinking water from the air. The Walgett Local Aboriginal Land Council (WLALC) manages social housing in Walgett's satellite villages of Gingie and Namoi and substantial numbers of houses in the town of Walgett, with limited resources and no specific capability in managing drinking water solutions. In 2018 Patty Mills, a high profile Aboriginal sportsperson, through his organisation The Community Water Project, funded the installation of SOURCE Hydro-panels (Zero Mass Water, 2019) for the office of the (WLALC) and some of the houses it manages. The NSW Aboriginal Housing Office installed Hydro-panel systems

on their houses in Walgett some time later. Within the community these water filtration devices are considered an unreliable technology, often out of use or only supplying a few litres per day.

- **Bottled water**: with increasing water insecurity, residents are forced to rely on expensive bottled water from the supermarket, an increased financial burden. If the supermarket experiences shortages, residents rely on the charitable donations of bottled water.

Drinking Water Systems in Walgett

In 2008 the Aboriginal Communities Water and Sewerage Program (ACWSP) was established as a partnership between the NSW Aboriginal Land Council (NSWALC) and the NSW State Government, to "provide joint recurrent funding for the operation, maintenance and monitoring of water and sewerage infrastructure in eligible discrete Aboriginal communities across NSW". The DPIE's program webpage identifies Namoi and Gingie Villages as participating communities, and lists highlights and achievements made between 1st July 2008 – 31st March 2018.

Walgett's water treatment plant (WTP) and Namoi and Gingie Village water sewerage and infrastructure were built in 2014 and made operational in 2015 (WSC, 2020). They were built by the NSW Aboriginal Communities Water and Sewage Program (ACWSP) with the National Water Security Plan for Cities and Towns under the COAG National Partnership on Water for the Future – COAG Strategy on Water and Wastewater in Remote Communities – Walgett – part of the National Water Initiative (DEG and WAMS, 2020).

Walgett Shire Council's Annual Report for 2014/15 lists the contractor as 'Watertreatment Australia', the Goods/Services as 'Walgett Water Supply Design and Construction of Water Treatment Plant', the contract amount awarded as $3,668,797.91 and the amount paid in 2013/14 as $1,150,389.40 (WSC, 2015).

The Walgett WTP has a design capacity of 1.5 ML/day and consists of optional pre-chlorination[4] (normally not used), coagulation, flocculation, clarification, and filtration through a single media filter followed by disinfection and fluoridation[5] (WSC, 2020). Chemical dosing for pH correction is also used and the treated water is pumped to a 1.4ML reservoir via the town's reticulation (WSC, 2020). When bore water is being used, it passes through the aerator before the clarifier and filter without the coagulant dosing used (WSC, 2020). The Walgett Shire Council DWMS report notes that despite the community preferring river water, bore water is a safer source because of a lowered likelihood of microbial contamination and simpler treatment with less operator input required, stating that NSW

[4] This is for plants that have iron and manganese problems. The chlorine is used as an oxidant to convert soluble iron and manganese into insoluble compounds (hydroxides, oxides) that can be removed by the filters. One benefit of the GAB water is that it is low in iron and manganese.

[5] The fluoridation system is not in use because the mandatory training course has not yet been passed by the council workers responsible for the plant.

Health and DPIE prefer Council to continue using bore water source “until other actions identified in the risk assessment are implemented” (WSC p.20, 2020).

Namoi Village’s water source

Namoi Village is supplied both potable and raw water from the Walgett water supply systems (WSC, 2020). Treated water is supplied to a bulk meter connecting to Namoi Village’s drinking water supply and transferred via the rising mains and reticulation systems and raw water is delivered to the village via a separate bulk meter and pipe networks (WSC, 2020). At Namoi, WSC is responsible up to the meter at the boundary, and what happens inside Namoi Village is, as per a contract under the NSW Aboriginal Communities Water and Sewage Program (ACWSP), the responsibility of the WSC with NSW DPIE and NSW Health.

WSC is responsible for supplying water to the bulk meter, while the internal reticulation is the responsibility of the Local Aboriginal Land Council (LALC) (WSC, 2020) and maintained by the parties to the NSW ACWSP. In 2011 the NSW Government Office of Water developed a Water & Sewerage Management Plan for Namoi, and as Namoi Village’s water system is an extension of the town’s the water quality issues for Namoi are the same as for Walgett (WSC, 2020).

Gingie Village’s water source

Currently, Gingie is provided with untreated bore water drawn from a different GAB bore (WSC, 2020). We believe that the WSC manage the water and sewerage infrastructure at Gingie Village with NSW DPIE and NSW Health as per a contract under the NSW Aboriginal Communities Water and Sewage Program (ACWSP). WSC is the service provider under this agreement.

Water monitoring

The water supplies of Walgett town and Namoi Village, and the separate supply of Gingie Village is monitored under the ACWSP and the NSW Health Drinking Water Monitoring Program 2005 which is required to be made available to the public. DEG and WAMS have raised concerns around the communication of these results, with boil alerts often not reaching the entire community (DEG and WAMS, 2020). Capturing key water data and transparently presenting it has been a key concern of the DEG and WAMS and on occasions DEG has had to send out samples for independent chemical analysis to obtain information on the quality of local drinking water supplies.

Water quality: health risks and aesthetic factors

WSC’s (2020) report “Drinking Water Management Systems” presents data from the NSW Health Water Quality Database from 1st of January 2015 to the 9th of June 2020. While a number of the parameters are recorded as not meeting the ADWG 100% of the time, more analysis is needed to determine the reasons why and the level of risk. Director of UNSW’s Global Water Institute, Professor Greg Leslie, notes that it is not uncommon for systems to occasionally exceed ADWG, but it is not desirable that communities are consuming water that exceeds the parameters for extended periods of

time . Further work needs to be made to distinguish between acute risks (poor filtration/disinfection) and chronic risks (long term exposure). While unsafe water poses health risks, aesthetically poor water can also build mistrust within the community, impacting in the long-term confidence in the water supply. For general understanding some drinking water risks are briefly presented below.

DEG and WAMS have been raising awareness around the threats to safe drinking water. These include:

- **Sodium content** has been the primary focus of DEG and WAMS advocacy for safer drinking water. Professor Jacqui Webster of the George Institute for Global Health and Director of the World Health Organization Collaborating Centre on Population Salt Reduction has been key to documenting the health impact Walgett's high sodium bore water presents to residents.[6]
- **Fluoridation**: Walgett's water supply is not fluoridated. A new fluoridation works was incorporated into the Walgett's WTP funded by the NSW Government under the fluoridisation Capital Works Program under the NSW Oral Health Capital Strategy (DEG and WAMS, 2020). In a submission to the Productivity Commission concerning a review of the National Water Initiative, DEG and WAMS recognise the challenges for existing staff of the WSC to pass the fluoride training, which has prevented the fluoridisation works from being used, suggesting a new National Water Initiative could insist on fluoride provision and incentivise councils and state governments to fluoridate drinking water (DEG and WAMS, 2020). DEG has sought the expertise of Dental Public Health consultant Dr Sandra Meihubers to show the concerning health implications of this.[7]
- **E. coli and total coliforms**: E.coli and total coliforms are indicators of pathogens that are found in water contaminated by faecal material. An important way of combating it is effective monitoring, and immediate community communication when present. DEG and WAMS maintain this is Council's responsibility and data "should be publicly available and

[6] Jacqui Webster's work included the following statement: "*The sodium levels in the Walgett water supplies are concerning. 300mg/L is much higher than the Australian Drinking Water guideline of 180mg/L - and this guideline is based on palatability, not health. No health-based guideline value is proposed for sodium. However, the guideline does state that: "Medical practitioners treating people with severe hypertension or congestive heart failure should be aware if the sodium concentration in the patient's drinking water exceeds 20mg/L". The sodium content of the Walgett tap water is 15 times this amount*".

[7] Issues Paper – Water Quality, Sandra Meihubers: "Data collected in health check programs conducted by WAMS in 2014 revealed the decay rates in Walgett children to be at least 4 times greater than the rest of New South Wales"

transparent" (DEG and WAMS, 2020). WSC DWMS report lists under "Key Water Quality Hazards or Issues" for Gingie; "3x E.coli detection (Oct 2013- Feb 2014)… Elevated total coliforms…" and for Walgett and Namoi "elevated total coliforms" (WSC, 2020 p.44). We note the potential for Council to state coliform regrows in pipes within village boundaries and is therefore outside their responsibility.

- **High Turbidity**: High turbidity is an indication of increased particles in the water and can represent industrial discharges or land use disturbances. High turbidity is a concern in drinking water because it may shield bacteria and other organisms in the chlorine disinfection stage of treatment. Turbidity is also a measurement of aesthetic (secondary) quality.
- **High TDS**: TDS is a measurement of dissolved ions in water and is not itself an indicator of unsafe water. If there is high TDS further specific analysis is necessary to determine which specific ions are present. WSC DWMS report lists under "Key Water Quality Hazards or Issues" for Gingie; "High TDS – an average concentration of 616mg/L (this is still considered fair water quality – up to 900mg/L)" (WSC, 2020 p.44).
- **Chromium, Molybdenum, Nickel:** These heavy metals all have associated health impacts, their presence is associated with fixtures and fittings, and so is more likely a result of corroded pipes than of surface or ground water contamination. These metals have been detected in Walgett and Namoi Village water source and not in Gingie Village.

Walgett's Reverse Osmosis Facility

The Reverse Osmosis (RO) facility was installed in Walgett's Water Treatment Plant in May 2020, after significant advocacy from the DEG and WAMS which began in November 2018. This followed on from the expert advice of Professor Jacqui Webster from The George Institute about the health impacts of consuming high levels of sodium and the advice of Professor Greg Leslie, Director of the Global Water Institute at UNSW about potential solutions. In a submission to the Productivity Commission DEG and WAMS state "we doubt if we would have been listened to without that expert support" (DEG and WAMS, 2020, 6). This reveals the necessity of accessing expert knowledge as an advocacy tool and to amplify Aboriginal community concerns. DEG states clearly in the submission "the requirements for healthy waters are well understood by First Nations people, based on their knowledge of Country" (DEG and WAMS, 2020, 3). Common in practices of expert knowledge is a deficit model that characterises science-based knowledge as rational and 'local' knowledge as in deficit (Koizumi and Yamashita, 2021; Renkl et al., 1996). While a necessary advocacy tool for fairer water outcomes, the reliance on expert knowledge/advice fits a broader ontological problem in water management whereby certain knowledge (Western-based/scientific) are favoured, reinforcing knowledge hierarchies (Boelens et al., 2019; Linton, 2010).

In the time the RO system was operating (May 2020 – September 2020), 6 water test results (25th May – 3rd June) indicate:

- Sodium levels were cut by half from 230 - 300 mg/L to 119 – 150 mg/L, because Council decided to provide a 50/50 “shandy mix” between influent water (water straight out of the bore) and the “product water” (water that has been stripped of elements by the Reverse Osmosis system) (DEG and WAMS, 2020).
- Fluoride levels from the bore water were cut in half also, from 0.8 mg/L to 0.4 mg/L (DEG and WAMS, 2020).

Details of RO project

The decision to install a RO system was announced by the NSW Government via a media statement without prior consultation or discussion with the Walgett community, which is contrary to an inclusive and transparent approach to water quality management. Provisions in NHMRC Australian Drinking Water Guidelines require that Water Quality Management Plans include regular community consultation on changes to drinking water systems and quality. The NSW Government combined the upgrade to the Walgett WTP with a similar sodium removal project at the nearby community of Bourke under a joint tender titled “Walgett & Bourke Water Treatment Plants-Supply, Installation & Operation of Sodium Removal Reverse Osmosis Plants - RFT-10026711”. The tender opened on the15th October 2019, and closed 19th November 2019. It included two mandatory Pre-Tender meetings: Tuesday 29th October 2019 11.00am with Walgett Shire Council, and Wednesday 30th October 2019 9.00am Bourke Water Treatment Plant.

The RFT (request for tender) type was open, meaning invitation by public advertisement with no restriction placed on who may tender. The UNSPSC code, used for classifying goods and services, is 47101522 – “Packaged water treatment systems”.

The tender was awarded to Osmoflow, a global desalination and water treatment company. The Water Desalination Report lists Osmoflow Pty Ltd RO facilities in Walgett and Bourke as treating 2,250 m^3/d. Construction was completed in May 2020. As outlined above, while operational the RO facility was successful at reducing the sodium content of the bore water, with WSC choosing to mix it 50/50 with water straight from the bore resulting in approximate new levels of 150 mg/L. DEG and WAMS stress that a lack of information from WSC on the safety of the RO treated water left them seeking expert advice on the responsibility of communicating/promoting drinking water exceeding 20mg/L (DEG and WAMS, 2020).

In September 2020 the RO facility closed. References to the exact details of and reasons for closure are limited. In the case study “A community in action: How Walgett is redefining food systems”, the operation of the RO facility is referred to as “unsustainable due to poor planning and local consultation resulting in unsustainable disposal of concentrate wastes” (Rosewarne et al., 2021).

Costs of RO project

The exact costs of the RO facility are not easily accessible. The National Party website states "the NSW Nationals in Government have given the North-Westerly towns of Brewarrina, Bourke and Walgett $10 million to install mobile desalination plants". A NSW government report on the Barwon-Darling drought reported "$8.25 million for the Walgett Weir and Fishway project and $1 million for an additional bore and a temporary Reverse Osmosis Plant at Walgett" (DPIE, p.4 2021). While the Walgett Shire Council's 2019-2020 annual report mentions "installation of a reverse osmosis plant at Walgett" under "snapshot of significant achievements", it does not mention related costs in its budget (WSC, 2020).

DEG and WAMS advocacy and the current situation

Advocacy by DEG and WAMS has been crucial in raising awareness of the health impacts of the drinking water in Walgett. Their actions contributed to the government's decision to finance the multi-million dollar facility designed to produce safe drinking water for the town. That the RO facility is out of operation is of great concern to DEG and WAMS. They endeavour to determine what is needed to make it function effectively and are aware that in the meantime Walgett's residents continue to face high levels of water insecurity and associated health risks.

The timeline in the next section of this Briefing Paper documents significant events in Walgett's drinking water management, including the statements released by DEG/WAMS and the Walgett Shire Council, as well as related media coverage.

Timeline

- **2014**: Walgett's Water Treatment Plant built
- **2015**: Walgett's Water Treatment Plant made operational
- **July 2017**: ABC TV Four Corners "Pumped" exposes water theft by irrigators and extraction allowed by Ministerial discretion during low flows including upstream of Walgett.
- **July 2017**: Minister for Regional Water, Niall Blair, establishes Matthews Independent Review of Water Management and Compliance as a response to issues raised in Four Corners
- **November 2017**: NSW Ombudsman of NSW lodges three reports into mismanagement of water to NSW Parliament

2018

- **January 2018**: Walgett rivers stop flowing, town water source switched 100% to bore water
- **September 2018**: DEG coordinates a visit from UNSW water engineers to undertake informal testing of Walgett drinking water, finding high levels of sodium. Results later corroborated by Walgett Shire Council tests from May 2018
- **November 2018**: DEG and WAMS seek expert advice from Professor Jacqui Webster from The George Institute for Global Health
- **30 November 2018**: Statement released by the DEG documenting the risks of high sodium levels in drinking water
- **11 December 2018**: Article by ABC journalist Rachel Carbonell "Health expert warns residents are at risk from high sodium in water in drought-stricken NSW town of Walgett", ABC News – Rachel Carbonell after being invited to Walgett by DEG and WAMS.
- **15 December 2018**: The Menindee fish kill occurs; the first of three-mass fish kill events along the Lower Darling. DEG reports this is the same time their rivers are notably unhealthy and reiterates the interconnected nature of riverways.
- **19 December 2018:** ABC article **"**Walgett has two rivers but no water left to drink", ABC News – Michael Vincent

- **19 December 2018**: DEG and WAMS meet with NSW Health, NSW DPI Water and Walgett Shire Council asking them for a response to the high sodium levels in the drinking water, RO and drinking water kiosk solutions

2019

- **4 January 2019**: Town water filtration pump fails, water pressure dropped, some houses had no water and raw water supply was turned off affecting use of evaporative airconditioners in over 40 degree heat
- **4 January 2019**: "Walgett loses all water, some air conditioning as heatwave pushes temperatures near 40 degrees", ABC News – Lucy Thackray
- **5 January 2019: "**Walgett water supply reconnected, says Mayor", NITV News – Madeline Hayman-Reber
- **Jan 2019**: Urgent Public Notice, WSC reporting "as you are aware the Walgett Filtration plant experienced a mechanical breakdown due to a control board failure…". Raw water in Walgett is switched off until "the reservoir is able to maintain a level that meets the demands of Walgett Residents". A review of the situation scheduled for 7th January 2019.
- **7 January 2019: "**Bottling generosity: People bring gifts of water to help quench dry, drought-hit Walgett", Moree Champion – David Fitzsimmons
- **11 January 2019: "**Wagga community donates hundreds of water bottles to Walgett amid drought", Jessica McLaughlin – The Daily Advertiser
- **11 January 2019**: Professor Jacqui Webster George Institute for Global Health issues a statement commenting on the Walgett Shire Council media release "Walgett Township Water Quality Update"
- **16 January 2019**: "Walgett water crisis: Dubbo Facebook friends fundraising to provide water to remote community", Daily Liberal – Lynn Rayner
- **16 January 2019**: DEG writes a brief for Ashley Albury Director Western Region NSW Premier and Cabinet proposing short, medium and long term responses required to drinking water crisis
- **16 January 2019**: WAMS briefs NSW Ministry of Health who reply by email that from their review results that exceed Australian Drinking Water Guidelines are sodium and pH and "*None of the results suggest the water is unsafe for consumption. However, the pH and sodium results may be contributing to changes in taste*."

- **20th January 2019**: Community first hear of a commitment to RO facility via article in The Daily Telegraph.
- **22 January 2019: "**Walgett's water crisis: NSW considers options after 'concerning' sodium levels found", The Guardian Australia – Lorena Allam
- **22 January 2019: "**For centuries the rivers sustained Aboriginal culture. Now they are dry, elders despair", The Guardian Australia – Lorena Allam and Carly Earl
- **23 January 2019: "**Water crisis: western NSW mayors travel to Sydney to demand help", The Guardian Australia – Anne Davies
- **25 January 2019: "**When the river runs dry: the Australian towns facing heatwave and drought", The Guardian Australia – Anne Davies, Lorena Allam, Carly Earl and Mike Bowers
- **5 February 2019: "**NSW Government vows clean drinking water for Menindee residents after fish kill", The Land – Samantha Townsend
- **22 January 2019**: WSC public notice reassures residents about the high-levels of sodium in the drinking water, stating "*sodium intake via the water supply makes only a modest intake of sodium into the body…people who are concerned about how much sodium they are consuming and its effect on their health should reduce the amount in their food*".
- **25 January 2019**: Western NSW Local Health District media release suggests residents chill drinking water and add flavouring to reduce the taste from high "mineral content". "*The WNSWLHD Public Health Unit has stated that the water is safe to drink*."
- **27 January 2019**: Premier Gladys Berejiklian and Regional Water Minister Niall Blair visit Walgett
- **1 February 2019:** WAMS receives advice from Commonwealth Department of Health's Office of Health Protection, saying the matters raised are a state issue and so WAMS correspondence has been passed on to Water Unit of NSW Health that advised that drinking water in Walgett is safe
- **2 February 2019:** Public notice for level 5 raw water restrictions beginning 04/02/19
- **4 February 2019:** Raw water was turned off to Walgett residents and Level 5 Raw Water Restrictions in place until further notice
- **8 February 2019**: Yuwaya Ngarra-li statement released, detailing the water-related concerns and reiterating "WATER IS LIFE". As part of the Yuwaya Ngarra-li partnership it states the commitments of UNSW Engineering and the Global Water Institute (GWI).

- **11 February 2019:** DEG sends statement from its Elders Council meeting to NSW Water Minister demanding regular water testing for health risks, 10 chilled drinking water kiosks for public places of Walgett, desalination systems installed at Walgett and Gingie Village water treatment plants, long term planning for Walgett's water security, Royal Commission into the management of the Murray Darling Basin, A NSW Special Inquiry to address the mismanagement of surface and ground water and river systems in NSW, management of water by the Commonwealth, a suspension of water trading in the Barwon Darling river system, Aboriginal negotiation by ACCOs re water management and planning, regular communications from Council and NSW agencies re progress.
- **11 February 2019**: Statement released by the DEG regarding water management system, particularly the way upstream water users are prioritised. Sets out 10 demands for more equitable water management.
- **22 February 2019:** WAMS, DEG and Council meet with James McTavish Regional Town Water Supply Co-ordinator who promises funds for drinking water kiosks, tanks. Community lobbies for watering of WAMS Community Garden.
- **13 March 2019**: Statement released about Walgett's Drinking Water from WAMS, DEG and Walgett Local Aboriginal Land Council, noting NSW Health's recent statement highlighting the potential health effects of high sodium drinking water. Statement calls for "*Walgett Shire Council to be supported better by the NSW Government to manage our water infrastructure including its desalination, and for Walgett's water security to be ensured by better and fairer management of the rivers*".
- **31 March 2019**: Dharriwaa Elders Group submission to "Review of Water Sharing Plan for the Barwon-Darling Unregulated and Alluvial Water Sources 2012"
- **March 2019:** The Australia Institute Discussion Paper**: "**Owing down the river. Mortgaging the future flows of the Barwon-Darling/Barka River".
- **8 April 2019:** Yuwaya Ngarra-li Food Forum held in Walgett to address community concerns and develop positive strategies and evidence-based solutions to food and water insecurity in Walgett.
- **21 May 2019: "**NSW cotton grower faces more charges over water pumped from Barwon river", The Guardian Australia – Anne Davies
- **5 June 2019**: Walgett's only supermarket burns down, further limiting options for safe drinking water.
- **6 June 2019: "**This NSW town has now lost water and its main food supply", SBS News – Elly Duncan

- **6 June 2019: "**After drought took its water, a town's only supermarket burns down", NITV News – Douglas Smith
- **8 June 2019: "**No green nature strips in town: regional NSW braced for tougher water restrictions", The Guardian Australia – Lisa Martin
- **26 June 2019:** New report documents a community-led response to a health crisis in Walgett, NSW – Croakey Health Media
- **15 July 2019: "**Water quality and availability concerns in drought for dialysis patients", ABC News – Lucy Thackray
- **22 July 2019:** Commitment made by Deputy Premier John Barilaro to ABC News to install a reverse osmosis desalination plant for the towns water supply.
- **22 July 2019**: "Saltwater solution for drought towns battling brackish drinking water", ABC News – Rachel Carbonell
- **30 July 2019: "**Drought towns feeling the impact from their backup water supply", NITV News – Brooke Fryer
- **30 July 2019: "**NBA star supplies struggling community with clean drinking water", NITV News – Brooke Fryer
- **6 August 2019: "**Walgett water supply", Cate Faehrmann NSW Greens MP
- **11 September 2019: "**Community faces latest challenge in gaining access to clean drinking water", NITV News – Brooke Fryer
- **14 September 2019: "**'I don't know how we come back from this': Australia's big dry sucks life from once-proud towns", The Guardian Australia – Anne Davies, Ben Smee, Lorena Allam
- **24 September 2019: "**NSW secretly exploring long-dismissed plan to turn coastal rivers inland", The Guardian Australia – Anne Davies
- **31 August 2019:** Boil Alert, "*due to a technical issue there is high turbidity in the town water supply".* In a September Guardian Australia article Walgett Shire's general manager Greg Ingham is quoted as saying the *"only real long-term solution is rain*". Local Mayor Ian Woodcock referred to Walgett's high sodium water is "*better than nothing*".
- **16 September 2019:** WAMS issues paper on the water quality situation, prepared by DEG, questioning the capacity and decision-making of WSC.

- **September 2019**: Officers from NSW agencies EPA, DPI Water, Health met with WSC engineers to plan the installation of a reverse osmosis unit for the town. NSW Regional Town Water Supply Coordinator James McTavish says, "installation is tracking for the next few months".
- **22 December 2019: "**In Australia's drought towns, angry residents rely on charity, not government, for water", The Guardian Australia – Ben Smee

2020

- **15 January 2020:** WSC public notice "*More good news for Walgett…Walgett will soon have a Reverse Osmosis (desalination) plant located within the township" that "will significantly reduce sodium (salt) levels in the Walgett potable water supply as well as improving potability… at this stage government will provide funding assistance to run the plant including power costs*" – Greg Ingham.
- **20 January 2020: "**Portable desal plant to be brought to Walgett to give access to water", The Daily Telegraph – Miranda Wood
- **27 January 2020**: "Regional towns turn to mobile desal plants to fix salty drinking water supplies", SMH – Lisa Visentin
- **30 January 2020**: "Mobile desalination plants to secure drinking water", The Nationals Regional News
- **21 February 2020: "**River towns back from the brink as inflows top up vital water supplies in western NSW", ABC News – Jessie Davies and Lucy Thackray
- **22 April 2020:** "Walgett landholders charged with breaching water laws in the Barwon River", ABC News – Robyn Herron and Michael Condon
- **May 2020**: Reverse Osmosis system installed, with water tests showing sodium levels had been cut in half in a 50/50 mix with untreated bore water.
- **May – September 2020**: Reverse osmosis facility runs for 5 months.
- **15 July 2020**: Submission to the House of Representatives Standing Committee on Indigenous Affairs from DEG and WAMS titled "Inquiry into food prices and food security in remote Indigenous communities", which includes issues of water security.
- **12 August 2020: "**Walgett in western NSW running out of food, Indigenous bodies tell inquiry, ABC News – Caitlin Furlong and Jen McCutcheon

- **13 August 2020**: Wendy Spencer and Christine Corby give evidence to the House of Representatives Inquiry into Food Pricing and Food Security in Remote Indigenous Communities. Details the entangled nature of food and water security.
- **24 August 2020** Christine Corby OAM attends the Productivity Commission's National Water Reform 2020 Inquiry *Access to Water Roundtable* from NACCHO's invitation, with briefing notes prepared by DEG's YN Water and Country project.
- **25 August 2020** Christine Corby OAM attends the Productivity Commission's National Water Reform 2020 Inquiry *Household Water Services Roundtable* from NACCHO's invitation, with briefing notes prepared by DEG's YN Water and Country project.
- **11 September 2020**: Submission to the Productivity Commission, recommendations for a review of the National Water Initiative from DEG and WAMS.
- **24 September 2020**: Auditor General for NSW Margaret Crawford releases report "examining whether the DPIE has effectively supported the planning for, and funding of, town water infrastructure in regional NSW".
- **24 September 2020**: "Support for regional town water infrastructure", Audit Office of NSW
- **September 2020**: Reverse osmosis system shut down.
- **November 2020:** With increased rain and rising river levels town water switched back from bore water to river water.
- **10 November 2020:** Submission responding to a call by the UN Special Rapporteur on Human Rights and the Environment for input to a report on "Too Dirty, Too Little, Too Much: The Global Water Crisis and Human Rights. Joint Submission by DEG, MLDRN and EDO.
- **15 December 2020: "**Walgett's drought-proof garden is set to tackle town's food security issues", ABC News – Lucy Thackray
- **24 December 2020: "**Damning report blames NSW government for water shortages in regional towns", The Guardian Australia – Anne Davies

2021

- **16 December 2021: "**Authorities warn not to swim in inland NSW rivers affected by floodwater", ABC News - Gary-Jon Lysaght and Madeline Austin
- **2021:** UN Food Summary Report**: "**Whose paradigm counts? An Australia-Pacific perspective on unheard voices in food and water systems".

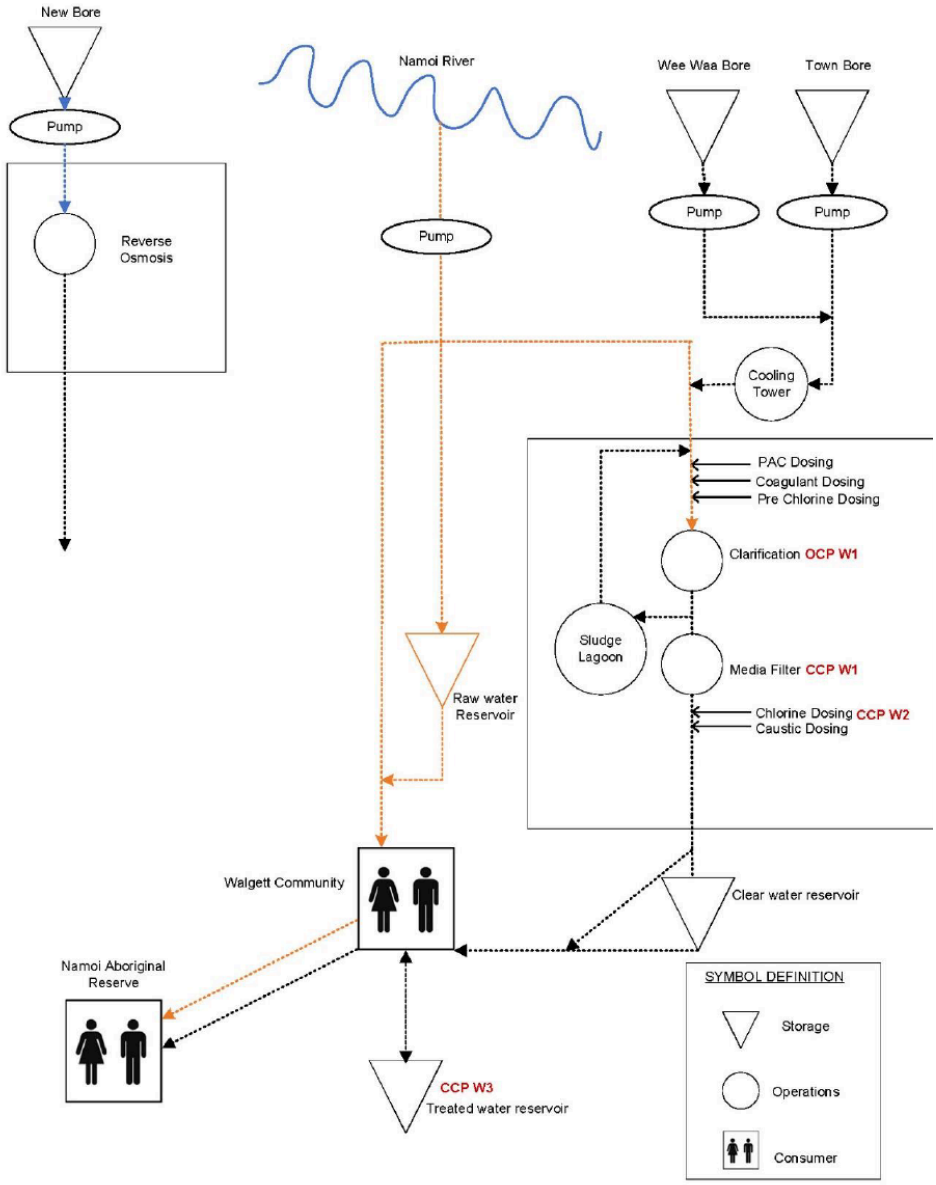
2022

- **28 February 2022**: Submission to New South Wales Parliament's Legislative Assembly Committee on Environment and Planning titled "inquiry into food production and supply in NSW", again reinforcing the inseparable nature of food and water security.
- **3 March 2022:** Floodplain Harvesting report: "An unsustainable level of take: on-farm storages and floodplain water harvesting in the northern Murray–Darling Basin, Australia" (Brown et al., 2022)
- **22 May 2022**: Statement released by DEG detailing their water management policy. Covers climate change, the need for a review of the National Water Initiative, ownership and trade of water, water for Aboriginal people, protection of the environment, and maldistribution.

Appendix

A.1 – Figure: Walgett's Drinking Water System

(figure taken from Walgett Shire Council's Drinking Water Management Document)



References

Australian Government. 2011. Australian Drinking Water Guidelines 6 2011.[Version 3.7 Updated January 2022 National Water Quality Management Strategy].

Bakker, K. 2007. The “commons” versus the “commodity”: Alter-globalization, anti-privatization and the human right to water in the global south. *Antipode* 39(3): 430-455.

Bakker, K.J. 2003. A political ecology of water privatization. *Studies in political economy* 70(1): 35-58.

Boelens, R.; Shah, E. and Bruins, B. 2019. Contested knowledges: Large dams and mega-hydraulic development. Multidisciplinary Digital Publishing Institute.

Brown, P.; Colloff, M.J.; Slattery, M.; Johnson, W. and Guarino, F. 2022. An unsustainable level of take: on-farm storages and floodplain water harvesting in the northern Murray–Darling Basin, Australia. *Australasian Journal of Water Resources*: 1-16.

Browne, B. 2019. Owing down the river-Mortgaging the future flows of the Barwon-Darling/Barka River.

Dharriwaa Elders Group, M.L.D.R.I.N., Environmental Defenders Office. 2020. Manifestations of Aboriginal water dispossession in Australia’s Murray-Darling Basin. Environmental Defenders Office.

Dharriwaa Elders Group, W.A.M.S. 2020. Recommendations for the Review of the National Water Initiative. In *A submission to the Productivity Commission Review of the National Water Initiative*. DEG and WAMS.

Harvey, D. 2007. *A brief history of neoliberalism*. Oxford University Press, USA.

Koizumi, H. and Yamashita, H. 2021. Deficit lay or deficit expert: How do “experts” in environmental projects perceive lay people and lay knowledge? *SAGE Open* 11(3): 21582440211023155.

Linton, J. 2010. *What is water?: The history of a modern abstraction*. UBC press.

Linton, J. and Budds, J. 2014. The hydrosocial cycle: Defining and mobilizing a relational-dialectical approach to water. *Geoforum* 57: 170-180.

NSW Government. 2021. Barwon-Darling snapshot 2017-2020 Drought.

Renkl, A.; Mandl, H. and Gruber, H. 1996. Inert knowledge: Analyses and remedies. *Educational Psychologist* 31(2): 115-121.

Rosewarne E, H.C., Bennett-Brook K, Coombes J, Corby C, Feeny E, Leslie G, McCausland R, McKenzie B, Webster J and Spencer W. 2021. A community in action: How Walgett is redefining food systems. *The George Institute for Global Health*.

Swyngedouw, E. 2009. The political economy and political ecology of the hydro-social cycle. *Journal of contemporary water research & education* 142(1): 56-60.

Walgett Shire Council. 2015. 2014/2015 Annual Report. Walgett Shire Council

Walgett Shire Council (WSC). 2020. Walgett Shire Council report to the community 2019/2020 Annual Report

Water Desalination Report. 2019. IDA Desalination Handbook In *Water Desalination Report*. https://www.desalination.com/desalination-suppliers/osmoflo-pty-ltd

Williamson, J. 2000. What should the World Bank think about the Washington Consensus? *The World Bank Research Observer* 15(2): 251-264.

WSC; J Huxley, D.T., A Wilson, M Lawrence,. 2020. Drinking Water Management System document (DWMS). Walgett Shire Council.

Zero Mass Water. 2019. Support for Drought Affected Communities in New South Wales. Legislative Assembly Committee on Investment, Industry and Regional Development.