

The Water Project

setting the stage for a more constructive approach to addressing growing competition for Rural Darwin groundwater

KATE PEAKE

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What instigated this project was a period of water stress experienced in the Darwin Rural Area in 2016, following two successive poor wet seasons. And, as I write this project report, it seems relevant to note that the region has since had its driest wet season in decades. Furthermore, the nation's attention has been drawn again to the Murray-Darling where fish kills earlier in the year raised more questions about the effectiveness of water policy. I imagine we can all agree that water is critical to all communities and Australia is a place of extreme climate variability. It would be nice if Australians, as the inhabitants of the driest continent on Earth (apart from Antarctica), would learn to manage this resource more proactively.

Introduction

The Howard River region is part of the large rural area south of Darwin and includes Howard Springs, Girraween, McMinns Lagoon, Humpty Doo, Herbert, Lambells Lagoon and Fog Dam/Middle Point. The region supports a diversity of land uses, primarily residential and horticultural, and has largely emerged over the past four decades with significant growth in the last ten years.

The Howard River region sits within the Darwin Water Control District. Water extraction from the dolomite aquifer is accepted by subject experts as being no longer sustainable but the region continues to develop steadily. The Howard aquifer supplies three significant consumer groups – residents of the area rely on groundwater for domestic water supply, horticulturalists irrigate a wide range of produce, and Power and Water extracts groundwater to augment the Darwin metropolitan water supply.

Groundwater is also critical to the environment in the region, including highly valued springs, waterways, wetlands and rainforests. These ecological assets are important to the Traditional Owners of the area, many rural residents, several tourist businesses providing nature-based experiences, and recreational users including Darwin's significant amateur fishing community.

Groundwater is managed under the *Water Act* by the Northern Territory Government's Water Resources Branch, Department of Environment and Natural Resources. Both Government and members of the community are grappling with challenges including a low knowledge-base about groundwater systems, high levels of seasonal variability, complex social and cultural dynamics, and limited capacity within both regulatory and stakeholder organisations.

Defining the Problem

The Northern Territory is playing catch-up in relation to groundwater management. Although the Northern Territory Government signed up to the National Water initiative in 2006 there has been no sustained urgency in relation to water allocation planning. The conversation has shifted radically over recent years as the demand on aquifers has become increasingly apparent. Nevertheless, the development of a Water Allocation Plan for the Howard aquifer commenced in 2010, no substantive progress has been made in 9 years and the membership of the Water Advisory Committee has recently been allowed to lapse.

The Howard aquifer was tested at the end of the 2016 dry season, following two successive poor wet seasons. Groundwater levels were amongst the lowest recorded in ten years, resulting in water supply issues. The Government responded with the 'Darwin Rural Groundwater Watch', a reactive strategy to raise community awareness and reduce water consumption. Thankfully the wet season came early and produced above average rainfall, fully recharging the aquifer.

The signs of pressure on the Howard aquifer are particularly concerning because land use in the region continues to intensify. As demand for groundwater continues to increase a recurrence of the 2016 crisis (or worse) was always unlikely to be far off. It seems 2019 will be another reminder not to take water resources for granted. In this context the need for water planning, effective water management and increased water stewardship has become urgent.

The Northern Territory Government responded to concerns about water availability in 2016 by removing a historic exemption from licencing requirements for commercial bores pumping less than 15 litres per second. This means all horticulturalists in the region are now required to obtain a water extraction licence. This regulation of the commercial sector is not only sensible, it is absolutely necessary. However, most domestic water users are entirely unregulated, and many are unaware of the collective impact of domestic groundwater consumption.

Managing commercial usage, while not managing domestic usage, doesn't pass the fairness test. But more importantly, in an already stressed groundwater system, this selective management undermines the ability to protect the resource and the interests of everyone who depends on it. In the event of another water shortage licenced users (mostly horticulturalists) could have their consumption restricted or even have their rights to access the resource temporarily taken away. Domestic consumption, which is not licenced, effectively cannot be restricted (except perhaps in the direst of circumstances but it is not clear how restrictions would be applied).

The 2016 experience resulted in a great deal of finger pointing, many people were eager to deflect responsibility for overuse of the water resource and the potential for animosity is very apparent. For the time being the emphasis is on Power and Water. However, increasing pressure on the resource will begin to strain relationships between neighbours, and particularly between domestic and commercial landholders. Apart from the risk to a critical resource, I believe there is also a risk to the social fabric of the rural area.

Increased competition for groundwater will put pressure on horticulturalists to justify their water use. Even Government is often guilty of oversimplifying the argument – posing it as one of water for economic development versus water for human consumption. In reality, rural residential water is predominantly used on gardens. It is important to understand that, if we see community pressure for horticulturalists to reduce or even cease their consumption, this is not so that the rural area might maintain its supply of drinking water, rather it is so that the rural area might maintain its green lawns.

Project Scope and Objectives

This project aimed to explore current attitudes to water resources among Howard River region groundwater users, to inform the approach to groundwater management moving forward. The rural community should have the opportunity to participate in water planning and contribute to Government decision making to ensure that the risk of water shortages is minimised. Community feedback already influences Government water policy, but the loudest voices are taken to represent the majority. This project is about providing a more representative snapshot of community views, effectively trying to give everyone an equal voice.

A survey was undertaken in 2018 to identify and assess the knowledge, interests, and concerns of Howard River region water users. The survey was circulated in hardcopy throughout the Howard River region as well as being circulated electronically. A total of 347 surveys were returned. This project report provides an analysis of the survey responses, particularly how they might inform future strategies for groundwater management in the Howard River region and beyond.

Survey Findings

A detailed breakdown of the survey findings can be found at Appendix A. However, I wanted to make this report clear and brief so that it might be useful for all stakeholders, I have consequently outlined here some key messages I took from the survey. I acknowledge that this is my interpretation of the findings and that the survey itself had limitations. In order to make the survey less onerous it simplified what is a very complicated issue. Furthermore, 347 returned surveys is a relatively low sample size for the Howard River region, approximately 7%. Research suggests, however, that this is a good response rate for a community survey and affords a high level of confidence in the findings.

Do people care?

Yes, residents of the rural area who source water from the Howard aquifer care about managing groundwater resources. Over 80% of respondents were concerned about groundwater use and supply. The best advocates for groundwater management are the people who have witnessed the rate of development of the rural area over time. A relatively high number of people had experienced a problem with their bore which they attribute to the reduced availability of groundwater.

Key areas of concern

There is concern about overuse or uncontrolled use of the resource, coupled with concern about effective planning for development. There is a clear need to build transparency and increase community understanding of the use of this groundwater resource, particularly its use as part of the public water supply. People identify their own limited knowledge of the mechanics of the aquifer and issues relating to recharge and climate variability.

What the community expects

Some people accept the need for water regulation; people are very divided about the need to measure water consumption; and most people believe that their water rights must be protected. These three messages create a very difficult dilemma for Government, as you can't manage what you don't measure and regulation is an essential tool for protecting peoples rights. Ultimately, more than two thirds of respondents believe that Darwin Rural Area groundwater requires management and almost 61% believe that current levels of management are inadequate.

What the community doesn't want

The concern that Government will charge for groundwater tends to be the starting point of every public conversation about water management. It is often not possible to move the conversation past this prevailing concern, so this issue needs to be put to bed. The only way to give the public confidence that Governments interest is effective groundwater management, not revenue generation, is to make a commitment in legislation. Government is the water regulator, to be effective in this role they need a strong social licence. Critical to this will be how they communicate and especially how they respond to public concerns.

A publicly supported starting point

The rates at which people identified uncertainty about the resource, impacts on the resource, or management of the resource were very high. There is a clear need for more information, happily coupled by an appetite for more information with respondents strongly supporting education programs. Respondents also supported the use of incentives to encourage voluntary reductions in groundwater use. The reduced use of groundwater for public water supply was strongly supported. All other management options, for example extending the public water supply and replacing bores, attracted mixed responses. Although over 55% of respondents either opposed or strongly opposed metering all users and imposing a cap, it is noteworthy that almost 29% either supported or strongly supported this option.

Conclusion

So, what do we do with these perspectives on groundwater? It was always my intention that this project be a catalyst, not an end in itself. The survey doesn't give us strategies for better groundwater management, it simply demonstrates the community willingness to be part of finding the solutions.

Of course, to talk about "solutions" you must first accept that there is a problem. There may well be stakeholders who still believe that there is no need to manage groundwater. I am trying to engage in this conversation with care and respect, and one person's opinion must not dominate (mine or anyone else's). But it is fortuitous that this project has taken me longer than I originally anticipated, and I am now releasing this report in a year which may well see even lower groundwater levels than we experienced in 2016.

The best catalyst for change will be the impacts of poor wet seasons, but I hope this project might encourage a slightly faster response, supported by locals. I believe we can do a lot to avoid future groundwater supply problems, and where they can't be avoided, we can be better prepared to rise to the challenges. This project is not about charging for water or about telling you not to have lawn, it is a conversation starter. It is a conversation the community NEEDS to have, and it is not just about what others SHOULD DO, it is also about what you CAN DO.

I believe that there is no bigger issue facing the Territory than improving water resource management. Whether you care about environmental impacts or not, getting water management wrong will impact on all of us, and it will impact on the economy. In my view, it already is. I am already planning for the possibility that my bore will run dry. I also know the horticultural sector well enough to know that the flow on impact of that industry not having water security will not just be bad for farmers, it will be disastrous for whole communities.

Next Steps

While this report represents the conclusion of this project it is my hope that it will be followed by small scale consultation and education sessions to raise awareness, test survey findings and examine community needs in a more interactive, qualitative and reciprocal format.

Effective groundwater management can be guided by good legislation, policy and planning, but ultimately the sustainability of the resource depends on the actions of each individual water user. It is therefore critical to capture and communicate the perspectives of water users, above and beyond my little survey, to ensure water management strategies are understood by the community, respond to community needs, and have community support. Ultimately the collective goal must be to increase community capacity and enthusiasm to participate in water resource management across the rural Darwin region.

But it is hard to see who will take the lead on the next steps. Government?

The Message for Government

This project is an analysis of public opinion, as a step towards developing greater understanding of groundwater issues and implementing effective management strategies. The survey responses show there is a constructive community interest in finding solutions to problems. Ultimately, however, the success of this project depends on the Northern Territory Government, who need to listen to community voices and implement a more collaborative approach to water management.

The community doesn't care about Government silos, they care about the security of the water they depend on daily. I know that responsibility is shared across agencies, and that these agencies do not always perceive themselves as being part of a whole. But ultimately "Government" is accountable. The public have every right to expect that responsible parties within the public sector should be able to collaborate to provide responsive and seamless oversight of our most precious asset – water.

Community mistrust is a whole of Government issue. The perceived misuse of groundwater to augment the public water supply is not Power and Water's challenge, it is Governments challenge. Power and Water's dependence on the aquifer needs to be fully explained. The recent decision to reduce this extraction and limit its potential impact on residential bores is a welcome response to predicted record low water table levels. However, common misconceptions that Power and Water's usage is unregulated and is steadily increasing need to be addressed. Government needs to justify its dependence on this publicly shared resource before it can engage with rural residents in relation to their groundwater usage.

Beyond the Power and Water issue, Government needs to actively consider how it might gain the confidence of the community. A steady communication strategy (not just finding a voice in a crisis), a formal community education program (including a longitudinal study to track public perceptions), legislative reform with best practice consultation (not the usual invitation to contribute to a predetermined conclusion), and independently verified reporting arrangements would all help.

Effective regulators are trusted. Although over 55% of respondents either opposed or strongly opposed metering all users and imposing a cap (eg. charging big water users a fee per litre for water used beyond a standard volume), almost 29% either supported or strongly supported this option. It would be interesting to see how these figures might change over time if legislation protected the average resident by putting sensible limits on Government charging for water, and if Government took a more proactive approach to community engagement.

Lastly, Government needs to progress water allocation planning for the Howard River region urgently. Planning needs to commence with a full acknowledgement that this is an oversubscribed resource and the usual sustainability objectives cannot apply in the 10 year lifespan of the plan. Also, this planning process will benefit from a much higher level of public engagement to ensure that the community feel some ownership over the plan and its objectives. Effective water planning now will go a long way to mitigating the risk of water misuse and costly and divisive competition for water down the track.

DID YOU KNOW?

Domestic usage

According to the ABS *Water Account Australia 2016-17*, NT households are the biggest water consumers in Australia. We use nearly 15 times more water than Tasmanians (who use the least water in their households) and 47% more water than Queenslanders (who are the next biggest household water consumers). Our household water consumption increased by 15% between 2015-16 and 2016-17, although the population grew by less than 2%.

These figures don't include residents with their own bores. Because domestic bore water use isn't measured we can only estimate this consumption. Water Resources Branch uses an estimate more than six times the rate of household water use cited by ABS. This is a cautious estimate, but it also reflects the fact that the majority of household water in Australia is used in the garden and rural residents often irrigate large gardens and keep grazing animals. The collective impact of approximately 5,000 bores in the Howard River region is unknown, but it is significant.

Power and Water

Groundwater from the Howard aquifer has been a critical component of Power and Water's Darwin region water supply since the 1960's. Power and Water's licenced allocation has not increased in the last 18 years, since 2001. In 2016, Power and Water equipped four additional bores in the region (these bores were drilled in the 1980's). The objective was to increase the emergency supply capacity to the Darwin region in the event of a supply interruption from Darwin River Dam. Power and Water's licenced allocation didn't change when these new bores came online.

Power and Water's extraction in recent years has varied between approximately 50% and 75% of its licenced allocation. Power and Water has volunteered to temporarily reduce its extraction from the Howard aquifer for the 2019 dry season to 25% of its licenced allocation. Power and Water is working with the Department of Environment and Natural Resources to determine an appropriate trigger for Power and Water to return to normal pumping rates.

Power and Water's current program to augment supply to the Darwin region involves the return to service of Manton Dam commencing in 2026/27, followed by the development of the Adelaide River Offstream Water Storage (AROWS) currently scheduled to deliver water to the Darwin region by 2036/37.

Inpex

Inpex is a customer of Power and Water. Inpex do not extract water from the Howard aquifer directly and the supply of water to Inpex has not affected Power and Water's extraction regime.

Fracking

According to the NT Government's *Petroleum Reserved Block Policy*, most of the Howard River region is either a 'Reserve Block' or 'Proposed Reserved Blocks'. However, there are areas in the northern part of the aquifer that apparently have no protection from hydraulic fracturing.

Acknowledgements

To everyone who took the time to fill in my survey and return it to me, thank you. A high level of mistrust and antagonism complicates any conversation about water in the Howard River region. I started this project very unsure of the level of community support it would get, I have been overwhelmed by people's generosity and willingness to be constructive. I know from my own experience how tempting it is to take the easier path of negativity and cynicism.

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Lastly, I acknowledge my parents, the best mentors a person could wish for.

The first rule of survival – find water.

*It is truly remarkable that this most fundamental of resources
continues to be such a low political and public priority.*

*And human nature dictates that we all start paying attention
not at the first sign of trouble, but only when our prolonged inattention really bites.*