



27 April 2023

Department of Social Services  
71 Athllon Drive  
GREENWAY ACT 2900

Sent via email – [earlyyearsengagement@dss.gov.au](mailto:earlyyearsengagement@dss.gov.au)

Dear Sir/Madam

Thank you for the opportunity to make this submission to the Australian Government for consultation on the development of the Department of Social Services' Early Years Strategy (the Strategy).

## OVERVIEW

SOURCE Global (SOURCE) supports the vision and principles of the Strategy and wishes to highlight the role SOURCE Hydropanels are playing in enhancing the health and wellbeing of children and communities around Australia by providing them with high-quality, reliable drinking water.

**This submission profiles SOURCE as an innovative approach to addressing absences in quality drinking water, as we believe reliable access to clean drinking water is a fundamental human right, and critically important to the development of children in their early years.**

As our attached submission (*Appendix 1*) highlights, access to reliable, safe, and high-quality drinking water is critical to early childhood development and health.

## ABOUT SOURCE GLOBAL

SOURCE is the manufacturer of SOURCE Hydropanels, an advanced, innovative and sustainable water technology that provides high-quality, safe drinking water in a variety of applications where water supplies are otherwise unavailable or are compromised. SOURCE provides communities with a drought-proof, sustainable and off-grid drinking water solution to supplement other water supplies. Our Hydropanels use a combination of solar energy and material science to extract pure water vapour from the air and convert it into the highest-quality potable water. The water then flows into a reservoir where it is mineralised before being delivered to a tap or dispenser. Attachment A explains how the Hydropanels work.

The scalability of SOURCE Hydropanels enables them to be deployed on the roofs of residential homes, in schools or community halls and in 'water farms' (SOURCE Fields) adjacent to entire communities. SOURCE compliments existing water supplies such as bores and rainwater tanks offering a faster and more cost-effective path to improve the health and quality of life in children, particularly in regional and remote communities.

## OUR EXPERIENCE IN AUSTRALIA

SOURCE has more than 1000 installations in Australia and were the recipient of the 2019 Premier's Award for our project with the NSW Aboriginal Housing Office (AHO) which has installed Hydropanels on homes in remote areas of NSW, reducing cost of living for families that relied on bottled water or sugary drinks due to challenges with local water supplies.

SOURCE has partnered with the Australian Renewable Energy Agency (ARENA), Conservation International, the Asian Development Bank (ADB) and organisations across the globe operating in a wide range of climates from Oodnadatta in Central Australia to Lady Elliot Island on the Great Barrier Reef to rainforests and drought-prone schools across Australia.

Locally we have delivered projects successfully in remote farming and Indigenous communities, schools, and bottle our premium water in partnership with a social enterprise.

## CONCLUSION

SOURCE Global supports the principles of the Early Years Strategy. We believe that investing in innovative and sustainable water technology solutions will ensure that the Government has the capacity and capability to guarantee the health and development of all children in their early years.

We hope this submission assists in the development of the Strategy.

Should you require any questions or require any further information, I can be contacted on [REDACTED] or [REDACTED]

Kind regards,

[REDACTED]

[REDACTED]

SOURCE Global PBC

## ATTACHMENT A: Thriving In Their Early Years: The Critical Importance Of Ensuring Access To Clean Drinking Water For Our Children

The Early Years Strategy (the Strategy) being developed by the Australian Government provides a crucial opportunity to consider cross-cutting issues that can impact a child's development, health, and general wellbeing for years to come.

This submission highlights the negative impacts that not having access to high-quality drinking water can cause in childhood development and health outcomes.

This submission has been prepared by SOURCE Global, a Public Benefit Corporation (PBC), and manufacturer of SOURCE Hydropanels – an innovative and sustainable water technology that provides high-quality drinking water for a variety of off-grid applications (see Appendix B for technology description, and Appendix C for project examples).

SOURCE can support the Department of Social Services and associated Government agencies to deliver drinking water in an affordable, site-specific way targeted at preventative health early intervention for infants and young children.

Access to high-quality drinking water that meets not only the United Nation's (UN) Sustainable Development Goal-6 (SDG-6),<sup>1</sup> but also the Australian Drinking Water Guidelines' (ADWG) Health and Aesthetic parameters is unfortunately not guaranteed in Australia.<sup>2</sup> This is a specific and acute issue for many remote and regional communities across Australia, including multiple discrete Indigenous communities.<sup>3</sup>

Children are particularly vulnerable to issues presented by contaminated or low-quality water, including:

- Elevated levels of nitrates exceeding ADWG health guidelines – this issue is particularly evident in Western Australia, where State Government Agency REMS provides bottled water to families with young children due to untreatable nitrate levels;<sup>4</sup>
- Increased sugary drink consumption leading to childhood obesity and elevated risks of diabetes;<sup>5</sup>
- Poor oral health;<sup>6</sup>
- Malnutrition;<sup>7</sup>
- Increased risk of chronic kidney disease (CKD).<sup>8</sup>

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<sup>1</sup> United Nations Sustainable Development Working Group, 2015. *Transforming our World: the 2030 Agenda for Sustainable Development*.

<sup>2</sup> ADWGs

<sup>3</sup> Wyrwoll, P.R., Manero A., Taylor, K.T., Rose, E., Grafton, R.Q., 2022. *Measuring the gaps in drinking water quality and policy across regional and remote Australia*, Nature, npj Clean Water, Australia.

<sup>4</sup> Western Australian Government, 2023, Remote Essential and Municipal Services, *Water – Water services provided by REMS*, available at: <https://www.wa.gov.au/organisation/department-of-communities/remote-essential-and-municipal-services>, <accessed 19 April 2023>.

<sup>5</sup> Thurber, K., Long, J., Salmon, M., et al., 2019, *Sugar sweetened beverage consumption among Aboriginal and Torres Strait Islander children aged 0-3 years, and association with sociodemographic, life circumstances, and health factors*, Public Health Nutrition vol. 23, Australia.

<sup>6</sup> *Ibid.*

<sup>7</sup> Hall, N. L., Crosby, L., 2020. *Climate Change Impacts on Health in Remote Indigenous Communities in Australia*, International Journal of Environmental Health Research.

<sup>8</sup> Heaney, C., 2021. "Study investigating possible link between water quality and kidney disease in remote Northern Territory", ABC News Australia – incorporating research comments from Prof Paul Lawton of the Menzies Health and Research Centre.

The reasons for reduced access to high-quality drinking water are myriad, including:

- Inability to effectively treat town supply, particularly in small communities that are reliant on bore water;<sup>9</sup>
- Reduced financial ability for small water providers to supply remote towns with ADWG compliant potable water;<sup>10</sup>
- Completely non-existent essential services (specifically for remote Indigenous communities);<sup>11</sup>
- Jurisdictional funding issues and reduced consideration of the value of drinking water.<sup>12</sup>

**The significant long-term impacts of poor-quality drinking water, combined with varied supply challenges, demonstrates why ensuring all children have access to high-quality drinking water should be considered alongside a broader Federal Government Early Years Strategy.**

Jurisdictional funding misalignment further compounds the challenge, with small Councils and State agencies unable to effectively fund broad programs that reach all Australian children. These challenges are especially prevalent in Aboriginal and Torres Strait Islander communities in remote and rural areas as the 2022 [Closing the Water for People and Communities Gap](#) report highlighted. This review, initiated by the Water Services Association of Australia (WSAA) noted that *"for First Nations remote communities the delivery of safe drinking water is not only critical in its own right, but fundamental to many Closing The Gap targets, particularly: Impact on public health."*<sup>13</sup> Many of these public health interventions are most effective if enacted as early as possible, during infancy and childhood.

Federal Government intervention on drinking water supply can be effectively implemented by ensuring high-quality drinking water is provided at places where children who reside in at-risk areas frequent, including:

- Schools;
- Early-learning and childcare centres;
- Community and youth centres;
- Health service providers including Aboriginal Controlled Community Health Organisations (ACCHOs).

## DEFINING THE CHALLENGE

Due to a lack of uniform reporting requirements, specific figures pertaining to water contamination and access equality are generally unavailable. Small water providers (under 10,000 connections) are not required to report on water quality, and water testing is not mandated at a Federal Government level. Recent independent research has helped define the issue with greater accuracy.

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<sup>9</sup> Centre for Appropriate Technology Ltd (CfAT), 2021. *Getting good water supplies in remote indigenous communities*, Alice Springs.

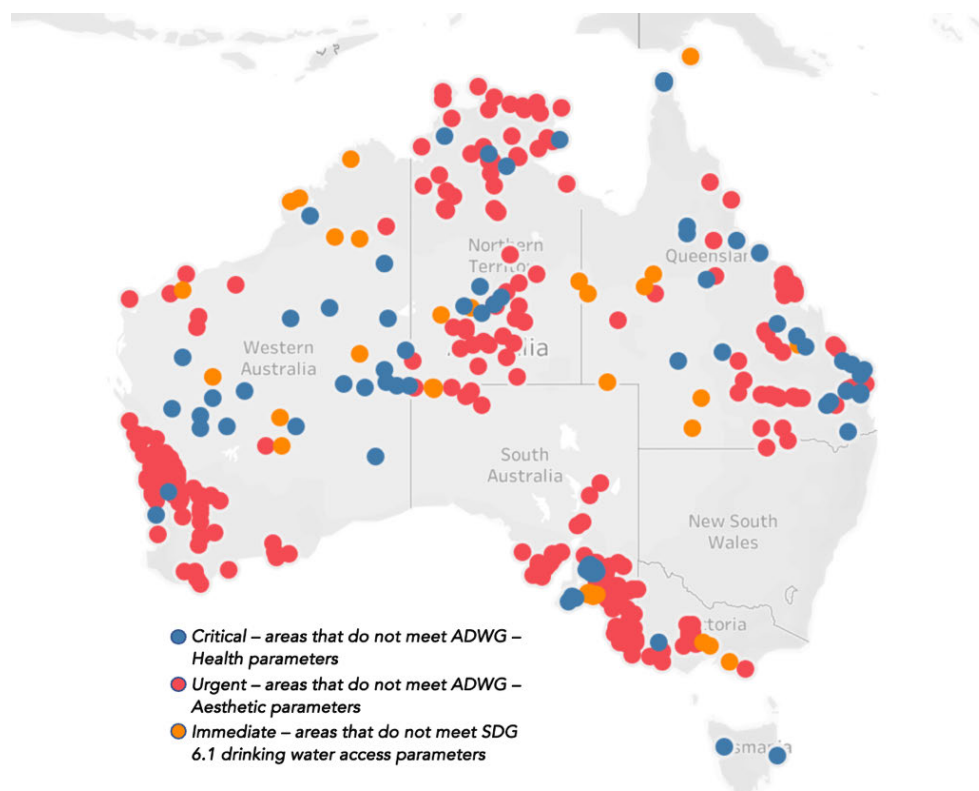
<sup>10</sup> South Australian Council of Social Service, 2020. *Scoping Study on Water Issues in Remote Aboriginal Communities*, Adelaide.

<sup>11</sup> Hall, N. L., Abeyesuriya, K., Jackson, M., Agnew, C., Beal, C. D., Barnes, S. K., Soeters, S., Mukheibir, P., Brown, S., Moggridge, B., 2022. *Safe Water and Sanitation in Remote Indigenous Communities in Australia: Conditions towards sustainable outcomes*, Australasian Journal of Water Resources.

<sup>12</sup> *Ibid.*

<sup>13</sup> Vanweydevelde, E., 2022. *Closing The Water for People and Communities - Gap: A review on the management of drinking water supplies in First Nations remote communities around Australia*. Water Services Association of Australia.

While Australian cities have access to some of the highest quality drinking water in the world, remote and regional communities in Australia, particularly Indigenous communities, face significant challenges when it comes to accessing clean drinking water. According to the Centre for Appropriate Technology almost 50,000 Aboriginal and Torres Strait Islanders living in 694 locations across Australia rely on groundwater,<sup>14</sup> which is more prone to contamination. Additionally, key 2022 **research by ANU Professor Paul Wyrwoll found that Australians in more than 400 remote and regional communities do not have access to ADWG-parameter compliant drinking water, with a further 8% of Australia's population not included in reporting on the issue.**<sup>15</sup> The image below shows locations identified by [Professor Wyrwoll's report](#).<sup>16</sup> Note, locations in NSW were unable to be assessed as NSW regulation does not require mandatory reporting by local water providers.



Some remote and regional town centres are also more susceptible to variable water quality challenges, with numerous boil-water notices being declared during periods of drought and flood, or towns not having access to potable supply at all. Children and families in these towns may also experience greater financial strain if they must provide plastic bottled water. Some schools and families will rely on tank or bore water, however this can become an issue if privately maintained water storage facilities are not maintained adequately, or droughts are prolonged and tank water supplies are significantly reduced.<sup>17</sup>

<sup>14</sup> Centre for Appropriate Technology Ltd (CfAT), 2021. *Getting good water supplies in remote indigenous communities*, Alice Springs.

<sup>15</sup> Wyrwoll, P.R., Manero A., Taylor, K.T., Rose, E., Grafton, R.Q., 2022. *Measuring the gaps in drinking water quality and policy across regional and remote Australia*, Nature, npj Clean Water, Australia.

<sup>16</sup> Mapping illustration created by SOURCE Global based on data sets from Professor Paul Wyrwoll's 2022 report.

<sup>17</sup> Hall, N. L., Abey Suriya, K., Jackson, M., Agnew, C., Beal, C. D., Barnes, S. K., Soeters, S., Mukheibir, P., Brown, S., Moggridge, B., 2022. *Safe Water and Sanitation in Remote Indigenous Communities in Australia: Conditions towards sustainable outcomes*, Australasian Journal of Water Resources.

Poor-quality water is, of course, a broader challenge than just children, however children are particularly prone to water-borne illnesses, the effects of water contamination, and are more impacted by poor taste and aesthetic considerations (driving them to drink sugary beverages instead of bad tasting water), an issue that was specifically identified by Dr Kate Thurber of the Australian National University in a [2019 report](#).<sup>18</sup>

**The Early Years Strategy should take care to ensure that children residing in both cities with high-levels of basic amenities and regional/remote areas are provided with equitable opportunities to thrive – this includes drinking water.**

## DIMINISHING PREVENTATIVE HEALTH OUTCOMES

Poor quality and contaminated drinking water is being considered as a likely leading cause of chronic kidney disease (CKD) in areas where the disease is considered “endemic” in Western Australia and the Northern Territory. Remote communities in these areas are more likely to rely on raw ground water that contains trace elements of nitrates and uranium that exceeds officially recommended rates, according to research from the Western Desert Kidney health Project and the Menzies School of Health Research.<sup>19</sup>

Concern around nitrate levels is held by the Western Australian government, with Recent data (2020) presented to the Western Australian Parliament by the Western Australian Department of Health’s Advisory Committee for the Purity of Water indicating that multiple Indigenous communities within the Remote Essential and Municipal Services (REMS) program exhibiting nitrate levels above the allowed guidelines for infants.<sup>20</sup>

The consumption of sugary drinks has become a significant concern for children's health in Australia, with many children substituting water with sugary drinks. According to the Australian Bureau of Statistics, in 2017-18, 31% of children aged 2-17 years consumed sugary drinks every 1-3 days.<sup>21</sup> SOURCE has recently collaborated with the NSW Aboriginal Housing Office (AHO) to provide Hydropanels for AHO owned dwellings in communities in Western NSW that are negatively impacted by water that often does not meet Australian Drinking Water Guideline aesthetic parameters. SOURCE surveys have indicated that households that consume water harvested by SOURCE Hydropanels are more satisfied with the taste of their household water, and less likely to purchase bottled water when Hydropanel water is available.

## IMPROVING HIGH-QUALITY DRINKING WATER ACCESS IN THEIR EARLY YEARS

The provision of high-quality drinking water in a cost-effective way should be considered as a key pillar of the Early Years Strategy. **Ensuring that ADWG compliant drinking water is available at all remote and**

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<sup>18</sup> Thurber, K., Long, J., Salmon, M., et al., 2019, *Sugar sweetened beverage consumption among Aboriginal and Torres Strait Islander children aged 0-3 years, and association with sociodemographic, life circumstances, and health factors*, Public Health Nutrition vol. 23, Australia.

<sup>19</sup> Jeffries-Stokes, C. A., Stokes, A. M., McDonald, L., Evans, S., Robinson, P. M., 2020. *Risk factors for renal disease and diabetes in remote Australia – Findings from the Western Desert Kidney Health Project*, Rural and Remote Health, Western Australia.

<sup>20</sup> Letter to WA Parliamentary Committee provided by the Advisory Committee for the Purity of Water, “Nitrate and Uranium levels in drinking water – compliance with guidelines”, February 2020, available at: [https://www.parliament.wa.gov.au/parliament/commit.nsf/\(\\$lookupRelatedDocsByID\)/C81DAC290982CE244825851300307FEA/\\$file/75012264.pdf](https://www.parliament.wa.gov.au/parliament/commit.nsf/($lookupRelatedDocsByID)/C81DAC290982CE244825851300307FEA/$file/75012264.pdf)

<sup>21</sup> Australian Bureau of Statistics, *Children’s risk factors, 2018-18*, available at: <https://www.abs.gov.au/statistics/health/health-conditions-and-risks/childrens-risk-factors/latest-release>

regional Australian schools, with a priority focus on those located in remote Indigenous communities or rural communities without potable water supply, will assist in addressing significant adverse preventable health outcomes in children.

SOURCE Global’s Hydropanel technology can cost-effectively support the implementation of drinking water provisioning programs in remote and regional communities where drinking water quality issues have been identified. By providing SOURCE Hydropanels at locations children frequent including schools, community and youth centres, and health organisations children can be guaranteed a reliable and resilient supply of high-quality drinking water, independent of town, bore, or private supply considerations.

## RECOMMENDATIONS: PROPOSED EARLY YEARS DRINKING WATER IMPROVEMENT PROGRAM

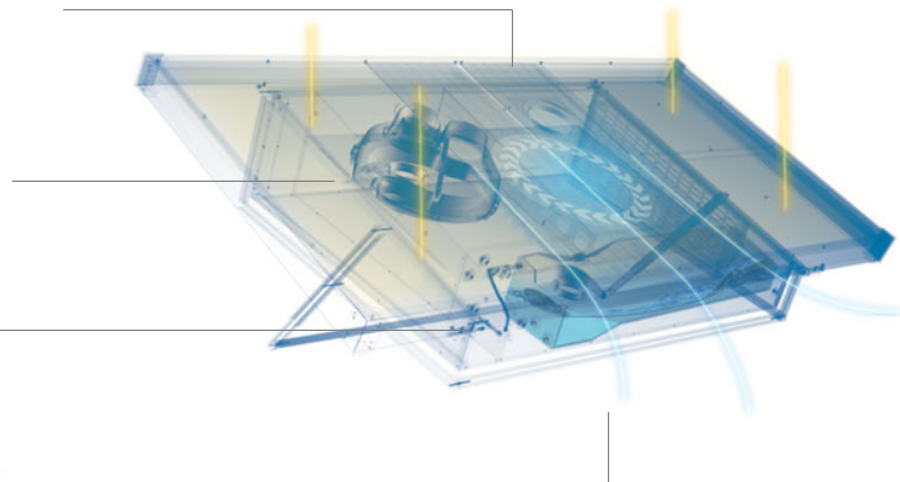
1	Identify remote and regional communities across Australia with poor access to clean drinking water, particularly those with high numbers of young children.
2	Identify suitable community locations children attend, including: <ul style="list-style-type: none"> <li>a. Schools</li> <li>b. Health facilities</li> <li>c. Youth and community centres</li> <li>d. Childcare facilities</li> </ul>
3	Install SOURCE Hydropanels at identified locations, with free access provided to all children.
4	Develop and support a corresponding educational campaign to raise awareness about the importance of clean drinking water for children’s health and development.

Improving access to high-quality drinking water is a critical step in improving early years outcomes for children in remote and regional Australian communities, ensuring equal access to crucial, basic needs.

This submission demonstrates how innovative technologies including SOURCE Hydropanels can supply reliable, high-quality drinking water that supports improved health outcomes in a targeted manner, while being deployed in a cost-effective manner that does not rely on broader infrastructure uplift.

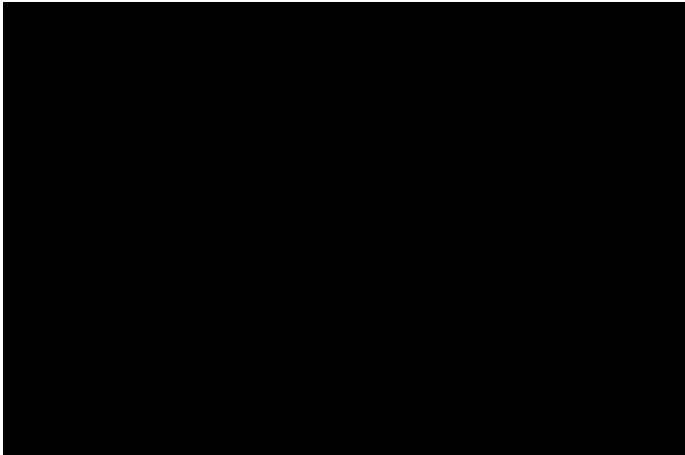
### HOW DOES SOURCE WORK?

- 1** Using solar PV, SOURCE takes in ambient air via fans and collects water vapour from that air onto a hygroscopic material.
- 2** Heat generated from solar thermal drives a process of condensation inside the Hydropanel, converting the adsorbed water vapour into pure, liquid water.
- 3** Because the special materials inside SOURCE only attract water molecules, SOURCE water starts pure, similar to distilled water.
- 4** This pure water flows into the SOURCE reservoir where it is mineralised with magnesium and calcium. |





## ATTACHMENT C: EXAMPLE INSTALLATIONS



### **Valkyrie State School, Valkyrie, Central Queensland**

In Queensland, close to 200 schools are not connected to town water supply. At Valkyrie State School, the children relied on water bottled in single-use plastic for nearly six years and, at one point, the school's tanks ran dry, leaving students and staff with no running water at all.

Rural Aid, Stanmore Resources, and Central Queensland Mining Rehabilitation Group have installed 15 Hydropanels at the school, giving children a permanent, drought-resilient source of clean drinking water. Over their lifetime, the Hydropanels will offset more than a million plastic bottles which otherwise would have gone into landfill.

*"They heard our call for help they were more than willing to come onboard and fund and install this project. For a small school we sometimes do feel forgotten about. We are forever grateful!"* – Kristin Michelmore, parent and P&C president, Valkyrie State School



### **Mapoon Aboriginal Shire Council, Mapoon, Queensland**

Each dry season communities in the Cape and Torres Strait face water shortages, reduced water quality and water restrictions.

Ten hydropanels were installed behind the new cultural centre in Mapoon to make clean, safe drinking water. Providing storm resilient and infrastructure-free high-quality drinking water, even functioning in incredibly dry climates.

*"It's another step towards the Mapoon community becoming more sustainable and resilient."*  
*"Our vision for Mapoon is to be one of Queensland's healthiest, most culturally rich, and sustainable remote regions."* – Aileen Addo, Mapoon Mayor.

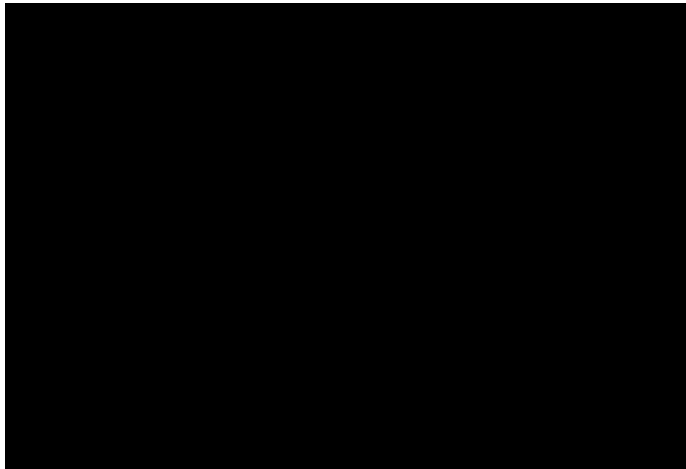


## Indigenous Remote Communities, Australia Wide

Patty Mills, NBA player and one of Australia's leading sportspeople, was determined to bring a renewable supply of clean drinking water to drought-stressed areas of remote Indigenous Australia.

Throughout his basketball career, Mills has been dedicated to honoring his Aboriginal culture, and founded The Community Water Project to enable remote communities to overcome water stress. With the support of the National Basketball Players Association and Australian Indigenous Basketball, The Community Water Project installed SOURCE Hydropanel arrays in six remote Australian communities, including Wilcannia, Walgett, Cunnamulla (QLD), Oodnadatta (SA), Black Tank (NT), and Dampier Peninsula (WA).

Commenting on the Wilcannia installation, a community elder said, *"Over the past 5 years there has been virtually no water in the Darling River, and the water that is left is poisonous. The Hydropanels donated to us provide 900 litres of water each month. It really makes a big difference to the lives of our elders and our young families."*



## Murrurundi Public School, Upper Hunter, New South Wales

Murrurundi has been hard hit by the drought. Struggling with a low water supply, the town needed a solution that would provide community members with drinking water security.

Three Blue Ducks, a sustainably-minded farm to table restaurant, committed to supporting the town of Murrurundi by donating 10 SOURCE Hydropanels to Murrurundi Primary School. Now the students, parents, and community members have continuous access to reliable, high-quality drinking water.

"They just feel safe and secure in the knowledge that they can fill up anytime and enjoy the water that they're drinking," – Rebecca Hopkins, Principal of Murrurundi Public School