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Running on Empty – the Risk of Continuing to Dither while the Empty Light is Flashing

**Peter Cullen
Wentworth Group of Concerned Scientists**

Australia seems to have been drying over the last decade. Rainfall in much of South Eastern Australia is very low, and large areas are now at the lowest on record. Adelaide and its hills catchments are also very much below average rainfall. The Murray R is at unprecedented low flows. The average long term inflow has been about 11,000 GL, but this was last seen in 2000-1 and now we have had 6 years well below this.

The Wimmera R in Victoria has over the last 10 years been running at 18% of 50 year average flow, and many other Victorian rivers are at 40% of their long term flow. In parts of Victoria this is now a 1 in 400 year event.

Is this climate change or just another drought?

- Perth has experienced a series of drops in rainfall and hence runoff since the 1970's. Not a smooth drop but a series of steps down
- Period 1900-1950 was much drier in SE Australia than perhaps unusually wet period of 1960 -1990's when so many of our expectations on water have developed.
- This dry spell is now outside anything we have known in our period of settlement although there is evidence from pollen records that over the last 1000 years, Sthn Australia has experienced at least 3 such dry periods of at least 50 years duration.
- There is now no doubt that human activity has led to an increase in atmospheric carbon dioxide, and this is leading to expected warming global.

It does look as if our climate is drying

- We may have an El Nino and other cyclic change on top of climate trend
- Climate shift may not be a smooth curve but a series of sharp drops (as experienced in Perth)
- Denying the likelihood of climate change seems to me a high risk strategy.
- It may be prudent for us to assume less rainfall is something we must learn to live with

Adjusting to Less Rainfall

It does seem we are now running on empty and we need to take urgent action. Fortunately we have a national blueprint; the National Water Initiative was agreed by the Premiers and Prime Minister in 2004 to address these challenges.

The NWI has some simple and obvious things that seem hard for Governments to do, since the timelines have already slipped.

- Understand the resource. What are the sustainable levels of extraction of the surface and groundwater resource upon which we depend? How might they change with climate change? What is the consumptive pool available for us to extract?
- Return over allocated systems to sustainable levels. Our communities depend on healthy rivers. They are not an optional extra but the foundations upon which our communities depend.
- Give farmers secure entitlement that can be traded and allow a market to develop that will let water move to its most valuable use – irrigation, urban or the environment
- Insist that we all use water as efficiently as we can. Proper pricing is part of this, but so are urban design and public education
- Planning that identifies future demands and the full range of options for meeting the needs of our communities. Nothing should be excluded on doctrinaire grounds, but all must be subject to serious and open analysis – will they work, what is the cost, what is the environmental cost, what is the greenhouse gas contribution and what are the social impacts?

We are a community living in the driest inhabited continent, with the greatest variability of rainfall – a land of droughts and flooding rains - and yet we don't seem to have the capacity or the will to get serious and implement this simple strategy.

Agriculture is going to have to adjust to changing realities, and this will be painful and difficult. Our current agriculture has developed over an unusually wet period in the last 40 years, and stocking rates have been increased to what may be beyond sustainable levels in the new environment we are now in. Current drought strategies seem designed to slow the necessary readjustment, not facilitate it and they prop up land prices prolong human misery and maximize the land degradation. Farmers need help to envision alternative futures, and may need help to get there. We should look for ways to support communities in transition, not encourage them to deny it.

Communities need to get much more serious about water planning, and accept that water may be a limiting resource on development. Careful estimates of future populations and estimates of per capita use in households, industry and for open space purposes need to be made. All alternative ways of meeting these needs must to be explored in a serious way to assure security of supplies to our cities and rural towns as well as to agriculture.

Within hydraulic and environmental constraints we should allow the market to let water to move between uses – urban, irrigation and the environment. We must demand efficient use of water. In over allocated systems the Government should stand in the market and purchase back the entitlements it issued without understanding that the water didn't exist.

So How Will We Sabotage Ourselves?

Having a sound blueprint, and actually getting it in place and working are two different things. It is worth considering the ways our community might sabotage itself in this search for water security

Blame Others as an Excuse for Inaction

Blame is such a simple approach when we haven't a clue what to do.

We have come through the denial stage, and most Australians are concerned about water. Ask a taxi driver about the dam levels in any city. But we seem to be locked in the blame stage. Blaming other levels of Government, blaming rice growers, blaming Cubbie station. Blaming anyone other than ourselves. We need to accept the reality of water scarcity and get on with the task.

Lack of Capacity to Address Difficult Technical Issues

Agencies have cut back on technical expertise and there is a real shortage of skilled professionals to do the detailed analysis we need in this situation. Commonly our professionals are trained and operate in narrow silos. We have examples of water sharing plans being developed which have not understood the need for floods to recharge groundwater. We have examples of permits for bores being given right next to rivers as though they were different buckets of water.

Governments have now outsourced so much expertise they seem to have outsourced critical thinking. While there is technical; expertise available in consulting companies, water agencies now seem to lack strategic thinkers who can identify possible future threats and opportunities and take action before a crisis is upon us. The recent surprise about the Murray Darling Basin running out of water is an obvious example.

Waste Money and Time on Ill-considered Infrastructure Projects

Politicians like to respond to community concerns, and each recent election has seen proposals for significant water infrastructure projects that have not been seriously designed, planned or assessed. Political focus groups are not a substitute for detailed technical assessment.

Had the channel from the Kimberley got up at the last WA election, it would have doubled the water bill for each Perth household and provided water at about 6 times the cost of desalination. Each election now sees a new dam, new desalination plant or an expensive channel being proposed with no analysis or understanding. Yet these are 100 year infrastructure investments decided by a few political focus groups. We have entered a dangerous phase with serious water planning now commonly being overtaken by iconic water projects dreamt up by journalists or focus groups at election times.

Flying Blind

Disconnecting the fuel gauge might be one way to stop worrying about how much fuel might be left, but it's a pretty stupid strategy. Yet over the last 20 years we have wound back our streamflow gauging network and not developed an appropriate groundwater assessment program

Where we do collect data, we often keep it inaccessible from those who could benefit from it. At least this stops the punters realizing Governments have been dishing out water entitlements for water that doesn't exist – devaluing every license they print. The NWC has been calling for free and open access to all of this water data. This would allow individuals to make better investment decisions, it would stimulate innovation by allowing people to model and interpret the data in different ways and it would allow Governments to prepare water accounts so they know just where they are. The Water Ministers have agreed at their November meeting in Christchurch to advance this, but progress has been pitifully slow, Perhaps Governments realize how embarrassing it will be if the world can see the results of flying blind and that some may have been trading while insolvent.

Addressing the Challenge of Water Scarcity

1. Buy water for the environment

Governments have committed to return over-allocated rivers and groundwater systems to sustainable levels of extraction, but they are very tardy about getting on and doing it. We must secure the health of these aquatic systems. We should buy water from anyone willing to sell

Irrigators will get used to having less water. Buying water now at the top of the market is a readjustment mechanism that lets people get out of unviable farms with cash and dignity. Those with excess water to needs can capitalize their asset. Most farmers seem to want to be allowed to reap these profits. The NWI encourages it. Yet the Federal Minister for Agriculture steadfastly objects to using market mechanisms to drive this readjustment and recover water for the environment or urban communities

The NSW Riverbank scheme, where the Government provided \$100 million to buy water in over-allocated systems has been a roaring success. Plenty of water has been made available and it hasn't driven the price up

2. Regulate Extraction of Water

Issuing farmers with legal entitlements to water, and allowing them to trade is fundamental to the NWI. But if Governments don't control other activities which are taking water, then the entitlements are worth less.

- Timber plantations – which have rapidly dried up the groundwater in the Sth East of SA, leading to the drying of wetlands like Bool lagoon.

- Farm dams which capture water that would have gone into streams where it has already been allocated. Hobby farms around our cities seem to be capturing 50-60% of the runoff, often just to have aesthetic ponds where the water just evaporates.
- Groundwater use is poorly regulated or measured, and yet excessive extraction is affecting the flow in streams. There is often a time lag, depending on how far the bore is from the river, but it's all the same water.
- Water use efficiency is being encouraged in agriculture, often with public funding support. Yet in some places the water now being captured was a significant contribution to the environmental flows. In this situation, entitlements should be reduced.
- Theft. It is hard to estimate the illegal extraction of water, but some estimates suggest it might be up to 20%. Governments need to address compliance issues.
- Cancel Sleeper licenses (surface and groundwater) – these are licenses not yet used but are activated as soon as the market develops.

3. Measuring our Water Resources

Australia has the opportunity to lay out a real time water measurement system using 21st century technology that will give us all real time access to data and the interpretive models needed to make sense of it. CSIRO has been developing a Water Resources Observation Network and a \$200 million investment would give us a core national set of gauging stations that could provide real time data to all interested.

Governments should commit to free and open access to all of the water data to allow better decisions and to drive innovation in the water sector. Flying blind hasn't worked and we must know where how much water we have, where it is and how it is being used. We need to know the health of our waterways.

As surface waters decrease, there is increasing pressure on groundwater, and our knowledge of the groundwater resource and capacity to understand it is seriously limited. Investment is needed to drill bores and obtain information on the groundwater resource, and to model and interpret the findings. Access to such funding should be contingent on meeting all NWI commitments with regard to licensing and metering and charging for groundwater.

4 Pricing

Everyone using water should pay the real costs of that water. Urban communities should pay landholders for the catchments services they want, for the collection, treatment and delivery, and the full costs of cleaning up their waste so it can be recycled or returned to the environment without harm.

Rural users should provide a return on the infrastructure that taxpayers provide, and should pay the measurement and management costs of their activities. They should also pay an environmental levy to repair the damage they cause to waterways.

Getting the price right is important for encouraging private sector investment in water infrastructure. There are, however, difficult equity issues and it is inappropriate to see water pricing as a defacto social welfare policy. We don't do that for electricity, telephones or petrol.

5. Comprehensive Regional Water Planning

Regions need to develop comprehensive plans that identify water needs over the coming 50 years and identify where the water will come from. Nothing should be excluded from consideration on doctrinaire grounds. New dams, pipelines from elsewhere, recycling, storm water, groundwater, desalination, urban –rural trade and pricing should all be in the mix.

In considering the array of supply options, the analysis should consider the technical merits of the option – will it work and what will it cost? It should consider the reliability, the environmental impacts, the greenhouse gas emissions, the health risks and the social acceptability. We must try and build the externalities into the costing so we make better choices. In assessing various augmentation options, let us consider 3 or 4 alternatives and compare them across the range of criteria. Community pressure groups can mount noisy campaigns against any option they feel disadvantages them. Toowoomba is an example where a community rejected recycling without understanding their alternatives. Water planning is the cornerstone of the NWI but as yet I doubt we have any plan that is NWI compliant.

6 Best Practice Demand Management

This is the most immediate short term response to scarcity. Some communities have put in more effort and got better results than others. We need to agree on a set of best practice demand management approaches, and not give communities access to additional Government funding until they have met this standard.

Water restrictions are an important part of this. Our urban systems are designed to have restrictions during infrequent dry periods, and designing systems that did not require such restrictions would be much more expensive. Berating Governments for introducing restrictions shows an ignorance of the design features of urban water systems. Berating Governments for not foreseeing the consequences of climate change is about as helpful as berating Governments for not having done anything to slow climate change. Those options are now behind us and we must learn to live with the consequences.

Summary and Conclusions

Australia seems to be entering a drier period, and we may well not have access to the water we have become accustomed to over the last 50 years.

We have an agreed blueprint to address these challenges and ensure reasonable security of water for all. Governments are finding it hard to implement because various interest groups are resisting the necessary changes. If groups are seriously disadvantaged, then adjustment

programs are warranted, but it is just not fair to stall these reforms so a small group can continue to use water in the wasteful ways of the last century.

References

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