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MELBOURNE'S FUTURE WATER SUPPLY OPTIONS

A submission by the Victorian Water Forum

Introducing the Victorian Water Forum

Three key Victorian community water groups – Clean Ocean Foundation, Watershed Victoria and Plug the Pipe - have formed the Victorian Water Forum. The aim of the Victorian Water Forum is to achieve a change in the Victorian Government's current Water Plan and deliver a real, sustainable solution to Melbourne's water crisis.

In consideration that Victorian Water Forum and its member organizations represent the public voice of a large proportion of Victorians, we ask that you consider this written information on our State's key water issues to accompany our short submission to the inquiry.

The Problem

The amount of extra water required to give 20 years of security for Greater Melbourne, has been estimated at between 135-215 gigalitres (GL) per year. As there is a massive variation in the estimate, this demands a flexible, scalable response. Instead, the current Victorian Government Water Plan is to supply 225GL from the Wonthaggi desalination plant and the North-South pipeline. This approach will lock Victorian generations to come into a hugely expensive, inflexible and environmentally damaging plan.

North-South Pipeline

As a means of water harvesting, the North South Pipeline is entirely rainfall dependent. The organisations who are the Victorian Water Forum strongly believe that the projected water savings from the Foodbowl Modernization Project are overstated. No water will flow to Melbourne; and the pipeline will remain as a billion dollar shrine to the Brumby Government. In the current financial crisis we cannot afford to pay for the Brumby Government's pipe dream.

The process that lead to the North-South Pipeline lacked proper scoping, and is viewed as a non-democratic process by the communities the Victorian Water Forum organisations represent. The Victorian Water Forum will not accept the pipeline's impact on food production businesses. The pipeline's impacts are unacceptable when there are many other unexplored options available to meet critical human needs in Greater Melbourne. Victorian food production businesses already pay tax and water bills, they should not be asked to pay for essential water upgrades that benefit all Australian's.

The Victorian Water Forum believe that the act of taking water from the Murray River system which is already under dire stress, and to use this water in Melbourne where there are other alternatives without first ensuring Melbourne's water use is efficient, is inexcusable. The decisions made by the Victorian Government regarding water use directly affect all Australians, through the effect they are having on the river Murray and the Coorong, an internationally recognised RAMSAR protected wetland.

Wonthaggi Desalination

The Victorian Government's decision to build a desalination facility is in effect an announcement to indirectly use Class C water for drinking purposes. The people of Melbourne will now drink from the same ocean in which the State Government dumps 150 GL of Melbourne's own wastewater. Cities have to produce wastewater, they do not have to waste it, or produce more of it!

Seawater desalination is a last resort technology. Seawater has a higher salt content than any other water resource, which means it requires more energy to produce the same amount of useable water. Pumping costs involved in transferring one third of Melbourne's water from Wonthaggi, and more from North of the Divide, are excessive in an environment where Victoria's stationary energy use is currently some 30% above 1990's levels. The energy use required for treatment of Eastern Treatment Plant water to Purified Recycled Water standard, above the current commitment to Class A, would be of the order 10%, of the energy usage required for a Wonthaggi desalination facility.

The Victorian Government's decision to go with desalination appears to have lacked proper scoping. The Victorian Water Forum views this project as a panicked decision by a State Government finally facing the consequences and desperate reality of ten years of its own inaction. The scale of the proposal, and its impact on, or exclusion of other augmentation options does not seem to have been considered. The social, economic and environmental impacts of the Wonthaggi desalination plant are unacceptable when there are alternatives being excluded by State Government policy; such as reuse of purified recycled water.

Class A Recycled Water to the Yarra River

The current water plan involves upgrading the Eastern Treatment Plant to ‘Class A’ and using that water for ‘low grade’ water uses such as river flow substitution and for power generation. The disadvantage of this is the high cost/benefit in terms of potable water returned, and the lack of immediate side uses of the Class A water. Class A water is of a lesser quality, it cannot safely be distributed through existing piping networks, therefore the costs of constructing a new distribution networks make it financially unfeasible to supply Class A to already developed areas of Melbourne. Melbourne’s immediate need is for potable water supply. This has resulted in the desire to seek other more expensive ways to augment potable water supplies, such as desalination and a North-South pipeline.

The potential exists to retain elements of the current business case investigations, which includes the option of building a pipeline through Melbourne’s Eastern Suburbs providing water for industry and environmental flows. A small variation to this plan could see purified recycled water flowing through this pipeline route, supplying far greater amounts of water to industry, and entering the Yarra River above the Sugarloaf Reservoir extraction point to provide an additional quantity of potable water for Melbourne.

The Solution

The current Parliamentary Inquiry into Water has heard from a range of organisations and water experts on better, more flexible and scaleable, environmentally-friendly alternatives; alternatives now being applied in other Australian States and overseas. These alternatives, and some facts about each, are:

Recycled water

Every year 150GL of low-grade, polluted water from the Eastern Treatment Plant at Carrum flows out to sea via the Gunnamatta outlet (the same amount of water that the Wonthaggi Desalination plant is designed to produce).

Since 2002 the Victorian Government has promised upgrade the Eastern Treatment Plant to produce over 100GL of Class A water, which can be used for agriculture and industry but not for direct human consumption. This upgrade is yet to take place. The latest Government commitment is to upgrade the Eastern Treatment Plant by 2012 but it still has no plan for use of this water.

As a result of a State Government policy, limited information and research has been done comparing desalination and purified recycled water. However the South-East Queensland Western Corridor Recycled Water project required an extensive pipeline network of 200km and was completed in less than two years at a cost of \$2.4 billion.

With the massive cost of the proposed desalination plant and North-South pipeline and in the midst of an economic crisis, further postponement of the Eastern Treatment Plant upgrade is highly likely. The upgrade of the Eastern Treatment Plant to either Class A level or a combination of Class A and purified recycled water, should be an urgent priority rather than a low-level option constantly sidelined. It would stop the senseless dumping of the massive water resource at Gunnamatta, at around half the cost and environmental impact of the planned desalination plant.

Distance = Cost: A simple equation

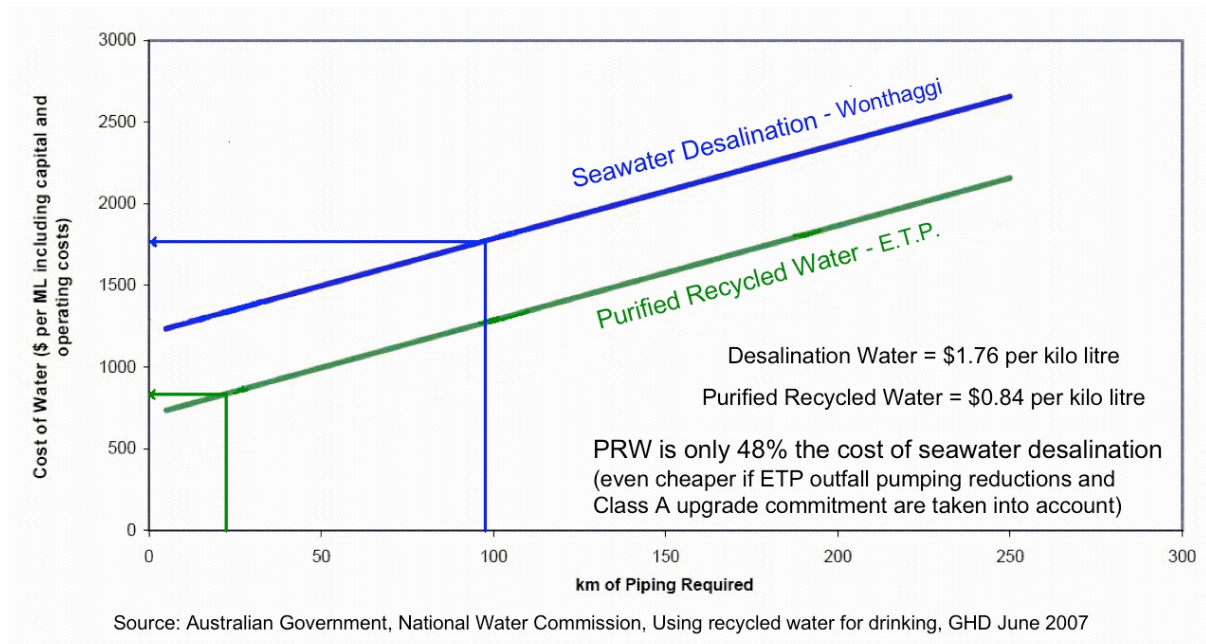
The further water is piped, the more infrastructure is required, and the more energy is required. Piping water from greater distances is more expensive. Melbourne's Eastern Treatment Plant is located close to our water supply network and therefore contains a cheaper and less energy intensive source of water than piping water from a remote desalination plant, or through a North-South Pipeline, as the table below shows:

Table: Approximate Pipe Distances for Various Water Supply Options:

Project	Pipeline Length
Wonthaggi Desalination site (<i>to Cardinia Reservoir</i>)	95 km
North South Pipeline (<i>to Sugarloaf Reservoir</i>)	75 km
Current Eastern Treatment Plant to Ocean Outfall Site	56 km
Eastern Treatment Plant to Sugarloaf (<i>via Yarra River</i>)	57 km
Eastern Treatment Plant to Silvan Reservoir	53 km
Eastern Treatment Plant to Cardinia Reservoir	23 km

The South-East Queensland (Gold Coast and Brisbane) 'Western Corridor Recycled Water' project, is currently delivering purified recycled water to industry (planned 86GL near term capacity to industry and to Wivenhoe dam for potable use) at a cost of \$2.4 billion. There are several factors which indicate a Victorian project could be cheaper. The Eastern Treatment Plant is close to Melbourne and therefore the cost of transfer pipeline infrastructure and energy in pumping would be far less. Existing outfall pumping costs would be reduced and the State Government has already committed to a large part of the treatment process at the Eastern Treatment Plant to bring it up to purified recycled water standard.

As an example, this graph adapted from a report by the National Water Commission, indicates the comparative costs of water from a seawater desalination plant at Wonthaggi and a purified recycled water plant at Eastern Treatment Plant, with both supplying water to Cardinia reservoir.



Storm Water Harvesting

According to Monash University, up to 200GL of storm water harvesting is possible over time. In the same timeframe as the Government’s Water Plan, through a policy of installing water tanks into 8% of suitable houses per year and other storm water harvesting techniques, 100GL of collection is achievable. Water can be supplied ‘fit for purpose’, ranging from low grade right through to potable standard. Should Government choose, investment and research into stormwater capture and treatment can provide one of the cheaper water resources.

Strong, Achievable Water Targets

Upgrading the Eastern Treatment Plant to Class A and/or purified water level would alleviate the water shortage for many industry and agriculture regions and would free up potable water for human consumption. Nevertheless, water consumption in households and industry can be reduced by a further 15%. This need not involve particular hardship, but instead can be done largely through technology and requirements for efficiency when houses or industries are sold.

Aquifer Management

Underground aquifers provide a potentially massive source of water up to potable level. Aquifers can also be used as storage for recycled water and/or storm water. Proper management and controls by Government are required to ensure aquifer water contributes to the water strategy over time.

This absence of aquifer management is demonstrated by the large variance in water costs between various consumers:

- Coca-Cola: \$2.40 per ML of water.
- Victorian Farmers: \$45 per ML of water.
- Melbournians: \$960 per ML of water.

Advantages in the alternatives

Each of the alternatives listed provide positive spinoffs, as opposed to the current Water Plan;

- Waste discharge to rivers, bays and oceans are reduced, rather than increased.
- Storm event damage will be mitigated and requirements to upgrade existing infrastructure may be delayed or could be incorporated into works for the new augmentations.
- More than half the renewable energy credits that would have been required under the current Water Plan can be used to offset other existing emissions.
- Aquifers currently becoming more saline and depleted will be rejuvenated and be productive far into the future.
- Efficiencies and sustainable water use are more likely to continue when there is not a profit motive to use more water, and as we move toward a closed water cycle. The need for the next major augmentation in the future, with its economic, social and environmental costs, will thus be delayed.

Conclusion

There are 2 options to secure our water supply:

The Government's current strategy:

- Build a 150GL desalination plant at Wonthaggi and the North-South pipeline
- At an estimated cost of \$5 billion and rising
- Creating as much carbon pollution as 330,000 cars each year
- Leaving 50,000 tonnes of toxic waste each year to be dumped
- More than doubling water rates
- Securing big profits for an overseas company through a PPP
- Threatening regional communities and industries
- Inviting food imports by decimating Victoria's food bowl

OR

Implement currently available alternatives:

- Upgrade the Eastern Treatment Plant to produce over 100GL of recycled and/or purified water at less than half the cost of the desalination plant
- Harvest at least 75GL of available storm water
- Fast track tanks into 8% of suitable houses per year to yield 25GL
- Encourage strong, achievable water conservation targets throughout the community
- Proper underground (aquifer) management, including top-ups from recycling, storm water etc;
 - ✓ Which would stop the dumping of 150GL of polluted water at Gunnamatta per year
 - ✓ Which would use less than half the energy of the desalination plant
 - ✓ Which avoid the environmental, economic and social devastation caused by the desalination plant and north-south pipeline
 - ✓ Which would give ample time and security to move to a more sustainable future
 - ✓ Which can be delivered in the same time as the desalination plant and pipeline

The Government's current strategy will tie Victorian generations to come to the Desalination plant and North-South Pipeline without any serious research into better alternatives; alternatives that are on the public record and supported by other States and water experts.

If you have any further questions representatives from each organisation would be happy to answer them:

VWF - comprising Clean Ocean, Watershed Victoria and Plug the Pipe

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The Victorian Water Forum member organisations would like to acknowledge the following sources of information:*

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* *These sources are included for research, reference and acknowledgement purposes only.*