ACF Submission to Productivity Commission Inquiry into examining the case for microeconomic reform in Australia's urban water sector

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Confidentiality: This submission is a public document

Overview

The Australian Conservation Foundation (ACF) is committed to inspiring people to achieve a healthy environment for all Australians. For over 40 years we have been a strong voice for the environment, promoting solutions through research, consultation, education and partnerships. ACF is Australia's leading national not-for-profit environment organisation and we are funded almost entirely by over 40,000 individual members and supporters.

This submission sets out ACF's key principals for urban water management and recommendations as well as a critique of the Commission's approach and analysis.

SUMMARY OF RECOMMENDATIONS

A. Broaden the scope of the terms of reference so that water conservation is seen as a valuable and important goal for determining urban water policy.

B. ACF recommends that the government adopts the following key tests to any suite of policies for urban water planning and management, as follows.

   1. Does the package of policy measures:
   2. Embed environmental sustainability into the central decision making processes on urban water management and urban development?
   3. Deliver healthy and sustainable (as determined by evidence based criteria) rivers, wetlands and marine areas used for urban water supply, treatment or discharge?
   4. Build resilience of urban systems (including ecosystems) to climate change?
   5. Show international leadership on water sensitive design for cities?

6. Achieve world's best practice for water efficient homes, workplaces and public places by 2020?
7. Minimise carbon pollution resulting from the urban water cycle and move the water industry towards carbon neutrality by 2020?
8. Encourage people to use water efficiently and use local sources of water including rainwater, stormwater and recycled water?
9. Boost community participation in decision-making and leadership in setting a vision for water sensitive cities?
10. Generate a pricing structure for water which promotes the protection and repair of our environment?
11. Result in change that is of a scale and pace commensurate with the environmental challenges we face and the degraded state of our rivers?

C. Develop a regional/city environmental sustainability framework that has targets and indicators for measuring success towards reducing our eco footprint across water, energy, biodiversity impacts, etc. This should be incorporated into any policy development process arising out of the government's national urban policy/population strategies.

INTRODUCTION

Water has been cheap and abundant for the past 100 years for most Australian cities and this has driven high public expectations in relation to water use. For example, the 'garden city' style of urban planning with the expectation of green lawns, watered with drinking quality water, has been considered the norm prior to the introduction of water restrictions.

To support these community expectations, urban water planning has consisted of large dams supplying growing cities near the coast with infrastructure that is centralised and state subsidised. Public concern about water supply has been focused on water shortages, water quality and the impacts of waste on rivers and marine environments (particularly ocean outfalls).

In recent years, Australian cities and towns have been characterised by drought and in the public mind this is connected to concerns about climate change and water shortages. State Governments have announced a raft of dams and desalination plants as a solution to concerns about these water shortages. However these have been met with public protest and concern regarding greenhouse gas emissions and impacts on rivers, and the marine environment.

Facilitating Water Sensitive Cities across Australia's major urban centres was a recognised priority in the National Water Initiative of 2004, and is an ongoing priority for the National Water Commission. It has become increasingly accepted that current approaches to urban water management are resulting in unacceptable outcomes (such as degraded catchments and waterways, vulnerability to water scarcity, high energy consumption and greenhouse

gas emissions, lack of community involvement) and there is now widespread agreement about the need to facilitate a major transition in the way water is managed in our cities.

Urban water governance systems are currently in a state of significant change, opening up a window of opportunity to move towards more sustainable practices. It will be important that this opportunity is harnessed by developing processes that lead to debate and the creation of a common vision for sustainable cities with a focus on reducing our per capita water consumption to preserve our precious resource and to cater for an increasing population and to connect the water cycle with other cycles such as energy, wastewater, stormwater, nutrient (phosphorous), etc. This can only be achieved through the active engagement of the scientific, practitioner, political and civil society communities. This requires a systems approach to thinking about the water resource as well as thinking about costing/pricing in a different way. By focusing narrowly on efficiency measures in the Productivity Commission's TOR, ACF believes the opportunity to rethink how we manage our urban water resource might be lost.

CRITIQUE OF THE COMMISSION'S APPROACH

The objectives of urban water policy, and the importance of water conservation

The Commission rejects the idea that water conservation should be an explicit objective of urban water policy, preferring instead to subsume all of the goals of urban water policy under the general heading of "economic efficiency":

> "The concept of 'economic efficiency' encapsulates many of the more specific objectives that should be pursued in the urban water sector, including those related to water security, water quality, flood mitigation and the environment. It can also be used, through the application of a number of quantitative and qualitative techniques, to guide the tradeoffs that need to be made between these objectives, as required by ecologically sustainable development principles."

This statement confuses the ends of public policy with the means of best achieving them. Economic efficiency is a concept that helps society achieve its goals most effectively, but it can not substitute for the democratic process of identifying what our goals as a society should be. Richard Denniss put this point best in his recent essay "Together at last? Economists and environmentalists":

> "[W]hile there is no doubt that economic should play a broader role in the policy formulation process there is also no doubt that economics should play a much less significant role in the setting of national goals. That is, economics should play a bigger role in helping us achieve our national objectives, but it should play a much smaller role in influencing what those objectives should be. It is for the Australian people, through the Australian Parliament, to say what it is they want to achieve and it is for economists to propose options, and to compare the alternatives, for achieving such objectives."

The concept of "efficiency" alone does not assist in making the normative value judgments about the relative importance of disparate goals, nor about society's degree of risk averseness, which goes to the heart of water security issues. In this regard, water

conservation is both a sensible response to a complex knot of challenges (including climate change, growing urban populations, and increasing demands on a scarce resource), and a goal that enjoys widespread public support and democratic legitimacy.

Economic theory provides no justification for the Productivity Commission to disregard the conclusion reached by the Commonwealth and every state government in Australia that water conservation is an intrinsically important goal, desirable to help reduce the demands on our infrastructure (built and natural), address market failures and instill a broader ethic of prudence, responsibility and shared purpose. Of course, economists have a great deal to contribute to how we as a society can best achieve that goal, and it is on that question that the Commission's expertise should be focused.

Recommendation

A. Broaden the scope of the terms of reference so that water conservation is seen as a valuable and important goal for determining urban water policy.

The treatment of costs, benefits, and changing values in the Commission's analysis of water restrictions

The Commission's analysis of water restrictions is a one-sided attack, rather than a balanced effort to assess the costs and benefits of such restrictions, and the complex social and behavioural dynamics that followed their introduction.

The treatment of water restrictions in the draft report focuses almost entirely on the identification of costs, some of which are highly contestable. It is regrettable that the Commission did not also seek to identify countervailing benefits. In effect, the Commission has undertaken only the "cost" side of a "cost-benefit" analysis.

On pages 198-202, the Commission produces a lengthy list of costs of water restrictions. For many of the specific items listed, there is no effort made to identify countervailing benefits, or to undertake a real appraisal of the shifts in behaviour and value that occur in response to a policy.

To begin with, just how highly consumers "value" their water consumption is open to question. The Commission concludes in several places that "inelastic demand indicates that consumers place a high value on consuming water". But high value is not the only possible explanation for inelasticity of demand in this context; there are many equally plausible contributors. For one, the connection between consumption choices and payment is for many consumers highly attenuated, with a bill coming weeks or months after the consumption activity, and representing the aggregated consumption over a long period of time. Consumers generally have little way of knowing the specific cost of individual decisions that involve water consumption. In addition to this informational barrier, inelasticity of demand may have more to do with the fact that water is a small proportion of household expenditure.

Further, each of the "costs" listed in the report tend to focus on only one of a range of possible behavioural responses to water restrictions. Take, for example, consumer responses to restrictions on car washing. The Commission lists as a "cost" the "time and cost of having

to drive cars to a car wash to clean them". No doubt some consumers did react to restrictions on car washing by driving to a commercial car wash. The implications of them doing so are not as straightforward as the Commission portrays – the shift from self-washing to a commercial facility likely entails water savings on the one hand, extra fuel use on the other, potentially a time savings for some consumers but extra time spent for others.

But driving to a car wash is not the only behavioral response to restrictions, and it's not even clear that this was the dominant response. Many consumers reacted simply by washing their car less often, or not at all, or using "dry wash" products. Washing the car less often entails a savings of time and money by those consumers – surely a benefit in anybody's book.

It may be argued that such consumers would have "preferred" to wash their car, rather than use their time and money in some other way, but this brings us to the crux of the matter. Consumer preferences are not immutable, and are always made in a social context. An activity such as washing the exterior of a car may be undertaken for many reasons – some consumers may wash their car out of sheer force of habit, or because it's what all the neighbors do, or because they perceive a social expectation that their car should be clean or, indeed, because they actually like the look of a clear car exterior. A government decision to restrict car washing is an expression of a widely shared social desire to shift the value that people have in the past attached to this type of behaviour.

Governments have a legitimate role in shifting consumer expectations and values – and seen in that light, water restrictions are a far more visible and powerful means of shifted social values than pricing mechanisms. One suspects that many consumers would have actually reacted with relief at the clear signal from governments, with broad social support, that having an immaculate car exterior is no longer a social expectation.

The value that people attach to various types of consumption is not static, but rather dynamic and adaptive. It is this evolving quality of consumer "desires" that the Commission has not integrated into its analysis.

Seen in this way, the restriction on car washing is not an immutable "cost". Some consumers may experience the restrictions as a net benefit, relieving them of a burdensome activity that they had not personally desired but nevertheless undertaken to fulfill a perceived social expectation. Others may experience the restriction initially as a cost, but which fades over time as new social norms and expectations are widely adopted. After all, nobody today feels the "pain" of not having the choice to purchase a vehicle that runs on leaded petrol, or the "cost" of not having the choice to forego the protection of a seatbelt. Seatbelts and unleaded petrol have simply become part of the accepted way we have organised our society – the same may be said in favour of eliminating practice such as water-intensive car washing and hosing down of paved areas.

The Commission should have sought to understand and evaluate the full range of behavioural responses to water restrictions, and to consider both costs and benefits associated with those responses. Instead, it adopts a blanket principle that "Consumer choice is economically superior to restrictions." (p.202) This sweeping statement suggests ideological predisposition, rather than a nuanced real-world assessment of the interplay between consumer choice and government actions.

In fact, the statement represents a position of preferring one form of individual choice over another. People are not just consumers, and it is not just their personal consumption choices that matter. People also exercise their democratic rights to choose governments and policies that matter to them. In this regard, the very broad public support for water restrictions suggests that many people derive psychological benefit from being part of a broad social response to water scarcity, in which they can see exactly how they are doing their bit. The Commission considers this psychological benefit at one point, appearing to accept that support for restrictions "gives individuals a sense of community spirit and solidarity by working together to achieve a common purpose" (p. 210)

But why is the Commission so dismissive of the benefit of community spirit and solidarity? These benefits are no less real than the benefits obtained by individual water consumption choices. Yet these benefits have no place in the Commission's CGE model, and are not otherwise taken seriously in the report. To the contrary, the draft report treats community spirit and common purpose as a barrier to be overcome, rather than a dynamic that contributes in a very real way to individual and community wellbeing. The Commission's consistent emphasis on the wellbeing benefits of individual consumption, while rejecting or downplaying the wellbeing benefits of participating in a shared community endeavour, is arbitrary and inconsistent with its own articulated principle of maximizing net community benefit.

To be clear, this is not to say that ACF supports all water restrictions in all circumstances. Some of the costs of water restrictions identified by the Commission are real, and should be included in an objective and balanced analysis of the case for water restrictions. There is certainly a case for flexibility and well-informed decision-making on the timing, extent and implementation of water restrictions. Such a debate should be informed by a balanced and sophisticated multidisciplinary analysis of behavioural responses and changing social values around water use, backed up with real empirical evidence, not the one-sided view contained in the draft report.

Environmental externalities of supply augmentation options

We agree with the Commission's conclusion that many supply augmentation investments (desalination plants in particular) undertaken in recent years have been inefficient and unnecessarily costly. And we welcome also the Commission's clear recognition that environmental externalities are "prevalent" in the urban water sector.

However, it is not clear that such externalities have been included in the Commission's modelling of various supply augmentation options. It is also not clear that the Commission's comparison of demand reduction measures with the cost of supply reflects such externalities. Without environmental externalities explicitly included in these pieces of analysis, the Commission's conclusions about the net benefits of various options are incomplete at best.

For example, section 5.2 of the modelling paper is an exercise that seeks to identify the net benefit of removing the "policy bans" on certain water supply augmentation options, such as rural-urban water trading. This modelling is based on the identification of the cost of various supply options, but it does not appear that externalities have been included in those costs. For example, water trading over long distances is often energy-intensive. While the model

includes the direct financial costs of the additional energy required for pumping water over long distances, it does not appear to have included the environmental externalities associated with such additional energy generation, in particular carbon pollution costs. Desalination of course is also energy-intensive, and currently the pollution costs of such energy are not reflected in the cost of such options.

Such modelling would also have been more useful had it incorporated demand management options alongside supply augmentation options. The artificial separation of demand management and supply augmentation in the modelling is a significant shortcoming.

RECOMMENDATIONS – AN ALTERNATIVE SET OF QUESTIONS

Thinking about solutions to our urban water problem using linear methods of analysis and problem solving will not achieve what we want. Therefore ACF recommends that the government adopts the following key tests to any suite of policies for urban water planning and management, as follows.

B. Does the package of policy measures:
   1. Embed environmental sustainability into the central decision making processes on urban water management and urban development?
   2. Deliver healthy and sustainable (as determined by evidence based criteria) rivers, wetlands and marine areas used for urban water supply, treatment or discharge?
   3. Build resilience of urban systems (including ecosystems) to climate change?
   4. Show international leadership on water sensitive design for cities?
   5. Achieve world's best practice for water efficient homes, workplaces and public places by 2020?
   6. Minimise carbon pollution resulting from the urban water cycle and move the water industry towards carbon neutrality by 2020?
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   8. Boost community participation in decision-making and leadership in setting a vision for water sensitive cities?
   9. Generate a pricing structure for water which promotes the protection and repair of our environment?
   10. Result in change that is of a scale and pace commensurate with the environmental challenges we face and the degraded state of our rivers?

Unless our urban water policies can deliver on these key tests it is unlikely that we will adequately deliver efficient, effective water supply solutions to our cities.

DEVELOPING A SUSTAINABILITY FRAMEWORK

The natural environment encompasses both specific natural assets and ecological processes. State planning schemes usually address a number of issues in relation to the natural environment such as protection of catchments, waterways and groundwater; floodplain management; salinity; air quality, noise abatement, soil contamination; protection from wildfire; coastal areas; conservation of flora and fauna; open space; and heritage.

The desire to maintain a healthy environment against the pressures of rapid urbanisation requires consideration of many issues including:

- **Climate change** Long-term predictions for Australia and how these will impact on our urban landscape, coastal communities where the vast majority of Australians live, and how we will continue to produce food for our cities.
- **Water** We need a long term plan to ensure a secure and sustainable water supply for Australia's cities particularly as climate change will alter rainfall patterns, reduce stream flows and increase evaporation in the areas where Australia is most heavily populated.

The environmental impact of urban development has been the subject of the bi-partisan report released in August 2005 from the Federal House of Representatives Standing Committee on Environment and Heritage Inquiry into Sustainable Cities. The Committee recommended broad measures to address water, energy and materials efficiency of building design and urban transport. It also identified a number of research and policy gaps – specifically including the implementation of broad scale water recycling and renewable energy. Australia does not yet have a best practice example of regional scale urban sustainability with international standing. The Werribee Plains project was an attempt to achieve this objective.

In the past many government approaches to sustainability have taken a Pressure-State-Response framework whereby the impacts of various human impacts (pressures) are measured for their effect on the environment (state) and then a policy response is formulated to address a perceived negative state (for example, too much pollution or not enough piped potable water).[1]

This is the approach used by Australian and state government State of the Environment reports where a range of impacts on the environment are measured and then governments use this information to devise policies.[2] Traditional integrated environmental impact assessment (where environmental, social and economic impacts are assessed in a triple bottom line approach) can often lead to economic considerations overriding ecological ones since, in the absence of clear goals, short term economic considerations tend to take priority by the government leaders who make the final decision on large projects[3].

In contrast, the sustainability assessment approach put forward within the Werribee Plains methodology leads decision-making by the goals that are set in the strategy. Rather than just promoting improvement, the goals and targets identified should be set at levels that, to the best of our knowledge, are sustainable – that is, the environment and society could operate at that level indefinitely without depleting natural capital and with an optimal level of societal well being.

Progress is then measured against this aspirational goal so that we can understand how far from actual sustainability we are. Therefore major projects and other policy decisions should

[1] Australian Conservation Foundation (2006a), Final Business Case for the Victorian Water Trust
[2] Department of Environment and Heritage (2001), State of the Environment Australia, State of the Environment Australia 2001, http://www.deh.gov.au/soe/2001/settlements/summary html#percapita
[3] Pope, J. Annandale, D. & Morrison Saunders, A. (2004), "Conceptualising Sustainability Assessment", Environmental Impact Assessment Review, 24 (2004), pp.595–616.

always be assessed against sustainability goals and indicators and, where a project undermines the goals, it should be rejected or modified. This means that the assessment process does not merely seek to minimise negative impacts, but aims to achieve positive change.4

The Werribee Plains Best Practice Approaches to Sustainability Assessment also outlines a number of the best examples worldwide of sustainability

assessment which offer excellent models for an Australian context framework. See http://www.acfonline.org.au/uploads/res/Best_Practice_Sustainability_Assessment.pdf and http://www.acfonline.org.au/uploads/res/Draft_Regional_Sustainability_Framework.pdf for more details.

Indicators and reporting

Each research report identified potential indicators for monitoring to track progress with achieving the regional environmental sustainability outcomes. It was proposed that a common suite of indictors be developed for application across all the municipalities in the Werribee Plains.

These indicators would be applied to monitoring the achievement of **intermediate term outcomes** that can be measured on an annual basis and reviewed against achievement of long-term outcomes on a 3-5 year time scale.

A real opportunity exists with the Regional Environmental Sustainability Framework to produce efficiencies of scale in the collection and reporting of annual and longer term outcomes.

Recommendation

C. Develop a regional/city environmental sustainability framework that has targets and indicators for measuring success towards reducing our eco footprint across water, energy, biodiversity impacts, etc. This should be incorporated into any policy development process arising out of the government's national urban policy/population strategies.

Further information, please see http://www.acfonline.org.au/uploads/res/Werribee-Plains-Pathways-to-Sustainability-Report.pdf for more details.

A case study using Werribee Plains' research on urban water

The best way to achieve a reduction in our cities' eco-footprint is to develop a regional/city environmental sustainability framework that has targets and indicators for measuring success towards reducing our footprint.

For three years, ACF undertook this research using the Werribee Plains region as a case study with the broad aim of developing a range of practical yet ambitious solutions to massively reduce the ecological footprint of the region and develop best practice

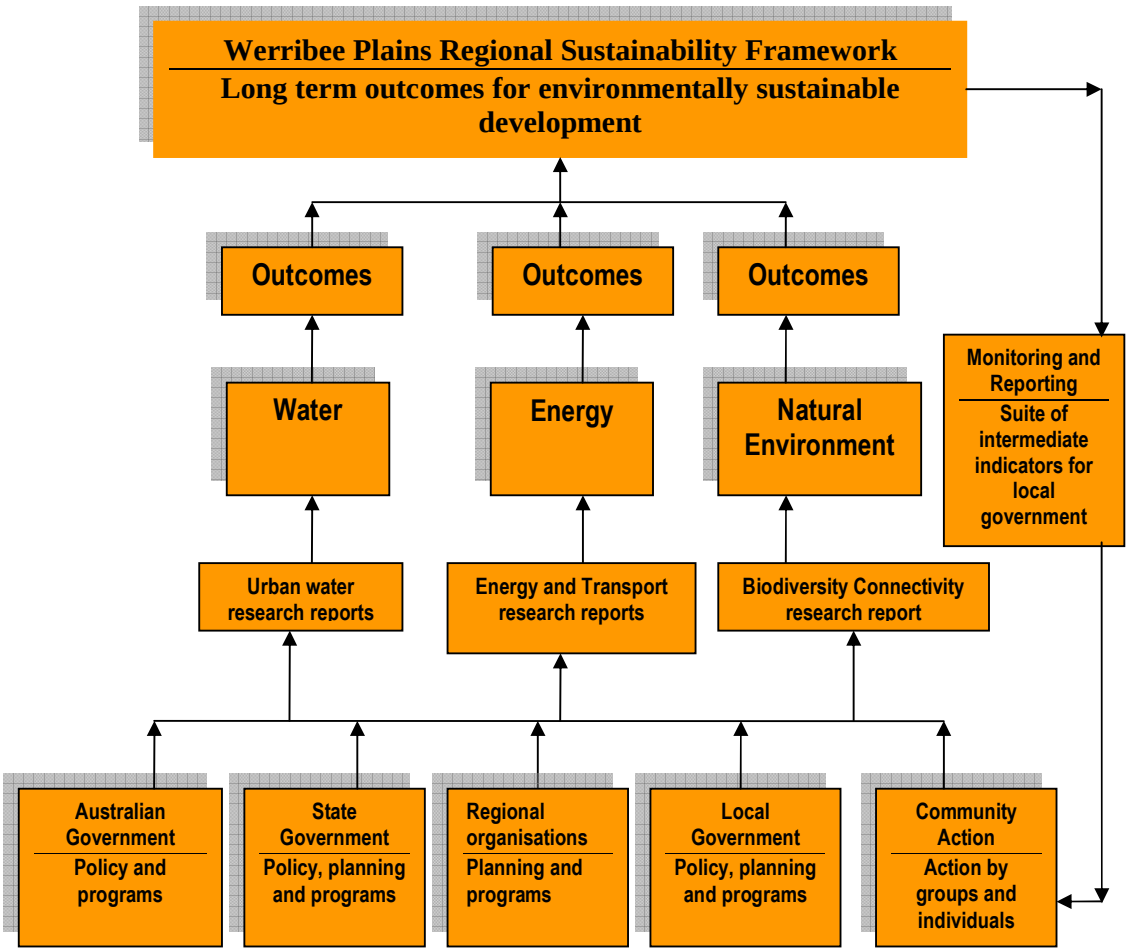
[4] Pope et al (2004) ibid.

environmental sustainability indicators in the areas of water, energy, transport and natural environment.

The Australian Conservation Foundation believes this framework can be applied by local governments and regional organisations, industries and communities throughout Australia to facilitate and coordinate real improvements in environmental sustainability.

This Regional Environmental Sustainability Framework (shown diagrammatically below) is designed to provide a clear focus on three key environmental sustainability outcomes:

- Water – Reducing the demand for potable drinking water
- Energy – Achieving zero net greenhouse pollution for electricity and transport, and
- Natural Environment – Ensuring resilience of natural assets and systems.



The organisational structure of the Framework is designed to promote and facilitate decision making that incorporates these environmental outcomes into business planning and implementation at a regional level.

This Framework is designed to address for each of the areas of water, energy and natural environment:

- An understanding with stakeholders of the issues;
- Quantification of the issues to the extent possible on the basis of existing evidence;
- Identification of priorities;
- Formulation of targets;
- Development of potential solutions;
- Discussion of barriers;
- Formulation of proposed actions; and
- Identification of indictors for monitoring and reporting and reviewing progress.

Water Research – summary of conclusions

ACF commissioned a range of studies to undertake initial research on key regional issues for each of the three areas of water, energy and natural environment. Key stakeholder involvement was an integral part of each of these research studies.

The overall purpose of these research studies was to provide a tangible starting point for the understanding and discussion of issues, and development of solutions specifically relevant to regional action. The key for each of the areas was to examine the extent to which ambitious targets could be achieved.

The priority was to look at to what extent a suburb can act as its own water catchment, and address the question of how far could we reduce the demand for potable reticulated drinking water in new, large-scale suburban developments through localised capture, reduction & re-use.

The final report produced by URS concluded that very significant potable water savings can be economically achieved. In particular, these savings will be maximised in a Greenfield (new development) set-up, where water-efficient systems and appliances can be built into the design of the new homes and water sensitive urban design applied throughout the suburb, to maximise the benefits of stormwater capture and reuse.

In conclusion the URS research was able to show that for

- **Existing suburbs:** 44 % of potable water can be saved by deploying rainwater tanks (URS)
- **New suburbs:** 57 % of potable water saved, 72 % if water recycling is deployed in addition to rainwater tank (URS)

Go to:
http://www.acfonline.org.au/uploads/res/URS_Werribee_Plains_Urban_Water_Management_study_-_Final_report.pdf for more details.
The final urban water report sets out a series of targets and indicators for achieving
http://www.acfonline.org.au/uploads/res/Werribee-Plains-Urban_Water_Report.pdf