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Senate Standing Committee on Rural and Regional Affairs and transport
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September 10, 2008

Submission of Acheron Valley Watch Inc. re Inquiry into water management in the Coorong and Lower Lakes

The Senate Standing Committee on Rural and Regional Affairs and Transport is required to inquire the water management in the Coorong and Lower Lakes (reporting by September 30, 2008) and the implications for the long-term sustainable management of the Murray Darling Basin system (reporting by December 4, 2008).

In it's submission, Acheron Valley Watch Inc. takes the following stand with respect to the different items under the Terms of Reference especially with respect to the long-term sustainable management of the Murray-Darling Basin system:

1. Coorong and Lower Lakes to be considered as a national emergency
The dire situation of the Coorong and Lower Lakes should be considered as a National Emergency and all possible sources of water should therefore be investigated and made available immediately to revive this system and maintain it in the long term.

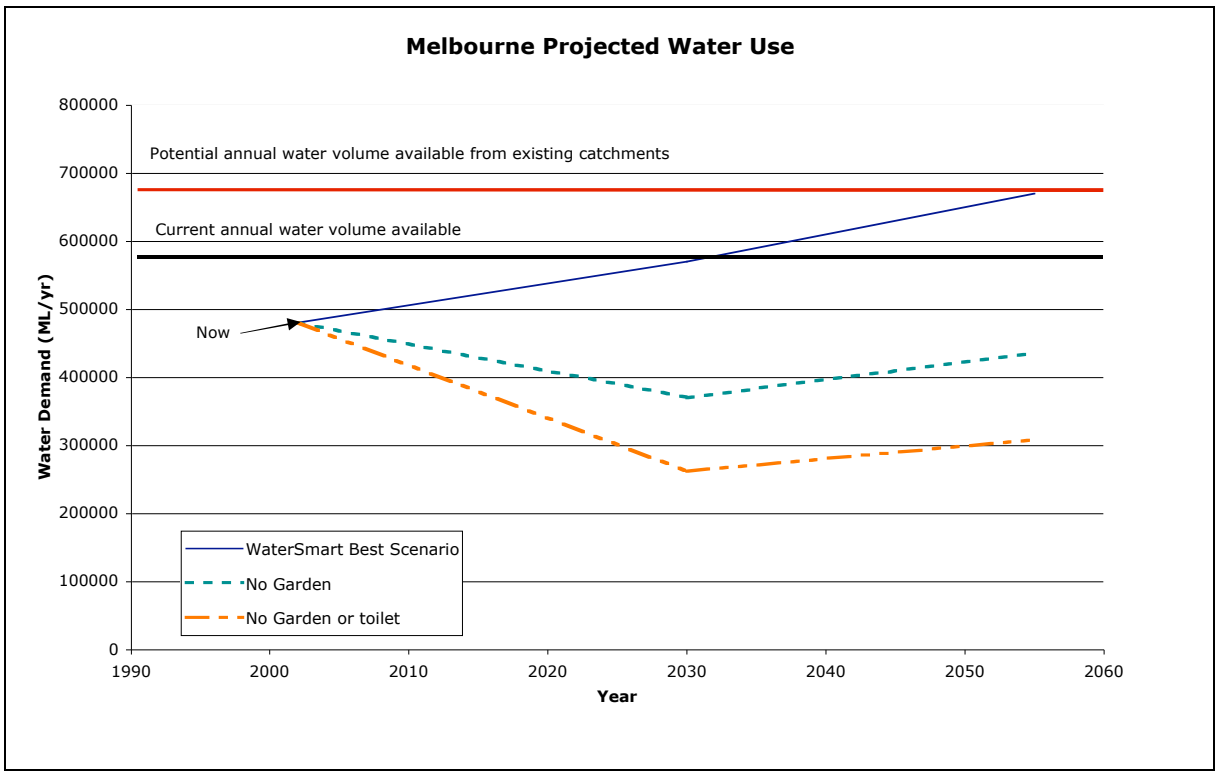
2. Whole-of catchment water accounting system to assess cumulative impacts
Following the recommendation of the late Professor Cullen, the cumulative impacts of Queensland, New South Wales and Victoria taking considerable amounts of water from the Murray catchment to accommodate different user groups, need to be assessed and quantified in a holistic, detailed and permanent water accounting system including surface and ground water, their interaction, and consideration of interception activities such as farm dams or agro-forestry (Cullen 2007). This whole of catchment water accounting and planning system would inform the Interim Basin Plan to "*empower the Minister and the Authority to address the current crisis affecting the Murray-Darling Basin as an emergency measure*" as suggested in the Emergency Water Murray-Darling Basin Rescue Bill **2008. It would also allow the** establishment of science-based ecological targets and corresponding stream flow management plans and ground water management plans for all rivers and aquifers/catchments (water balance account) of the Murray-Darling basin necessary for the resolution of the over-allocation problems, i.e. as proposed by the Productivity Commission (2006).

3. Victoria's diversion of water out of the Murray catchment is not necessary and un-economical
In Victoria, the proposed North South pipeline and its water diversion from the Goulburn River to Melbourne, is an example of a proposed project that is widely acknowledged as not essential because Melbourne's catchments and water saving strategies are already coping successfully with demand under ongoing dry conditions and a series of further strategies provide the potential to effectively cope with increasing demands (due to population increase).

At present, according to the Watermark report "Our Water mark – Australians making a difference in water reform" (2007) Melbourne is only recycling 2 % of its waste water and

most of it is dumped into the sea – for example via the Gunnamatta ocean outfall some 150 GL per year Topsfield (2008). This 2% waste-water recycling is a very low proportion compared to elsewhere in the world, as for example in Denmark, where recycling of more than 80% of waste water is common practise (Watermark, 2007).

Furthermore, according to calculations of A/Prof. Finlayson (2008), currently garden watering accounts for 35% of Melbourne's potable water use and toilet flushing for 19%. With a gradual phase-in, by 2030 the use of grey water for the garden and toilet would bring water demand levels in Melbourne well below the levels where new water supply infrastructure is needed (see graph below).



Source: A/Prof. Dr. Brian Finlayson, presentation at "Water Debate", February 5 , 2008, (http://www.acheronvalleywatch.org.au/water_debate.php)

Acheron Valley Watch Inc. also acknowledges the great potential of rainwater harvesting at a household level and urban stormwater harvesting at a community level, as outlined by the Australian National Water Commission (2008) as follows:

> *"The volume of stormwater runoff from a city is often greater than its entire combined household water use, and has the potential to provide water for irrigating parks, gardens and ovals, as well as replenishing groundwater supplies. Use of stormwater for these purposes can help to take pressure off the potable (drinking) water supply. It can also reduce the level of stormwater pollution in our waterways and alleviate flooding reoccurrence in high-risk areas".*
> (*http://www.nwc.gov.au/www/html/209-rainwater--stormwater.asp*)

Thus, with the Food Bowl Modernization Project in place, if the North-South Pipeline was abandoned and alternative supply strategies used instead (as outlined above and suggested by The AGE, 25.8.2008 and The AGE of 4. September 2008, Appendix II.a and II.b), it could contribute a significant amount of water annually to the Murray river and the Coorong/Lower Lakes.

4. Using Environmental Water Reserves for purposes other than the environment

The predicted savings of the Food Bowl Modernisation Project (FBMP) planned to come online by 2012, which form the political basis for taking 75GL/per annum from the Goulburn River to Melbourne via the North-South Pipeline, have not been established and confirmed by independent third party auditing. Also, these savings are not expected to be achieved within a few years until the FBMP up-grade has been finalized. Yet the Victorian Government intends to take the 75GL/annum from the Goulburn River to Melbourne from 2010 onwards when the pipeline starts operating, using the "environmental water reserve" allocated for environmental purposes. In our opinion, mis-using environmental water reserves for purposes other than the environment is a perversion of the original intent of the concept of "environmental water reserve". It therefore constitutes an *in-principle-problem setting a dangerous precedence* and should not be tolerated under any circumstances neither at State nor Federal level. In fact, taking Environmental Water Reserves for purposes other than the environment does not conform with the Victorian Water (Resource Management) Act 2005, S. 11, 22C (c) and (d), and the Federal Water Act 2007, S 6 (1) (b) and S. 6 (2) (b).

Following Professor Barry Heart and Dr. Paul Sinclair (as quoted in The AGE, 23 August 2008, Appendix I) Acheron Valley Watch Inc. requests that environmental water should be use to restore the environmental flows of the River Murray System and its tributaries, including the Heritage River Goulburn. This request is also reflected in the National Water Commission's position on water-dependent ecosystems, and in particular under the section on "Future directions for water-dependent ecosystems", (point 1-6, National Water Commission, 1st Sept. 2008), in which the authors request a higher security of environmental water and a more effective management of environmental water to increase river health.

5. Climate Change and Environmental Water Reserves

Due to ongoing drought (possibly as a consequence of climate change) and continuous below long-term average inflows into the Murray-Darling Basin (CSIRO 2008a, 2008b), including the sub-catchments of its tributaries (i.e. the Goulburn Broken catchment) the "environmental water reserve" is already diminished. Yet under these new climatic circumstances environmental water reserves are even more critical to the Goulburn and Murray aquatic environments, as they serves as vital insurance against algal bloom and low dissolved oxygen events, they constitute the principal pillar for the River Health Strategy 2005-2015 of the Goulburn River (GBCMA 2005), and they provide the nature conservation reserve system (i.e. for the Lower Goulburn River National Park and other sites) with desperately needed water in order to preserve River Red Gum forests, wetlands and associated ecosystems as recommended by the Victorian Environmental Assessment Council River Red Gum study (VEAC 2008).

The North Victoria Sustainable Water Strategy (Victorian Government 2008) presents CSIRO-predictions under different climate change scenarios showing a substantial reduction of water availability for environmental water reserves. For example, by the year 2050 Scenario B forecasting a medium climate change expects a reduction of some 20% of inflows of 1990 levels for the Murray system. For the same time span, Scenario D is based on a continuation of the past 10 years of low inflows and expects 38% lower inflows compared to 1990 levels. Thus, under increasing impacts of climate change and drought, the use of environmental water reserves for purposes other than the environment is even more dangerous and inappropriate – especially when other options of supplying water to urban areas of Melbourne are not fully or not at all utilized (i.e. stormwater treatment, water recycling, rainwater harvesting).

6. Incompatibility of the Goulburn River water diversion with the Intergovernmental Federal Murray-Darling Basin Reform

As major tributaries to the Murray River the Goulburn river and the Murrumbidgee river should not be excluded from the Intergovernmental Agreement on the Murray-Darling Basin Reform and in particular, from the operation of the "River Murray System" as established in clause 3.2.9 of the agreement (COAG, 3 July 2008, p. 9). In fact, Acheron Valley Watch Inc. believes that the North-South Pipeline by diverting water out of the Murray river catchment, is completely inconsistent with and does not comply with the environmental objectives of the Intergovernmental Agreement on the Murray-Darling Basin reform including its Memorandum of Understanding of March 2008 (COAG 2008a, 2008b).

This political decision to exclude major tributaries of the Murray from the operation of the River Murray System is *wrong in principle and creates a dangerous precedence*, because it enhances the "prisoners dilemma" with drastic effects on the state of the environment. The "prisoners dilemma" describes a perception bias in which many projects of individual actors appear to be relatively small on their own with seemingly negligible impact, but when added up they create a large cumulative negative impact on the River Murray System and the sub-catchments of its tributaries.

In the case of the Goulburn river this problem is accentuated by the fact that it does not only serve as source of water for Melbourne (via the North-South pipeline), but it is also part of the planned Victorian Water Grid, supplying water to the towns of Ballarat and Bendigo. Under continuous drought and climate change related reduced inflows (as forecasted by the CSIRO 2008), the different demands of the Water Grid will out-compete each other – i.e. the Goulburn River will not be capable to top up the water needs of Bendigo and Ballarat via the Goldfields Superpipe AND at the same time deliver 75GL p.a. to Melbourne via the North-South pipepline AND supply irrigators in the Shepparton Irrigation area AND have any *environmental water* left for its own river health and the health of the Murray river, although this is a requirement of the National Water Initiative (National Water Commission position on Water-dependent ecosystems, 1 September 2008, p. 1).

7. Institutional and financial arrangements that harm the health of the Murray river and its tributaries

Acheron Valley Watch Inc. fears, that the Victorian Water Grid combined with a large-scale desalinisation plant will be managed and operated by one (or a few) stakeholder consortium(s) (i.e. organised as PPP public private partnership) and hence this stakeholder consortium will have a quasi cartel position on the market place dictating the water price as a supply sided oligopoly (see also The AGE, 25. August 2008, Appendix III).

In such a structural arrangement the inherent incentive for that PPP consortium will be to *increase water sales* in order to increase its returns and to cover the huge upfront investment costs of these large-scale infrastructure projects. Given the overall scarcity of the water resource, this is a development in the wrong direction because there is no inbuilt incentive for the PPP to save water, to supply less water and/or to supply water by those means with the lowest possible environmental footprint (i.e. stormwater harvesting, water recycling etc.). This reverse effect (or negative incentive) on water saving is further increased by the fact that capital costs for the new Victorian water supply infrastructures are recovered via *fixed access charges*. Making fixed costs high and variable costs comparatively low is another strong dis-incentive against water saving, because under these pricing arrangements the end users will not be motivated to achieve further water savings. The result is thus a compilation of supply-sided and demand-sided dis-incentives against water saving.

In the end, because the Goulburn river as principal tributary to the Murray river forms part of the Victorian Water Grid, the above mentioned institutional, financial and pricing arrangements in Victoria are ultimately to the detriment of the River Murray System.

Following Spurling et al. (2007) Acheron Valley Watch Inc. therefore requests that the Federal Government request from all members of COAG to ensure that institutional/financial arrangements of water supply and related pricing mechanisms are chosen in such a way that they are not creating dis-incentives for water saving strategies both at supply and demand level.

8. Conclusions

In conclusion, Acheron Valley Watch Inc. requests that:

- The state of the Coorong and Lower Lakes be considered as a national emergency;
- A whole-of catchment water accounting system be established (including all tributaries of the Murray-Darling Basin and including surface and ground water, capable to assess cumulative impacts of all different forms of water use;
- The establishment of science-based ecological targets and corresponding stream flow management plans and ground water management plans for all rivers and aquifers/catchments (water balance account) and the resolution of the over-allocation problem be achieved, i.e. as proposed by the Productivity Commission (2006, p. xxii);
- Diversions of water out of the Murray-Darling catchment be prohibited (and only allowed under a COAG agreement as last resort if all other forms of water supply (including stormwater harvesting, water recycling, etc.) are exhausted;
- Environmental Water Reserves be used for the sole purpose of the environment;
- The Goulburn River and its operation form an integral part of the Intergovernmental Agreement on the Murray-Darling Basin Reform along with all the other tributaries to the Murray-Darling rivers;
- That the significant contribution of water to be taken out of the Goulburn and Murray catchments by the proposed North South Pipeline be instead used as part of the National emergency response to revive and maintain the Coorong and Lower Lakes until water savings from the FBMP are clearly established over a minimum 2 year period
- That Life Cycle Assessments and Cost Benefit Assessments be required for all water supply options and that decentralized water supply solutions i.e. rainwater tanks, stormwater harvesting and water recycling be given the priority over big civil-engineering oriented water supply infrastructures, if their ecological foot print is proven to be lower.
- The Intergovernmental Agreement on the Murray-Darling Basin Reform requires from all partners to avoid institutional and financial arrangements and pricing mechanisms that work as a dis-incentive against water saving measures both at supply and demand level.

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Note: Acheron Valley Watch Inc. – who we are

Acheron Valley Watch Inc. is a not for profit community group concerned about the well being of the local communities, natural and rural environments, scenic landscape and cultural heritage of the Acheron Valley/Cathedral Range area, including the Acheron River Catchment. Acheron Valley Watch engages in activities that strengthen co-operation and communication with planning and decision-making bodies, local residents and the broader public. Acheron Valley Watch Inc. is grateful for the opportunity provided by the Environment and Natural Resource Committee to make a submission to the parliamentary inquiry on Melbourne's Future Water Supply.

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Appendix I – The AGE, 23. August 2008

Cabinet leak reveals win for farmers

Royce Millar and Jo Chandler August 23, 2008

Water, water everywhere, but not a drop for the river Photo: *Angela Wylie*

A LEAKED template for the management of Victoria's stressed northern rivers promises no substantial increase in environmental flows despite warnings of the possible devastation of river red gum forests, bird breeding cycles and wetlands.

The "Cabinet in Confidence" draft obtained by *The Age* suggests the State Government is set to ignore pleas from water experts and environmental groups for it to guarantee an amount of water to fix the river flows as a first priority.

After contemplating worst-case scenarios, including the loss of 70% of inflows into the Loddon and Campaspe Rivers by mid-century, the working draft for *The Northern Region Sustainable Water Strategy* essentially attempts to wring more water out of the existing troubled regime.

The strategy emphasises the importance of the $3.26 billion irrigated farming sector to the Victorian economy and claims that as irrigated areas shrink, northern Victoria "will become even more important as the state's food production centre".

But it shows no inclination by the state to buy back water entitlements from irrigators — a strategy urged by environment groups — leaving such purchases to the Commonwealth.

The draft's solution is to find enough additional water in dry years to pump life support into threatened ecosystems, and to have the flexibility to shift the environment's water share to where it is most needed.

It proposes establishing a new independent authority — an Environmental Water Holder — to safeguard the rivers' share of water.

The leaked draft tells a sorry tale of a river system in dire straits with the Murray "reduced to a trickle" in places; one third of northern rivers already in poor condition; and the Goulburn the most degraded of any river in the Murray-Darling Basin.

More than 70% of river red gums are struggling. Every town in the region has been on water restrictions for the past decade.

Water experts said yesterday they were bitterly disappointed by the strategy's direction. "There has to be a fundamental change in the allocations regime," said Emeritus Professor Barry Hart, former director of the Water Studies Centre at Monash University.

"Without seeing the document, I can say that unless that happens, the northern rivers will continue to be significantly degraded, and there will be major ramifications for the river redgum forests and many wetlands."

Dr Paul Sinclair, land and water expert with the Australian Conservation Foundation — which, with Environment Victoria, also lobbied for the restoration of environmental flows as the baseline for overhauled allocations — said the Government position on water was recalcitrant and obstructive.

"When I talk to irrigators in northern Victoria, many of them want the Government to begin the process of water purchases in their area, they want the choice to be able to sell a component of their water entitlement to the

environment," he said.

"A healthy river gives you choice. A dead river gives you nothing. Any irrigator worth their name knows they rely on a healthy river system for good quality water for maintaining the biodiversity values of the river, the fish, the forests that make regional towns great places to live, to build communities and families."

His comments come as the Victorian Farmers Federation conceded that the existing 4% cap on water trading between farmers might have to be lifted in the state's driest regions to allow farmers to sell their water and, possibly, leave the land.

Professor Hart had argued in his submission to the review that the allocation system had to be turned on its head to lock in the basic environmental flow first, with the remainder then shared among farmers and others.

The draft strategy forecasts that less water will mean less irrigated land in the future, increasing the value of what remains — hence the Government's investment in improving irrigation systems and hardware.

A critical factor in the document is holding back a portion of irrigators' water in moderate years to try to shore up storages to the point where the irrigation system can be switched on even in the driest of seasons.

But most of the emphasis is on finding water savings through better irrigation techniques and systems, and delivering more flexibility for water users to trade and save their entitlements.

The draft uses various scenarios to try to glimpse the future. Three are put forward by the CSIRO, and plot the effects of low, medium and high levels of climate change.

There is an option D — the grimmest outlook — that plots what might happen if the drought conditions of the past 11 years were to continue. For the most vulnerable river, the Loddon, the different scenarios — best case to worse — show inflows drying up by between 10% and 74%.

The Campaspe fares only marginally better — down 9% to 72%. The Goulburn would lose almost half its inflows under option D, while the best guess sees them fall by 7%.

The draft strategy proposes trying to straddle these wide variations through a system that can cope with the worst of them, but with the caveat that they do so without imposing unacceptable costs should the worst case not eventuate.

The Victorian Farmers Federation did not want to comment until the draft was made public. But farming groups have indicated that they are more receptive to its emerging shape than are environmentalists.

However, VFF spokesman Richard Anderson told *The Age* that the association might be forced to rethink its opposition to lifting the rules that allow only 4% of water to be sold out of any single farming district.

The cap is viewed as a safety mechanism to ensure struggling local economies are not undermined by an exodus of farmers in tough times. But in the Campaspe district the 4% cap has already been reached.

The State Government has also been a staunch supporter of the cap, a sticking point in negotiations with the Federal Government over the Murray-Darling Basin.

The Government is expected to release the draft strategy within weeks and finalise it by early next year.

Appendix II. a) The AGE, 25. August 2008

Catch it when you can

Royce Millar, August 25, 2008

EARLY this year Melbourne Water chief Rob Skinner laid his cards on the table. Melbourne, he said, had no choice: it needed a desalination plant to augment its dwindling water supply. Other options such as rainwater tanks were not up to the task. Tanks, he said, were too small and too expensive. If everybody in Melbourne installed a 2500-litre rainwater tank and connected it by a pump to their gardens and toilets we would save an estimated 50 billion litres a year, he said. That, he said, was about a fifth of the water that would be generated through the proposed desalination plant at Wonthaggi and the north-south pipeline.

Skinner estimated the cost of installing a tank in every Melbourne house at between $2 billion and $5 billion. At $4.9 billion, the Government's water plan, which includes the desalination plant, was better value for Melburnians. Skinner's view seemed to capture the mood of a Government anxious to drought-proof Melbourne and pollproof itself through big-ticket engineering solutions timed to come on stream just before, and after, the 2010 election.

His comments may have sounded like the final judgement on the longrunning debate about the right path for Melbourne's water future. But it is far from the case. Despite last year's engineering-heavy water plan, debate still rages within, and outside of, the Government about the relative environmental and financial costs and benefits of decentralised strategies such as tanks and stormwater collection versus the centralised engineering solutions, including desalination and the pipeline.

Behind the scenes in Government, tanks are especially topical as ministers and bureaucrats do battle over the details of the revamped environmental standard for new homes, currently known as 5-Star.

Under the existing rules, new homes must have either a tank or solar hot water. With new water sourced from the sea and northern rivers, senior Government figures have pushed hard to scrap the requirement for a tank to be fitted in every new house.

But the humble tank is fighting back, with its champions urging the Government not to abandon what they believe to be a highly effective method of collecting rainwater. Among new arguments being presented is the need to act on the damaging and costly impacts of stormwater run-off and the claim that existing data used to sideline tanks has grossly underestimated their potential to contribute to the city's water supply.

At the heart of the debate is whether Melbourne is suffering from a lack of water at all. Supporters of tanks say that there is no shortage. On the contrary, they say, the city has way too much. What we're short of is a strategy, or the will, or both, to make use of the abundant water that falls here.

No one knows how many tanks there are in Melbourne, though a rough estimate of about 5% of households is talked about. What is known is that despite the burgeoning market in domestic tanks, the number of properties with tanks is low and little rainwater is being collected.

Until now the argument in favour of tanks has centred on their role in reducing demand on mains water and therefore dwindling water reserves and stressed rivers. But supporters also point to the important role in reducing stormwater run-off.

Metropolitan Melbourne currently uses about 400 billion litres of water a year for everything from domestic kitchens to factories. Roughly the same amount of rainwater runs off roofs and roads into stormwater drains, creeks and eventually Port Phillip Bay. So as we prepare to spend billions turning saltwater from Wonthaggi into 150 million litres a year of usable water, we allow much more than that in perfectly usable rain water to fl ow out to sea.

Hundreds of billions of litres a year surge into rivers not naturally designed to handle such additional volume. To make matters worse, the water is polluted by oil from roads, dog droppings and nitrogen in various forms that it gathers along the way.

Melbourne University stormwater specialist Chris Walsh says that in the pre-urban Yarra River water catchment, only 20% of the rain that falls will make it through the bush's natural filtration system and into the river. In built-up Melbourne, 90% of the water that falls on roofs and roads eventually seeps into the rivers and creeks that run into Port Phillip Bay.

Given that water is heavy and expensive to move, it seems logical to collect it for re-use at its source. And the best way to do that, say a growing chorus of water experts, is a combination of tanks and rainwater gardens - special garden beds that allow overfl ow from tanks and other run off to slowly seep into the groundwater system.

It is an idea that Monash University research fellow Nina Keath describes as a "no-brainer". "If you have a resource such as stormwater that is currently causing damage to the environment, why not use it first before you take water out of a catchment that is going to be damaged by taking that water?" she says.

Support for such thinking has come from surprising places. Last year the Prime Minister's Science, Engineering and Innovation Council called for cities to move from their reliance on "traditional" water sources to a more fl exible "diverse portfolio" of sources, including rainwater collection. Arguably, Victoria has moved away from a diverse water portfolio with last year's plan for desalination and pipelines. Tanks and raingardens barely rated a mention.

Monash University's stormwater expert, Tim Fletcher, points to a handful of Government and Melbourne Water initiatives aimed at improving the management of stormwater and the health of waterways. But he says they tend to be ad hoc exercises driven by local people passionate about the water issues.

He estimates that as much as half of Melbourne's water needs could eventually be catered for through rainwater/ stormwater harvesting. What is missing is a strategic approach by government and water authorities that involves setting measurable targets for collecting stormwater across the city.
"It would be more efficient if all sides of government were committed to a program of stormwater harvesting, working away at a set of core projects and allowing for opportunistic projects as well," Fletcher says.

Missing also, say tank supporters, is accurate data about what contribution tanks can make to bolstering Melbourne's water supply. But a Melbourne Water spokesman says more than $7 million had been spent supporting water-sensitive design initiatives by councils around Melbourne in 2007-08. He says that over the past three years Melbourne Water has helped install 300 raingardens in streets and plazas and another 125 similar projects are under way. It also has a $10 million stormwater and urban recycling fund to support the development of local stormwater and urban recycling projects.

Skinner's view is set for a challenge from Melbourne University systems scientist and microbiologist Peter Coombes. Coombes questions Skinner's figures and logic, pointing out that existing data on tanks in Melbourne is misleading because it has used a city-wide average extrapolated from one low-rainfall location, Melbourne Airport.

New research by Coombes for the Government has zoomed in on 36 separate regions within Melbourne for a more fine-grained understanding of weather patterns and water demand. He concludes there is ample rainfall across Melbourne to make tanks much more effective harvesters than previously thought. He says a comprehensive takeup of tanks across Melbourne could harvest 80 million to 120 million litres a year - up to twice Skinner's estimate - while also providing a wide range of stormwater management benefits, including greater protection of urban waterways.

However, he stresses that tanks should not to be viewed in isolation, but rather as part of an integrated strategy that includes existing reservoirs, recycling and, if necessary, desalination. Tanks, says Coombes, are part of a longer-term option and should be included in all new and and redeveloped housing so that they become an increasingly important part of the water network. "But we have to actually start the process."
He believes tanks are important in both dry and wet years. In dry times, water catchments receive little water because most is is soaked up by parched soil and plants. In the city, rain falls on hard surfaces and a greater proportion of it can be collected. In wetter years, tanks can take the pressure off reservoirs, allowing them to replenish water supplies to better cope with drier times.

Through a combination of tanks, rainwater gardens and wastewater recycling, Coombes says new estates can slash their water usage and their reliance on mains water, saving billions in taxpayer-funded infrastructure over coming decades.

The thrust of Coombes' argument is advanced in the new book Troubled Waters, edited by the Australian National University's Professor Pat Troy. Troy writes that mandatory rainwater tanks, greywater recycling and drycomposting toilets in all new homes would cut potable water use in those homes by 70%. He says cities add to their housing stock at a rate of about 1.5% a year. These new houses would, by law, have tanks and, together with the installation of tanks in existing homes where possible, a third of the city could be using 70% less water in 30 years. While tank backers often tend to be critical of desalination and the pipeline, most accept that both projects will go ahead. What concerns them more is that the Government's financial and political investment in the expensive

projects will conspire against a fair hearing for tanks, particularly given that desalination is a public-private partnership and the Government has a vested interest in making it profitable.

Nina Keath says the Government needs to decide whether it plans to continue building desalination plants to cope with the expanding city and declining traditional water sources, or start to build a diverse portfolio of water options. "A sensible strategy for Melbourne is to say 'OK, we've built one desal; instead of just waiting until we need the next one, start investing in research and development around some alternatives'."

Chris Walsh says there is no doubt that enough water falls on Melbourne, even in dry years, to drought-proof it forever. "Even in a dry, uncertain future, Melbourne has an abundance of water that it could use sustainably and securely, if only we could move our politicians on from their outdated desire for big, centralised, technological fixes."
R
ob Skinner says tanks have much to recommend them in terms of taking the pressure off drinking supplies and helping manage the impact of stormwater on rivers and creeks. "But the reality is that tanks alone can't deliver the mount of extra water Melbourne needs, nor in the lifetime that we need it."

WATER TANKS: THE FULL STORY
There is no official record of rainwater tank numbers in Melbourne, but an estimated 237,000 were installed between 2002 and 2007.
State Government offers rebates for tanks at $150 for a tank of 600 litres or greater and an additional $150 for a toilet connection. Larger rebates are offered for tanks of more than 2000 litres. 25,000 rebates have been granted for rainwater tanks since 2003.
All new houses must include a tank or solar hot water. This rule is now under review.
400 billion litres of water is used in Melbourne each year. About the same amount runs off the city into rivers, creeks and into the sea.
Melbourne Water's Rob Skinner says a tank in all Melbourne houses would deliver 50 billion litres of water a year.

Appendix II. b) The AGE, 4. September 2008

Empty promises?
Royce Millar, September 4, 2008

The State Government has placed its faith in large engineering projects to secure Melbourne's water future. But has good policy been trumped by politics?
SPRING 2006 was a turning point for water policy in Victoria. For years Labor had shunned big water engineering projects - dams, desalination and the like - preferring instead to focus on demand-side measures including water-saving ad campaigns, encouraging water-smart appliances, and incentives for rainwater tanks.

Through the early 2000s, scientists and economists were influencing an agenda long dominated by engineers. Or, as Latrobe University water expert Lin Crase puts it: "This was one of those rare times in water history when the enthusiasm of the engineer was tempered by the logic of the economist and the science of the ecologist."

After a punishing decade of drought, culminating with record low rainfalls for winter and spring, then premier Steve Bracks and his team confronted an unthinkable scenario: Melbourne running out of water. The response, according to Government insiders and observers was something close to panic. The drought seemed to be worsening and with climate change, it was possibly permanent. Maybe water-saving campaigns, recycling and some rain harvesting on new estates would not be enough to ensure the city's water supplies?

In mid-2007 the Government, in a surprise new water plan, turned to big engineering-dominated answers; plants and pipes that would delivered water fast, albeit at big financial and environmental costs: the energy-intensive, $3.1 billion desalination plant at Wonthaggi and a $1 billion north-south pipeline to link Melbourne to the river network north of the Great Divide.

Both projects have been hotly contested by coastal and farming communities concerned with the impacts on the environment in Gippsland and rural economies to the north. But what of the effects of these decisions for Melbourne's water future? It is a question that increasingly has

experts worried. Some are wondering whether the Brumby Government's enthusiasm for big-ticket solutions is then sacrificing options that may well be more healthy for the state in the long term, including continued water conservation and rain and stormwater harvesting and recycling.

Recent events have fuelled their concerns. After 12 years of drought and a combination of water-saving campaigns and restrictions, Melburnians cut their water use by 35% per head compared to the mid-1990s. But this week Water Minister Tim Holding revealed that the citywide trend was upward again with more water used this winter than in 2007 - about 13 million litres more a day, a small increase but an increase none the less. The rise was attributed to population growth and fatigue with water-saving messages.

The news came the same week *The Age* revealed a behind-the-scenes row at the highest levels of Government over the future of rainwater tank policy. Dubbed the "water tank wars" by one senior Government figure, the water industry is watching the debate closely as an important indicator of the Government's policy direction.

Under the current 5-star energy rating scheme, all new homes have to install either a rainwater tank, solar hot water or third-pipe recycling. A concerted bid is under way high in the Government to relax this requirement, especially the role of tanks.
"With desalination plants and other water initiatives coming in, the rainwater tank has been singled out as something that may not be warranted in the future," one senior figure said .

The upward trend in water use and the anti-tank campaign have fuelled concern that Victoria is hitching itself to a water future more in keeping with 19th-century rather than 21st-century thinking; that is, a centralised system under which water is pumped from outside the city to consumers with little idea or interest in where it came from, or where it will end up.

The Government insists that it remains committed to a range of water solutions including tanks, raingardens and recycling as well as desal and pipelines. "We need a diverse range of solutions which is exactly what the Brumby Government is doing," Holding said last week.

This view is shared by Melbourne Water managing director Rob Skinner who insists that "multiple options" including tanks and recycling are necessary and supported. Asked to paint a picture of the city's water sources in 2050, Skinner says: "Long term, we'll need to take the pressure off our drinking water supplies as they stand, through major water projects and initiatives like increased use of recycled water and conservation measures like rainwater tanks. We'll also need sources that are non-rainfall dependent, like the desalination plant to be completed by the end of 2011."

Skinner expects Melbourne to be "leading the world when it comes to water-sensitive urban design"; that is, a city planned and developed with in-built water-saving and harvesting methods including a rain garden or rainwater tank in most homes.

This view is largely supported in the Government's pre-desal document, *Central Regional Sustainable Water Strategy*, which covers Melbourne. It says the starting point should be conserving water, which has negligible environmental or social impacts.

To achieve this will take a concerted overall strategy - which does not currently exist - and years of concerted policy work and investment in often commonsense but little explored water harvesting and recycling projects. There are no official figures about the number of tanks, rain gardens and the like currently in operation in Melbourne. A confidential consultant's report to Government claims 237,000 tanks were sold between 2002 and 2007. A separate Government report from 2006 estimated that just 1 billion litres of water was harvested by such means per year in Melbourne, a tiny fraction of the 400 to 500 billion litres a year used.

Still, as much rain runs off Melbourne as is consumed and to harness it could drastically reduce the need for more mega-desal plants. So much so, says Monash University's Tim Fletcher, that half the city's water needs could be satisfied with a comprehensive water harvesting and recycling strategy.

But critics including the former director of the Water Studies Centre at Monash University, Professor Barry Hart, say it is now clear the Government is more interested in making Melbourne "water secure" than "water sensitive".

"Regrettably, since the mid 2000s governments have reverted to the frenzy of engineering fixes, panicked into action by a perception that there will be an intolerable political backlash should stage 4

water restrictions ever be invoked."

Crase says the Government is wedded to politically driven, "iconic engineering works" whose economic and environmental costs and benefits had not been properly assessed.

If it is true that projects such as desalination are diverting attention and resources from other alternatives, then this may well present real problems for the future. For while the Wonthaggi desal plant is to be the biggest in Australia it will not necessarily resolve Melbourne's water woes. This is especially given the estimates for the city's population growth and parching impacts of climate change.
The Government believes Melbourne's population may balloon to 6 million by 2050. Based on current levels of consumption, demand for water could rise as high as 650 to 700 billion litres a year.

Even with the desal plant and some recycled water, this growth in demand and declining rainfall and run-off into catchments are likely to leave a shortfall come mid-century or before.

And the response?
Critics are concerned that if the Government withdraws support and investment for alternatives, pipelines and desal plants will follow.

"The Government currently appears convinced that they have now solved Melbourne's domestic water situation and appear reluctant to consider any of the more long-term solutions," Hart says.
"This is a concern because if we don't start investigating and implementing some of the other more sustainable options (e.g. rainwater tanks properly plumbed into the house, storm water recycling, indirect potable water,
etc) Melbourne in 20-30 years' time will inevitably be left with another crisis situation and another technological fix, perhaps another desal plant or two."

Others, including Melbourne University senior planning lecturer Anna Hurlimann doubts that more desal plants will be built because their inadequacy as a real water option will be revealed soon after the Wonthaggi plant commences operation. "This will have happened in the period 2015-2020 after the political realisation that desalination is an unsustainable approach to water management. Desal will be primarily too expensive to run, based not only on initial costs, but also additional costs due to carbon taxes."

Hurlimann's predicts that by 2050 Melbourne will have moved to a more decentralised approach to water management and that the city will indeed have become a water catchment with tanks recycling, sewer mining and stormwater harvesting all part of daily lives built on massively reduced daily water consumption.

A popular theme among those wanting more focus on conserving and catching water is that the city itself should be transformed into a catchment. As well as boosting water supplies, goes the theory, the collection of rain and stormwater results in less polluted run-off into the city's embattled rivers and creeks.

Not all are convinced however that all will be quite so rosy. The Australian Conservation Foundation's sustainable cities campaigner, Kate Noble, says on current evidence Victoria's politicians are unlikely to make the long-term commitment necessary to avoid a string of additional desal plants.
"In 2050, we will be in the odd situation (much like today) where we put huge amounts of public funding into desalination plants so we can use drinking water to flush our toilets, water the lawn and cool our power stations, while we watch stormwater equivalent to our annual metropolitan water use flow straight down the drain. "We will have more empty dams in 2050 than we have now, because at some point one of the governments of the day had the bright idea that another dam would save us from climate change."

Appendix III The AGE, 25. August 2008

State Government's arguments for desalination plant don't hold water

Kenneth Davidson, August 25, 2008

I HAVE received more emails from readers in response to my articles on Victoria's water supplies than for any other subject. One recurring theme has been: what has been the response of the authorities? I have had two critical responses from the State Government. For the most part they have been what I would call nit-picking. They haven't dealt with the substance of my argument, which is that a sane water policy designed to expand the capacity of Melbourne Water would take up the

cheapest options first and, in the case of the Murray-Goulburn, the water "savings" from the Foodbowl Modernisation Project are unlikely to materialise on the scale necessary to save the river.

But one point made by the spokesman for Minister for Water Tim Holding is of fundamental importance in advancing the debate about the real plan behind the determination to build the desal plant at Wonthaggi.

I dimly perceived that the point of the desal plant wasn't primarily the creation of water security, but the keystone in the edifice designed to make the long-term objective of the marketisation and eventual privatisation of urban water a profitable reality.

According to the spokesman, my assumption that the desal plant would be a 30-year "take or pay" contract based on a public-private partnership was wrong. He said that "the contract has not been awarded and the funding details have not been finalised, but the expression of interest document has asked potential bidders to cost a 100% flexible contract, not a take or pay contract".

My assumption was based on the simple presumption that no bank would lend $3.1 billion to build a plant capable of supplying 40% of Melbourne's water at a price five to six times the cost of the present supply without a watertight contract guaranteeing the repayment of the principal and interest on the loan. Even in 2007 at the tail end of a long drought, the water running into the catchments approximately balanced consumption. Melbourne is unlikely to need a 40% supplement to its water supply over the next decade, given normal prudent management of the system.
No financial institution would lend money against this risk created by a standalone entity whose output is likely to cost five to six times the cost of water supplied from dams and 60 times the cost of water from aquifers already surveyed, capable of adding 20% to Melbourne water supplies.

The risk of producing water under these flexible conditions defies belief without a lucrative quid pro quo. A private consortium would build and operate the proposed desal plant without a take or pay contract only if it was given management of Melbourne Water and entitlement to the profits. It is possible to develop a scenario where the desal operator is given control of the water market in the whole state.