Environmental Equity
Environment / Law / Economics

CEO: Fiona MacDonald
ABN: 52 621 952 403
Address: P. O. Box 475, Winston Hills, NSW, 2153

Australia's water resources: Pushing the limits

Submissions to the Productivity Commission

PREPARED BY:
Fiona MacDonald
Chief Executive Officer
Environmental Equity Pty Ltd
PO Box 475, Winston Hills, NSW 2153

About us

As environmental, economic and legal analysts specialising in water resource management, Environmental Equity Pty Ltd supports policy makers, agriculturalists and businesses to evaluate the longterm viability of available water resources for current and future investments. We do this by undertaking in depth research and by conducting water audits.

A water audit assesses what water resources are needed and what water resources are available to meet the need, for a proposed enterprise or a proposed change to an existing enterprise, now and for the future. In addition to the usual research tools used in environmental, economic and legal research, we use Python and Geographic Information Systems to provide analysis of data that is as specific to the enterprise as possible.

SUBMISSIONS IN RESPONSE TO: THE NATIONAL WATER REFORM 2020 DRAFT REPORT

Introduction

While undoubtedly there are some positives in the National Water Reform 2020 Draft Report (the Report), I do not propose to address them because there are overwhelming negatives that must take priority. The most glaring and persistent of these is that the Report maintains the fiction that we can successfully balance the needs of the environment with those of the economy by using market forces. This blind belief in the power of markets fails to recognise the crucial truth, that there is no substitute for water. One of the fundamental propositions of market economics is that as one resource is depleted the price will go up and substitutes will be found or invented. This is simply not possible for water because water is an essential and irreplaceable requirement for all life.

Of course, if one water resource is exhausted another water resource can be accessed but this is only possible if the second water resource is not already exhausted or fully allocated or in closer enough proximity to be accessed. More distant water resources or water resources that require greater 'processing' may be accessible but at increasing cost to the user, the more distant the resource or the greater the processing required. Once the cost of acquiring water increases the cost of water increases for the user. As the cost of water increases, the loss to the market of environmental water, which is allocated outside the operation of market forces, also increases and therefore the pressure to allocate water away from environmental uses increases.

The value to the economy of environmental water is hard to quantify in market terms. It is nebulous, ill-defined and variable and the costs associated

with environmental degradation usually emerge over the long term. The loss to the economy of reduced production because of water restrictions, manifest immediately and are more readily quantifiable. This creates a situation where short term issues which are clearly visible and have an immediate force, take priority over long term issues which can be hidden until they fully manifest, sometimes years later. Historically in Australia this has been true of water resource management, even though the long-term consequences of mismanagement have often been far more devastating than any short-term losses would ever have been, for example soil salinity.[1] For these reasons utilising the market to manage water resources is a very poor policy proposition. That is not to say that there is not a place for markets, but their utilisation must be limited to their capacity to provide undistorted outcomes.

Why markets can't successfully address the issue

In determining the place of markets in water resource management, it is essential to fully comprehend their limits, something that is substantially ignored in economic discourse. The starting place for most economic discussion is the demand and supply curve. As I am sure you are aware, supply and demand reach their equilibrium when the cost of buying a product to the user equals the cost of producing the product to the producer. At that point (theoretically) the amount of the product purchased exactly matches the amount of the product produced.[2] From a traditional economist's perspective this is generally where the analysis stops. The area below the equilibrium point, which tends to be ignored, represents buyers who do not have enough money to purchase the product and the producers who do not think the price is high enough (figure 1). The producers who do not think the price is high

[1] van Bueren, M., and Price, R.J., 2004, Breaking Ground — Key Findings from 10 Years of Australia's National Dryland Salinity Program, Land & Water Australia, Canberra, ACT.
[2] There are many qualifications on this simple proposition but for present purposes it is not necessary to discuss them.

enough clearly have other resources so that they do not need to sell the product and are of no concern here.[3] However, the buyers who do not have enough money to purchase the product are, and above those buyers is another group who have enough money to buy some of the product they need but not enough money to buy all of it.

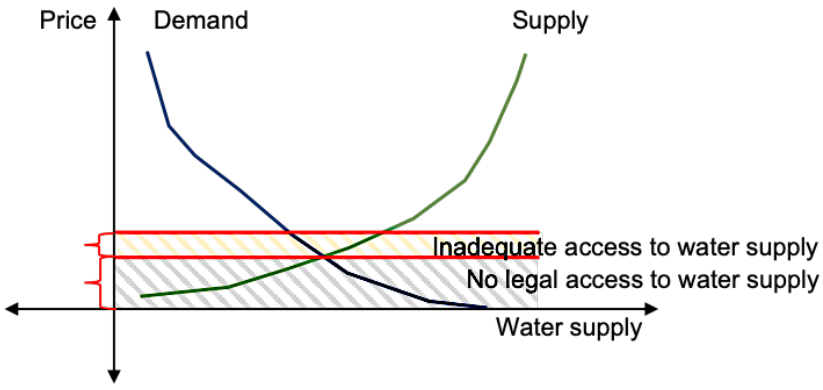

Figure 1 The price of water determines who has access to water resources and how much they can access. Because there is no substitute, an inability to access water or sufficient water can have life threatening consequences for both humans and the environment

In traditional economics those who do not have enough money to buy any or all of the product they need will move into other markets buying cheaper substitutes. But, as already indicated, there is no substitute for water so those who are unable to participate in the market for water have no legal recourse to access water. In terms of individuals, in Australia water managers allocate a quantity of water to personal use however such allocations are tied to households. If a person is not part of a household, homeless people for example, they do not have access. At this time homeless people use publicly available facilities such as public toilets to meet their basic needs but technically speaking when they take water for other than its intended use, such as washing themselves and their clothing, they are stealing it. Inquiries with the City of Parramatta Council disclosed that members of the public have objected to homeless people found using public facilities for these purposes.[4] It is highly unlikely that councils, who are responsible for public water facilities, will prosecute such use. However, as the cost of water increases this may not remain the case. While there are a number of factors influencing access to water for homeless

[3] This category includes investors who believe the price will increase further and who are in a position to wait until that happens, discussed further below.
[4] Employee, City of Parramatta Council, personal comment, 15 March 2021.

people not just its price, they still fall into the category of consumers unable to access water because the price is too high. This is because, if access to alternative sources for water was prevented by, for example, councils ceasing to fund public utilities, they would not have enough resources to buy their water. The environment is also a water consumer that does not have enough money to meet its consumptive needs.

As a consumer, the environment does not have any capacity, in its own right, to compete in the market. Because of this, humans step in and determine allocation to the environment based on principles determined by humans. Human interest has the capacity to distort allocation decisions and decisions made on how to determine allocations. I would argue that it is essential to be as objectively dispassionate in making these assessments as possible. Markets are a very poor tool to rely on for this determination because they are so subjective. It is now widely recognised that the best mechanism for determining both the amount of water available and how much the environment needs to remain healthy is scientific research. To a limited extent, scientific research now provides input into determining water availability and allocation. However, because scientific research is by no means conclusive, other much more subjective factors also influence the determination, including political and economic considerations. This conclusion is not controversial. Scientists agree that their knowledge is limited by their capacity to conduct the research (often an economic consideration in itself), the lack of readily available information relevant to the research, the limitation of the tools they have available and the accessibility of the resource itself.

Returning to the supply and demand curves, allocation of water to the environment is ostensibly assessed outside the constraints of the supply and demand curve. In reality economic considerations influence the decision

because economics and politics play a part in the decision making. As already indicated above, as water becomes more expensive, and also more profitable for investors, the pressure to reduce environmental allocations increases. Increasing prices for water certainly has the potential to increase costs across the board because for most purposes there is no substitute. Users can reduce their requirement for water by moderating their use as far as they reasonably can and by introducing more efficient processes. This is where water pricing and market forces, properly applied, have a part to play however, it must be recognised that pricing water and trading water are two different things. Each must be separately evaluated to determine their effectiveness for moderating water use.

Modifications that make water use more efficient are only possible up to a point. As water resources become more stressed and, therefore, more expensive, the capacity to make such adjustments decreases and a new cohort of consumers move into the area below the equilibrium point and into the area where resources can be accessed but are insufficient (figure 2).

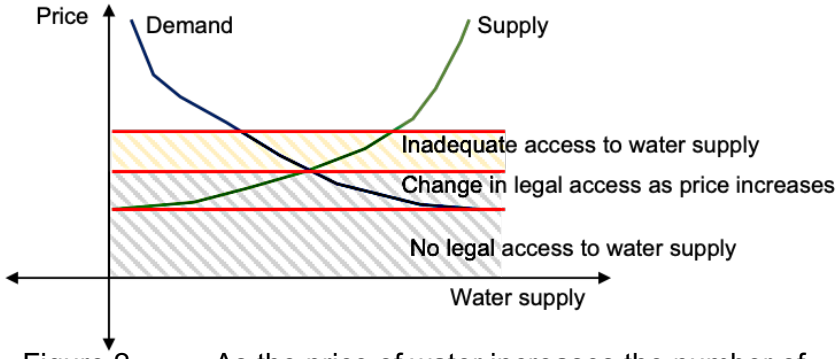

Figure 2 As the price of water increases the number of consumers who do not have legal access and who have inadequate access, increases. This outcome is exacerbated by increasing costs for other products, resulting from the increased cost of water.

Environmental water and market pricing

In theory at least, because it has been moved outside the operation of economic forces, allocations of environmental water should not be affected by price increases. Unfortunately, because of the other factors referred to above (economics and politics), increasing the price of water has an additional impact. Water has been commodified, that is, for the purposes of

the market it is a commodity, and an increased price increases the value of the commodity, creating an incentive to own the resource for its value rather than its productive use. The motivating factor for the sale of water is the profit that can be realised and so it is sold to the party who can pay the highest price. The purchasing party will not put the water to its most productive use unless that use gives the highest return. Clearly a reliance on markets to determine allocation of water resources assumes that the outcome associated with the capacity to pay the highest price equates to the most productive use. Indeed, discussions of water allocation explicitly express this assumption including in the Report, for example at p.p. 177-178:

> The NWI suggests that market-based mechanisms should be used 'to the extent practicable', although acknowledges that allocations are a decision for State and Territory Governments. This remains sound as an approach: *market-based approaches encourage movement of water to its highest-value use*. And market-based mechanisms include the pre-sale of entitlements prior to construction, which avoids optimism bias (overestimates of net benefits).[5] (my emphasis)

Why 'highest value use' is a poor substitute for proper analysis

The idea that water moves to it's highest value use is more an article of faith than a well researched hypothesis. Using the monetary value of a consumer good to determine it's highest value use is, in most cases, highly subjective. For any given money value, my highest value-use is not necessarily your highest value use. This does not matter when I would choose to allocate my

[5] This last statement is naïve at best, cynical at worst. Once market mechanisms take over pricing of water investor's perceptions of its value as a commodity dictate the price. As water resources become more stressed the value of water increases so that the perception of the scarcity of water within a region dictate its price. If investors consider that water will increase in value, they will buy the entitlements while they are cheap. They can wait until consumers, who don't have the knowledge and/or the resources to invest immediately but who need the water to maintain their businesses come into the market. Farmers must compete to gain access to the water and in doing so push up the price to the benefit of investors.

resources to, for example, a new car but you would choose to allocate the same resources to a holiday. However, as a resource becomes more crucial, the choices we make impact on our quality of life. In 2011, the Australian Institute for Family Studies found that:

> conservative estimates suggest that upwards of 5% of Australians experience food insecurity, 40% of those at a severe level.[6]

They use the following definition for 'food insecurity':

> whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable food in socially acceptable ways is limited or uncertain.[7]

While the issue of food insecurity is quite complex, at least some of those experiencing food insecurity have inadequate resources to cover all of their basic needs so must make choices about which resource to obtain and which to relinquish, at least in the short term. As the disparity between those with more resources than they need and those with less resources than they need, increases, the subjective choices those with more resources make, have a greater capacity to influence outcomes. The resources they 'need' can influence production to the extent that the market will allocate resources to the goods they demand and withdraw resources from essential goods. This is not academic. The report of a study exploring the causes of world food price increases between 2004 and 2011, updated in 2012, found that:

[6] Rosier, K., (2011), *Food insecurity in Australia: What is it, who experiences it and how can child and family services support families experiencing it?* Retrieved 21 March 2021, from the Australian Institute for Family Studies website: https://aifs.gov.au/cfca/publications/food-insecurity-australia-what-it-who-experiences-it-and-how-can-child

[7] As above.

> The model was able to fit the FAO Food Price Index time series from January 2004 to March 2011, inclusive, *and showed that the dominant causes of price increases during this period were investor speculation and ethanol conversion*. (my emphasis)[8]

It is undoubtedly the case that if the people, unable to pay the higher food prices, were asked what the highest value use was they would have elected food production. Those who saw biofuels as contributing to climate change mitigation, may well have considered investment in biofuels as the highest value use. Neither group chose the outcome, the returns on investment did and this was determined by capacity to pay. The biofuel consumers had sufficient resources to fund their food needs and to pay a high enough price for the biofuels to stimulate investment whereas those requiring cheaper food did not.

The incapacity to allocate sufficient resources to production of essential goods is a clear failing in market economics. Again, the situation is more complex than elaborated here but the salient point is that if access to resources is determined by price rather than need, people, businesses and the environment can be priced out of the market. This is as true for water as for any other commodity. Unfortunately, the consequences of being excluded from access to water are far greater for the user than, for example, being excluded from the market for a particular brand of car. We can live without owning the car, but we cannot live if we don't have access to water. The same is true for the environment. There are resources that can be available or not, but water is not one of them. So, what is meant by highest value use.

[8] Lagi, M., Y. Bar-Yam, K. Z. Bertrand and Y. Bar-Yam, (2012), *The Food Crises: Predictive validation of a quantitative model of food prices including speculators and ethanol conversion*, New England Complex Systems Institute: Cambridge, MA, USA.

Development of northern Australia as an example

As already discussed, in the market context highest value use is considered to be the use that gives the highest economic return on investment, but we do not take any steps to determine whether water is being allocated to its highest value use. Australia has a long history of investing in water infrastructure on the basis that the investment will return value to the Australian economy from increased agricultural production, without having conducted any analysis to determine whether this is true or not or ignoring research that suggests otherwise. B. R. Davidson conducted an extensive examination of 'the physical and economic limits to agricultural and pastoral development' in northern Australia in 1965. He concluded that 'unsubsidised intensive farming in tropical Australia would be unprofitable'.[9] A review of the success (or lack thereof) of agricultural development in northern Australia over the intervening years proved Davidson's analysis to have been substantially accurate. However, the desire to develop northern Australia has remained a political objective, leading to further research into its viability. A recent study by the CSIRO, which focused on three areas in northern Australia, the Fitzroy, Darwin and Mitchell catchments, in WA, the NT and Qld respectively, reached more positive conclusions than Davidson did. For the Fitzroy catchment, for example, it concluded in part that:

- there is potential for the economic value of irrigated agriculture to increase in the Fitzroy catchment more than ten-fold;

- While the natural environment of northern Australia presents some challenges for agriculture, the most important factors determining the commercial viability of new developments are management, planning and finances;

[9] Davidson, B. R., (1965), The northern myth. Melbourne University Press: Melbourne, Australia.

- Distance from the farm gate to agricultural processing plants or markets places a significant cost burden on industry in the Fitzroy catchment;

- irrigated agriculture has a greater potential to generate economic and community activity than dryland production.

While this summary of the findings of the CSIRO Assessment is more positive about the potential for success in the Fitzroy catchment than Davidson's work, there are two qualifications on that conclusion. First, a closer examination of the research and findings of the full CSIRO Assessment, shows there are a substantial number of qualifications on the findings. Second, the economic analysis is less detailed than that conducted by Davidson.

In relation to water, the CSIRO Assessment assumes, correctly, that the success of irrigated agriculture in the Fitzroy catchment would be heavily dependant on groundwater. This is because 'the Fitzroy catchment has a hot and semi-arid climate with unreliable rainfall'.[10] From the point of view of determining highest value use, the Fitzroy catchment is a 'greenfields' development. All options remain open, including leaving things as they currently are. The CSIRO Assessment has provided an overview of the availability of arable land and water resources and an indication of the potential for crop development.

Successful implementation of agricultural enterprises would require the installation of infrastructure and the availability of labour and markets to

[10] Petheram C, Bruce C, Chilcott C and Watson I (eds) (2018) *Water resource assessment for the Fitzroy catchment*. A report to the Australian Government from the CSIRO Northern Australia Water Resource Assessment, part of the National Water Infrastructure Development Fund: Water Resource Assessments. CSIRO, Australia, iv.

support the introduced activity. Given the high establishment costs there would have to be strong incentives to take the risk. One wonders how the highest value use for water would be determined in such circumstances because, at this stage the competition for the water does not yet include new agricultural enterprises. That is not to say that proposals are not already being made. Gogo Station has submitted a proposal to:

> develop land for irrigated crop production and associated infrastructure (including water storages, water supply channels, levees and roads). The proposal also includes the abstraction of surface water via an offtake channel (and up to 2,500 ML of groundwater per year).

WA does not yet have fully established water markets, so water allocations are still primarily on the basis of licencing. But as water markets are introduced, if Gogo station has already obtained a licence and accessed water allocations, and has made investments on the basis of availability of water, they will have a legitimate expectation of its continuing availability, as will all other current licensees in the Fitzroy catchment. Thus, existing licence holders have the advantage of being early applicants for water licences, without having to establish the ‘quality’ of the proposed water use or to compete in the market to establish any economic superiority for the proposal.

The advantage gained by Gogo station being an early applicant is true for any participant in a pre-market system and is exactly what happened with licensees in the Murray Darling Basin. Because there was an over allocation of licences those who could, for whatever reason, relinquish their licences, held a valuable commodity. They were able to sell their licence/s back to the government, who owns the water by dint of legislative provision, often for more than the original purchase price and without taking account of any advantage they may have had during the time the licence was held. This is

despite the fact that the environment and Aboriginal communities had previously had the full use of the water and were deprived of it without any compensation.

Of course, if a proposal, for which a water licence is required is a significant or strategic proposal an Environmental Review may be required under Part IV of the *Environmental Protection Act 1986* WA (EP Act).[11] This is the case for the Gogo Station proposal and would be the same for any other proposed development. The EP Act requires an assessment of environmental impacts but does not require weighting of the proposed benefits arising from the water use against the costs of that use. It is assumed that once an environmental impact assessment has been made and the proposal is found to be acceptable, any water use to achieve that outcome is the best use for that water. Leaving aside that environmental impact assessments are often seriously inadequate (a discussion for another day), the assumption that any use for water is a good use and will achieve the outcomes asserted in the proposal, is a very dangerous assumption. This is because water is a highly valuable resource for which there is no substitute. Misapplying water resources because there is no economic assessment of the value of the proposed use wastes the water, to a greater or lesser extent. Once a water resource has been exhausted it cannot be replaced by market forces.

The limits of renewability of the water cycle

It is not denied that water is part of a cycle, and is a renewable resource, however particularly for groundwater, it may not be renewable within any timeframe relevant to humans. Even if it is renewable within shorter timeframes other factors can affect availability. A reduction in available water may result from over allocation, damage to aquifers or recharge zones, or as

[11] All other jurisdictions have similar requirements.

a result of human activity such as mining, and pollutants, particularly those associated with irrigated agriculture. Any of these outcomes will reduce the total quantity of water available for human use, and in many areas of Australia (although apparently not in the north of WA), will exacerbate the effects of a reduction in rainfall because of climate change.

The point to appreciate here is that whether water is fully allocated or not, we should be treating it as a valuable and irreplaceable resource and understand that any allocation to uses other than the environment, is taking water away from the environment and will have an impact. This requires that all allocation decisions must be made very circumspectly and with as great an understanding of all of the implications as can reasonably be obtained. We need to understand that while, in most cases the environment can tolerate a reduction in available water, up to a point, it takes time for it to adjust to reduced and altered flows. We must also understand that, even with the best scientific knowledge currently available, we are still very ignorant of the processes by which water traverses through the water cycle and of the benefits it provides as it does so. This is particularly so in arid and semi-arid environments and in environments that are in transition, both of which apply to most of Australia. In their 2021 paper, Bergstrom, Wienecke and Hoff confirm our lack of detailed knowledge of interdependencies between ecosystems, stating:

> While we have not yet determined the extent of interdependencies between ecosystems that share pressures, for example between … Murray Darling River Basin waterways and … Murray Darling River Basin riverine ecosystems, such interdependencies have been identified in regime shifts elsewhere (Rocha et al., 2015). (p.5)[12]

[12] Bergstrom DM, Wienecke BC, Hoff J, et al. Combating ecosystem collapse from the tropics to the Antarctic. *Glob Change Biol*. 2021;00:1–12. https://doi. org/10.1111/gcb.15539, 5.

A further problem is that there is an assumption that environmental needs are fixed, that is that we can ‘set and forget’. This is to profoundly misunderstand the reality. Droughts and floods impact the environment as much as they affect human agricultural activity. The requirement that allocations be determined only on the basis of flow rates displays ignorance of environmental processes. For example, during droughts the soil surface dries out and becomes less permeable. Initial rainfall increases runoff into rivers but penetration of water into the subsoil does not occur immediately. Depending on how water migrates into aquifers, re-establishing recharge rates may take months or even years after a severe drought. We do not yet fully understand these and other relevant processes, but they may be highly relevant to determining acceptable levels of withdrawals from water resources. Our lack of understanding requires ongoing and extensive monitoring to ensure that withdrawals do not threaten the integrity of the water resources and natural environments dependent on them.

Limits of the Report’s overarching goal

The Report considers that the overarching goal of the NWI remains sound but modifies it somewhat. The ‘new’ overarching goal provides:

> The Parties commit to this renewed National Water Initiative in recognition of the continuing national imperative:
>
> - to increase the productivity and efficiency of Australia’s water use;
>
> - to service the changing needs of rural, urban and remote communities and

- to ensure the health of river and groundwater systems and their surrounding landscapes whilst adapting to a changing climate.

In continuing to implement this agreement, the Parties also acknowledge the importance of water to the lives of Aboriginal and Torres Strait Islander people.

With all due respect, this is an extraordinarily inadequate overarching goal. The overarching goal must be to preserve Australia's irreplaceable water resources, and their dependant ecosystems, to future uses, or something to that effect. We do not have to balance water resources between preservation and use, we have to first preserve them and then balance competing uses against the quantity of water available for allocation. Unless we do this, we may be wasting our water resources making less available for future use. We have to start making informed decisions based on the best available information including a genuine assessment of the best returns to water use (as distinct from the highest value use which is purely an economic concept and should be confined to that context).

Davidson's research made a good attempt at making such an analysis, although today it would be inadequate because we have considerably better tools to integrate environmental and economic data and determine how they interact. As long as the environmental and market data is available programs can be written to quickly assess the data. Using Python, I have successfully analysed 100 years of daily climate data, averaged over 10 days, specifically temperature and rainfall, for the Fitzroy catchment. This data has been used to determine the probability of successful growing seasons for cotton production. The program can also assess market data for cotton, however currently I only have 45 years of data. With further research I should be able to obtain earlier data. I have yet to write a program which integrates the

probability of a good price occurring at the same time as a good season. There are a number of factors that must be incorporated into the program to achieve this, and it may not be necessary. The climate data analysis indicates that the prospects of achieving an output that will provide adequate returns on an investment are small. The prospects will become less likely if temperatures in north western Australia increase, which they are projected to do as a result of climate change.

This analysis, once validated, would show that allocating water to a proposal that includes cotton production, would be wasting a valuable water resource, which could be more effectively used for other purposes. This type of analysis can and should be mandatory for any proposal involving water allocation. Water is too valuable to waste.

Additional matters

While the above contentions are the primary purpose for my submission, there are some minor but no less important matters to raise.

1. In relation to recognition of 'the importance of water in the lives of Aboriginal and Torres Strait Islander people'. The Report indicates that 'understanding of and support for Aboriginal and Torres Strait Islander people's aspirations for greater access to, and control over, water resources has grown'. This is an obfuscation because Aboriginal and Torres Strait Islander people's aspirations for access to water have been clearly expressed over many years and well understood. While the proposal to include their aspirations as a specific element in the NWI must be recognised, the failure to acknowledge past disregard of Aboriginal and Torres Strait Islander people's aspirations is simply dishonest.

2. The Report takes the position that the 'NWI has delivered more water to the environment and that the benefits of rehabilitation are becoming evident.' There are two issues here, the first it that suggesting that the NWI has delivered water to the environment misrepresents the reality. The NWI has reduced withdrawals from the environment. As long as we delude ourselves that we are giving the environment something that it would not otherwise have, we are minimising the very important function of environmental water in maintaining the health of water resources and the ecosystems that we depend on.

   The second is that it is not necessarily the case that the environment is being rehabilitated. A number of recent reports including the 'Independent Review of the EPBC Act'[13] have concluded that the environment is still declining. The EPBC Act Review found:

   > Australia's natural environment and iconic places are in an overall state of decline and are under increasing threat. The current environmental trajectory is unsustainable.

   At p. 26 and again at p. 92, with only very minor differences in terminology, the Report asserts that:

   > Provisions (of water for the environment) have also helped to avoid major environmental degradation that would have otherwise occurred through unconstrained consumptive water access

[13] Samuel, G 2020, *Independent Review of the EPBC Act—Interim Report*, Department of Agriculture, Water and the Environment, Canberra, June. CC BY 4.0.

The report cites Chen et al. 2020, p. H in support, however this is not what Chen et al. conclude. They find that :

> From delivery dates only, we estimated 50% of events between 2014–15 and 2018–19 could be considered potentially suboptimal to meet duration requirements for the maintenance of woody wetland vegetation communities, mostly because floods were not long enough and because, for most wetland flood events, water was delivered during the hottest half of the year: … .

Further, Chen et al. conclude:

> In summary, our evaluation of environmental watering indicated limited outcomes for environmental water delivery to achieve wetland conservation across the Basin.[14]

While it is possible that the reference itself is wrong, this seems unlikely. To misrepresent the outcomes arising from water resource management is reprehensible. There may be other inaccuracies within the Report, however time constraints preclude a detailed analysis.

3. The Report only takes into account positive information when discussing the use of water markets. However, serious concerns have been raised. A 2019 report from the ABC, ‘Water trading's 'unintended' consequences across Australia's southern Murray-Darling Basin’,[15] identified several issues raised by farmers:

[14] Chen, Y., Colloff, M.J., Lukasiewicz, A. and Pittock, J. 2020, ‘A trickle, not a flood: environmental watering in the Murray–Darling Basin, Australia’, *Marine and Freshwater Research*, no. MF20172, p. A-S, O.
[15] Sullivan, K., (2019, July 13), ‘Water trading's 'unintended' consequences across Australia's southern Murray-Darling Basin’. Retrieved 21 March 2021, from the ABC Rural website: https://www.abc.net.au/news/2019-07-13/water-trade-in-murray-darling-basin-has-unintended-consequences/11291450.

- Anyone can buy and trade water in Australia, and 14% of trades each year are by individuals or corporates that don't own land. Increased competition for irrigation water is bringing new risks to the industry and is a very important issue for the farming community;

- Market rules are opaque and change frequently;

- Water trading is resulting in decreased agricultural activity in some areas, because it has become more profitable to trade the water than to raise crops. This has an impact on the community because expenditure in supporting industries is reduced;

- Low prices for water do not necessarily offset very high prices in dry years and the number of wet years does not necessarily offset the number of dry years;

- Farmers are still required to pay infrastructure charges even if they are not drawing water allocations.

If the Report is to provide accurate information for policy development both negative and positive issues must be comprehensively addressed.

While these issues are important, the overwhelming issue raised by the Report is its failure to fully appreciate the importance of Australia's water resources and that they are irreplaceable. In a recent report one of the conclusions was that the economically successful countries of the future will be those that manage their water resources effectively.[16] If Australia is to be

[16] Unfortunately, I did not note the source in which this conclusion was drawn but because I consider the conclusion to be accurate, I have included it.

able to maintain a successful economy into the future, in the face of climate change and other environmental challenges, we must approach water resource management honestly and objectively, with the full knowledge that there is no substitute.