Submission to the Productivity Commission In response to the

Rural Water use and the Environment: The Role of Market Mechanisms Discussion Draft

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Neil is the former Chairman of Australian Citrus Growers Inc (Citrus Peak Body) and remains on that Board; Chairman of Mid-Murray Citrus Growers for 20 years; and Chairman of Border Packers P/L since 1972 – a grower owned citrus packing and processing company.

Neil was Chairman of the Murray-Lower Darling River Management Board for 11 years (1986-1997); Community Representative on the Barmah-Millewa Forest Community Consultative Committee with the MDBC, that formulated the Barmah-Millewa Forest watering scheme.

Neil was a member of the Anomalies Committee for the Murray River Private Diverters, which developed the formulae for Water Allocations in the Murray River and became the template for all NSW River Allocations.

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RECOMMENDATIONS

Recommendation 1. That the PC and governments recognise that the water markets for agriculture, urban/industrial and environmental markets are separate markets, should remain separate markets with separate prices based on cost delivery costs. The PC and governments recognise that water is a public good, has different characteristics in different markets and that only governments, not market forces, can decide on primary water allocations between these markets. Therefore, the states should quarantine irrigation water so that it cannot be traded for urban, environmental or other uses, so as to ensure security of supply to the agricultural sector.

Recommendation 2. That the PC and governments recognise that there is no one ideal form of on farm irrigation delivery system and that farmers should be provided financial incentives to invest in the most efficient forms of irrigation for their farms.

Recommendation 3. That, rather than using price penalties to encourage water savings on farms, the PC recommend that governments offer positive financial incentives to farmers for on farm enhanced water savings irrigation infrastructure, just as the Federal government provides financial incentives to the states to implement competition policies under National Competition Policy.

Recommendation 4. That the PC recommend to the Federal government new financial incentives for the states to undertake a full audit of the water availability in each of the states' catchments, and an audit of irrigation entitlements.

Recommendation 5. That the PC recommend to the Federal government that NWI competition payments to the states should be earmarked for use in water savings infrastructure or for the construction of new water storages.

Recommendation 6. That the PC recommend to governments that in regions where there is ample water supply they build infrastructure and provide incentives for future population expansion so as to mitigate future population pressures on regions with insufficient water supply.

Recommendation 7. That the PC and governments recognise that the concept of low-valued to high-valued agriculture is a flawed concept, very difficult to measure and can conflict with the other economic and social objectives, like providing the Australian people with low-cost food, and helping Australian farmers achieve a competitive advantage over their highly subsidised foreign competitors. That the PC and governments recognise that it is better to shift agriculture around the basin to available water than to shift water to agriculture; and that farmers are in the best position to judge water use for low and high valued crops.

Recommendation 8. That the PC recommend to governments that irrigation water trade be restricted to trade between farmer users of water within a catchment area.

Recommendation 9. That the PC and governments endorse the finding of the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry *Inquiry into future water supplies for Australia's rural industries and communities - Interim Report:*

> Recommendation 1: In light of the Committee's severe reservations about the science, the Committee recommends that the Australian Government urge the Murray–Darling

Basin Ministerial Council to postpone plans to commit an additional 500 gigalitres in increased river flows to the River Murray until:

- a comprehensive program of data collection and monitoring by independent scientists is completed;
- non-flow alternatives for environmental management are considered and reported upon more thoroughly; and
- a full and comprehensive audit focussed specifically on the Murray– Darling Basin's water resources, including all new data, is conducted.

Recommendation 2: The Committee recommends that the Australian Government ask the Murray–Darling Basin Ministerial Council to allocate sufficient funds out of the $500 million allocated to the River Murray by COAG to the abovementioned tasks, prior to proceeding with the proposal to obtain increased river flows.

Recommendation 10. That the PC recommend to governments the creation of a separate environmental water market, with water for environmental flows – where thorough, community agreed science shows they are needed – to be derived from water savings from infrastructure improvements and from tapping new water supplies, but not by purchasing irrigation water. The cost of this water should be borne by the whole population as, collectively, they are the environmental custodians of our river environments.

Recommendation 11. That the PC recommend that the Federal government restrict managed investment schemes only to timber plantations, and that a set of environmental guidelines be produced to ensure that new plantations do not adversely reduce water flows to into catchments, adversely affect other forms of agricultural or urban or environmental water use.

Recommendation 12. That the PC recommend to governments that state and territory audits of available water include examination of the huge untapped resources in northern Australia (across north Queensland, the Northern Territory and the north of Western Australia), as well as substantial untapped water in NSW and Victoria. That this audit be conducted particularly with a view as to where future expansion of agriculture should be situated.

Recommendation 13. That the PC recommend to the Federal government new financial incentives for the states to build new water storages.

Part 1: Overview

UN Food and Agricultural Organisation (FAO) and World Bank (WB) research recognises that the *primary allocation* of water resources is a political decision by governments to be determined by how a country wishes to strategically allocate its water among various water markets – rural, urban, industrial, environmental, etc. Both argue that economic efficiency methodologies (like cost-benefit analysis) have *secondary objectives* that assist in the fine tuning *of primary objectives.* Both argue that economic efficiency methodology – under what the PC calls "allocation efficiency of water use" – cannot determine the *primary allocation* of water resources.

Very importantly in this respect, the Productivity Commission (PC) is fundamentally mistaken in arguing that the "allocation efficiency of water use" is concerned with allocating water among agricultural, urban, industrial and environmental uses[1], to ensure "that the community gets the greatest return (broadly defined) from its scarce resources."[2]

Both the FAO and the WB papers argue that *primary allocations* are separate markets, each requiring different pricing arrangements. These involve decisions by governments.

It appears that many of the frequent problems the PC's *Discussion Draft* encounters in water trade between rural and urban areas are the result of trying to integrate rural and urban markets and then expecting economic forces to allocate water between these markets and set the price. Hence, the problems the PC recognises are not market failures, but conceptual failures to recognise that water, a public good, has different characteristics in distinct markets.

Just as "oils ain't oils" as the old TV advert goes, "water ain't water".

Conveniently, in the period when Australia's population and agriculture were both expanding substantially, there was ample water for both rural and urban/industrial use, particularly during the relatively wet period from 1940 to 1990. Water to both were delivered at cost of delivery. Urban water was provided the cost of purification and reticulation. Rural water at the cost of delivery.

Importantly, both rural and urban water markets were able to operate separately, without competition. Storages were constructed primarily for irrigation use or for urban use, with limited overlap. Now, a third market for environmental flow is being sought by governments.

For example, the Snowy Mountains storages, the system of dams, weirs, locks and channels were constructed to provide an irrigation system through the Murray Darling Basin (MDB). Across Australia, just 2% of agriculture generates 80% of the profits, and most of this comes from irrigation agriculture in the MDB[3]. Other significant irrigation systems were built in each state. The objective has been to build a large agricultural

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[1] *Rural Water use and the Environment: The Role of Market Mechanisms: Discussion Draft*, Productivity Commission. 2006. P. 212.
[2] Ibid. P 207
[3] *The Living Murray,* Murray-Darling Basin Ministerial Council, July 2002. P 16.

industry, making Australia self-reliant in food with a major food and fibre export industry and a leader in many areas of agricultural technology. The largest section of Australian manufacturing industry is the processing of food and fibre from Australian farms.

To achieve this objective, irrigation water has been provided at delivery cost, without competition with urban water. Until now irrigation water has effectively been quarantined. Low cost water has helped provide:

- low cost, quality food to the domestic market, and continues to do so with virtually no subsides;
- a competitive edge for Australian farmers on the world market, while the rest of our developed world competitors receive substantial subsidies; and
- a sizable proportion of Australia's annual export revenue.

Over the past 80 years, Australia built large and separate water storages for agriculture and cities. It also developed an accompanying complex, integrated system of physical infrastructure, legal rights, localised water use rules geared to local soil and environmental issues, detailed local farming and environmental knowledge, and social infrastructure. Together, these provided a finely tuned system in each region of the MDB, attuned not just to the economic needs of the nation, but the demands of local conditions, with varying soils, vegetation, habitat, salinity and other environmental conditions. Indicative of the complexity of irrigation water entitlements is that there are 24 different types of distinct water rights, with different characteristics, security levels and resources to back delivery entitlements.

Again, just as "oils ain't oils", so too "water ain't water."

The result has been a valued agricultural contribution to the economy, and a good record of environmental stewardship.

By way of legal analogy, the complexity of this system is comparable to the whole system of common law built up over 106 years since Australia's federation, and hundreds of years of British law.

What has changed to cause governments and the Productivity Commission (PC) to seek to unwind, unbundle 80 years of successful, scientific based agricultural rules, property and water rights, neglecting enormous, accumulated institutional knowledge and to allow the trade of water from farms to the cities?

First, since 1990, Australia has experienced a relatively dry period, possibly the prelude to a prolonged drier spell comparable to the period 1880 to 1940. As the demand for water has risen with growing urban areas and the supply of water has fallen to new levels over the past sixteen years, governments have failed to examine the feasibility of constructing new reservoirs. Indeed, some states have as part of their official water policy, no new dams, no new water storages. Instead, they are pursuing the cheap option – trading water from agriculture to the urban use.

Notably, the PC *Discussion Draft* makes no reference to the possibility of expanding water storages; nor has COAG any policy of financial incentives under National Competition Policy (NCP) for the states to build new storages. Instead, there are financial incentives for the states to deregulate their water markets. Indeed, the PC's *Review of National Competition Policy Reforms* (No 33) states that a key opportunity arises from deregulation

of the water market, namely to allow “better integrating the rural and urban water reform agendas, including through facilitating water trading between rural and urban areas.” (p. 209) This is regarded as the easiest means of solving water shortages because irrigation water was regarded as “probably the cheapest source of new water for several cities …” (p. 206)

As will be argued below, this approach to solving Australia’s urban water needs is short sighted. Invariably over time, as Australia’s population expands and farmers retire or face hard times like in drought, their irrigation water will be sold off to the highest bidders for urban/industrial use. As critical mass is lost in rural irrigation area after area (for example through competition forcing up the price of irrigation water or the stranding of assets), many irrigation regions will face extinction. This is the long-term logic of integrating urban and agricultural water markets and letting water be traded to the highest price. The policies being proposed threaten the viability of large sections of irrigation agriculture, with dire economic consequences not just for farmers but for the economy. Agriculture and its dependent (input and output) industries make up 12.2% of the Australian economy, and its most productive regions are under threat.

Deregulation of irrigation agriculture to supply water to the cities is evidence of failure of state water policies to provide urban and industrial water from ample untapped water resources. It is bad agricultural policy and bad economic policy.

Second, it has been argued that the tying of water entitlements to property inhibited the ability of water to be traded from low to high valued agriculture. Irrigation water trade already takes place, largely within catchments. The urgency is to assist farmers in market development, not water trading. As will be argued below, it is better to shift the agriculture to the water rather than the water to agriculture, especially as only 5-10% of irrigation agriculture is high valued. Unbundling water entitlements from land title for this purpose is unnecessary. It is like cracking a peanut with a sledge hammer.

Third, water deregulation is argued as being a necessary part of improving the environmental health of our rivers. The science of river health is so poor that demanding water deregulation to provide environmental flows is a very, very premature step. As is argued below, even the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry interim report on *The Living Murray* voted 11:1 across all parties to say that the science on the so called need for environmental flows, just one of 22 issues in river health, was so poor that even plans for a 500 gigalitre environmental flow should be postponed until a comprehensive program of data collection and independent monitoring was completed; and until other alternatives to river management were examined. Modelling outcomes, that had been described as “overwhelming evidence” of river degradation, had error factors as high as 90%!

Any decisions on the use of environmental flows as proposed in *The Living Murray* are premature. Deregulation of irrigation water for environmental flows, when full scientific considerations may show such flows as unnecessary, is plainly bad policy. If environmental flows, on good scientific evidence, are found to be needed, then a separate environmental market needs to be created.

This paper argues that, to continue the common law analogy, the unbundling of water entitlements and deregulation of water trade are analogous to the Federal and State governments agreeing to abolish via simultaneous acts of parliament the entire common law system and replacing it with a bill of rights, arguing that that the bill of rights will guarantee a fair and just legal system in which everybody's rights will be respected, while making the administration of the legal system easier and less complex. Perhaps the new system will work better than the old common law. However, it is impossible to imagine such a change in the law taking place without a major public debate over a long period of years to weigh the pros and cons.

The changes proposed to irrigation agriculture are of comparable significance. But, whereas Australians have some understanding of common law, very, very few have an understanding of the complexities at a stake with irrigation agriculture, and of the economic consequences of the changes being proposed.

If the process being advocated goes ahead, then the genie will be out to the bottle and it will be extremely difficult and very costly to repair the damage from the proposed policy changes.

This paper argues that the proposed sweeping plans to deregulate the water market and allow water trade between rural and urban markets, for so trade to called "high-value" agriculture and for environmental flows:

- are unnecessary in order to foster high valued agriculture;
- only address the needs of urban and industrial water users at the expense of irrigation farming, while ignoring the possibility of building new reserviors;
- fails to demonstrate from sound, community agreed science that only environmental flows are needed to produce pristine rivers, when river flows are just one of 22 issues affecting river health; and
- threaten the future of agriculture and its dependent industries, which make up 12.2% of the Australian economy.

Part 2: Primary water allocation, by governments or by the market

FAO and World Bank: governments need to make primary water allocations between sectors

The PC argues that the allocation of water among rural, urban, industrial and environmental uses is to be achieved through market forces. The PC *Discussion Draft* says

> "Discussion in policy arenas generally follows the argument that the system should allocate 'water to the highest use … [This is to ensure] that the community gets the greatest return (broadly defined) from its scarce resources."[4]

An FAO research paper provides an extensive discussion on the valuation of water resources in agriculture, and warns against using market forces to price and allocate water. In its report, *Economic valuation of water resources in agriculture,*[5] it says:

> "Although water resources perform many functions and have important socio-economic values, water is in many respects a classic non-marketed resource …
>
> "Economics is anthropocentric, and as such provides useful tools that can support decision-making. However, decisions concerning water allocations are guided not only by concerns of economic efficiency but also considerations of equity, environmental protection and social and political factors, to name but a few."

A report for the World Bank, *Water Allocation Mechanisms: Principles and Examples,* by researchers in its Agriculture and Natural Resources Department and from the International Food Policy Research Institute[6], also strongly argues that primary allocation of water resources requires decisions by governments, not by economic efficiency mechanisms applied to a single water market. The World Bank report says:

> "As mentioned before, three main points support the argument for public or government intervention in the development and allocation of water resources: it is difficult to treat water like most market goods, water is broadly perceived as a public good, and large-scale water development is generally too expensive for the private sector …
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> "The state's role is particularly strong in inter-sectoral allocation, as the state is often the only institution that includes all users of water resources, and has

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[4] Ibid. P 212.

[5] Turner, Kerry; Georgiou, Stavros; Clark, Rebecca; Brouwer, Roy; *Economic valuation of water resources in agriculture*, (Centre for Social and Economic Research on the Global Environment; Zuckerman Institute for Connective Environmental Research; University of East Anglia, Norwich; United Kingdom of Great Britain and Northern Ireland); for FAO, Rome 2004. Chapter 3. "Economics of Water Allocation". http://www.fao.org/docrep/007/y5582e/y5582e00.htm#Contents

[6] Dinar, Ariel and Rosegrant, Mark W., *Water Allocation Mechanisms: Principles and Examples* (World Bank, Agriculture and Natural Resources Department; and International Food Policy Research Institute), World Bank 1997. P 8-9. http://ideas.repec.org/p/wbk/wbrwps/1779.html

jurisdiction over all sectors of water use …

> "Many countries adhere to some form of Public Trust Doctrine, that maintains that the state holds navigable waters and certain other water resources as an aspect of sovereignty. Because these are held as common heritage for the benefit of the people, the state cannot alienate such ownership of the basic resource and concomitant responsibility (Koehler 1995)[7]. This argument has been used in both the United States and India as a basis for environmental protection (Moench 1995)[8] – re-asserting the state's role in allocating water between agricultural, industrial, municipal, and environmental sectors."

The FAO says that although the economic efficiency argument, (like that on which the PC has advocated)

> "is an important factor, there are additional economic issues that decision-makers need to consider. Two of these issues are the distribution of costs and benefits across society and their distribution across generations."[9]

These require government decisions.

Similarly the World Bank report says that:

> "While economic efficiency is concerned with the amount of wealth that can be generated by a given resource base, equity deals with the distribution of the total wealth among the sectors and individuals of society. Many forms of water allocation schemes attempt to combine both efficiency and equity principles."[10]

Again, these require decisions by governments.

The World Bank report goes on to argue the advantages and disadvantages of government involvement in the primary allocation of water to different markets. Despite the disadvantages, the report concluded;

> "Public allocation or regulation is clearly necessary at some levels, particularly for intersectoral allocation. However, problems with this form of allocation are seen in poor performance of government-operated irrigation systems, leaking municipal water supply systems operated by public utilities, licensing irregularities and inadequate controls over industrial water use, and damage to fish and wildlife habitats."[11]

However, the report cites research pointing "out that a major reason for such problems lies in the failure of the public allocation mechanism to create incentives for water users to conserve water and improve use efficiency."[12] For example, the structural adjustment payments from the Federal to successive State Governments have been mis-appropriated

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[7] Koehler, C. L. 1995. Water rights and the Public Trust Doctrine: Resolution of the Mono Lake controversy. *Ecological Law Quarterly* 22(3):541-590.
[8] Moench, M. 1995. Allocating the common heritage: Debates over water rights and governance structures in India. National Heritage Institute, San Francisco (mimeo).
[9] FAO report, Op.cit., Ch 3.
[10] World Bank report, Op.cit., P 3
[11] Ibid., P 11.
[12] Ibid., P 11.

into general State revenue coffers. A substantial part of these monies should have gone either as adjustment payments or for irrigation improvements to farmers, or to water savings infrastructure improvements. On the other hand, arguably, Australian farmers are well down the road to implementing the necessary water efficiencies on their farms. They would have very likely invested even more on water savings infrastructure and technology over the past decade, but for the prolonged drought. Therefore, some of these issues are less a problem in Australia than elsewhere in the world.

The World Bank report concluded:

> "There is an essential role for the state (public allocation) in the development and management of water resources, particularly under circumstances involving large scale systems. The state's interest in many water resource investments relates to their strategic importance, e.g. because of its role in increasing food security or public health. In addition to such positive effects that may not fully be captured by the private users, negative externalities associated with much water use (e.g., downstream pollution) call for a strong regulatory role for the state. However, the resulting public allocation depends on the relative political influence of various stake holders."[13]

In similar vein, governments create and regulate separate electricity markets. Even though they draw on the same generators and use the same transmission lines, governments keep separate markets with differential tariffs for households and businesses.

Australia: history of primary water allocation

Traditionally, Australian governments have allocated water among agriculture, urban, industry and environmental use. In one sense this happened informally, without governments ever needing to declare separate water markets in legislation. However, it has been well understood that there were separate markets. When Premier Henry Bolte made the famous statement that not one drop of water would come to Melbourne, from north of the Great Dividing Range he was stating that there were separate rural and urban water markets. It was a guarantee that allocated water from the Murray-Darling and Goulburn systems to be used for irrigation only and not be tapped for metropolitan use. It gave farmers security of irrigation entitlements.

By and large, the water storages developed over the 20th century for agriculture were separate from the urban storages, with limited overlap. For example, Snowy Mountain Authority water was intended primarily for rural use, but some was also to be used by towns along the system and to supply Adelaide's water needs.

Again in the 1980s, separate water markets were retained when transferable water entitlements were introduced in NSW, SA, and then in Victoria and Queensland. These were mostly limited transfer of sales water (temporary water) on a seasonal basis, although a small amount involved permanent water trade.

In the early 1990s, when the Council of Australian Governments (COAG) began working on the national water initiative, separate water markets were still assumed. Discussion on

[13] Ibid., P 32.

market oriented water allocations saw water trade as being restricted to trading within the rural water market. Other efficiency gains were discussed within the context of separate water markets. For example, the 1993 COAG Communiqué on water described the policy intentions on urban water use as reinforcing "the need for urban users to use water efficiently, for example by promoting water reuse and recycling, the adoption of more efficient technologies and by reviewing the effectiveness of pricing policies."[14] There was no discussion on buying rural water.

Even the 2004 COAG National Water Initiative, the product of over a decade of work on water markets, made no mention of integrating rural and urban water markets.

The first mention of taking irrigation water for urban use was made in the Productivity Commission's *Review of National Competition Policy Reforms* (No 33, 2005) when the PC recommended to COAG that in future the National Water Initiative aim at "better integrating the rural and urban water reform agendas, including through facilitating water trading between rural and urban areas." This was regarded as "probably the cheapest source of new water for several cities …"[15]

In one sense, from the time water entitlement was separated from property, making it tradable to anyone, then urban water authorities were in a position to purchase rural water entitlements. However, this "integrating" of water markets was never the intention of COAG. Rather, the push has come from the PC:

> "While carrying forward the reform process begun under NCP, the NWI and Murray-Darling water agreement do not exhaust all of the potential reform opportunities in the water sector.
>
> "The Commission [the PC] observes, for example, that little attention appears to have been given to the scope to better integrate the rural and urban water reform agendas … In the Commission's view, if water is to be allocated to its highest value use in the future, the urban and rural water markets will need to become increasingly integrated …. Wider application of this approach could potentially reduce the need for the sort of prescriptive demand management approaches that have become increasingly common in urban areas in recent years."[16]

What the PC initiated in its review of Competition Policy is now a major focus of the PC's *Discussion Draft*. This goes far beyond any of the COAG, NWI communiqués and water policies.

Why is there now a proposal to integrate rural and urban water markets when this was not stated in COAG's National Water Initiative? Why is this being proposed when both the FAO and World Bank state clearly that primary water allocations between sectors cannot be left to market mechanisms, because the nature of water is such that those decisions need to be made by governments? Why is there no discussion on creation of new water storages, given the abundant availability of untapped usable fresh surface water, particularly in Queensland, NSW and Victoria?

The PC's *Discussion Draft* admits that attempts to set up a single market are proving to have numerous major problems. This is the result of trying to have economic forces to

[14] Council of Australian Governments, Communiqué, 29 August, 2003.
[15] *Review of National Competition Policy Reforms* (No 33, 2005), Productivity Commission, P 209 & 206.
[16] Ibid., P 203-204.

allocate water between these markets and set the price, when that can only be effectively done by governments. Hence, the problems the PC recognises are not market failures, but conceptual failures to recognise that water, a public good, has different characteristics in distinct markets, and that only governments can decide effectively on allocations between those markets.

Recommendation 1. That the PC and governments recognise that the water markets for agriculture, urban/industrial and environmental markets are separate markets, should remain separate markets with separate prices based on cost delivery costs. The PC and governments recognise that water is a public good, has different characteristics in different markets and that only governments, not market forces, can decide on primary water allocations between these markets. Therefore, the states should quarantine irrigation water so that it cannot be traded for urban, environmental or other uses, so as to ensure security of supply to the agricultural sector.

Part 3: Does Australia want to have a large agricultural sector and large rural exports?

Does Australia want to maintain large a agricultural sector, which along with the agricultural dependent input and output industries constitute 12.2%[17] of the Australian economy and a significant proportion of our export dollars? Attempts to integrate rural and other water markets seriously threatens to steadily force down the supply and force up the price of irrigation water, over the next 20-50 years.

Australian agriculture was purposely built to make Australia self-sufficient in food production, to provide low-cost food to Australian households and to create an export market which was needed to pay for the imported capital and manufactured goods not available domestically. To help achieve this objective, it was governments that determined to build huge irrigation systems, investing what the private sector would regard as too big an investment with returns too long-term for them to handle. These irrigation systems were to provide secure, reliable, low-cost water. This combination allowed them to invest heavily in high technology agriculture.

Low cost agriculture has the objective of providing low-cost quality foods to Australian consumers, while giving farmers a competitive edge on world markets.

Low cost water is part of Australian farmers' competitive advantage, on both the domestic and export market, where they are competing with heavily subsidised and dumped product from other first world agricultural producers. The OECD tracks farm subsidies across the developed world. The average farmer in the developed world received 31% of their gross farm income from various producers' supports (with about 70% of this coming from subsidies), but for Australian farmers it is just 4%.[18] This means Australia's competitors have a 27% head start (31 – 4 = 27) when selling onto world markets, or when these subsidised products are imported into Australia.

The OECD also compares the prices farmers in different countries receive for their products and the price consumers pay for of food in different countries[19]. It shows that among the developed nations:

- Australian farmers receive the lowest farm-gate price in the developed world, and that price is on average equal to the corrupt world price. On average, farmers in OECD countries receive a price 32% higher than what Australian farmers receive; and

- Consequently, Australian consumers benefit from having the lowest-priced food in the developed world. On average, consumers in other OECD nations pay 37% more for their food than Australians.

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[17] *Australia's Farm Dependent Economy: Analysis of the Role of Agriculture in the Australian Economy,* research paper by the Australian Farm Institute, 2005.
[18] *Agricultural Policies in OECD Countries Monitoring and Evaluation 2003,* Figure 2.2, pg 29.
[19] Compiled from *Agricultural Policies in OECD Countries Monitoring and Evaluation 2003,* Table Annex 2, PSE by Country pp. 44-45 and Annex Table 3 , PSE by Commodity, pp 46-47

Despite receiving low farm gate prices and having to compete with subsidised product, Australian farmers have managed to compete and stay ahead. According to the PC, Agriculture is Australia's third highest productivity sector, after communications and wholesale sectors.[20]

Low-cost water is an important aspect of Australian farmers' competitive advantage when competingn with substantially subsidised product on both the export and domestic market.

Water in farmers' cost structure

The PC argues that any price rises from anticipated rural to urban water trade, and from other price pressures associated with deregulation of the water markets, can be absorbed by farmers. The PC *Discussion Draft* states:

> "Water is not a large component of most agricultural input costs. In the most water-intensive irrigated industries, such as rice growing, the cost share is 10–20 per cent. In irrigated industries where capital and labour intensity is higher, such as horticulture, water's share of input costs may be in the range of 1–2 per cent (Appels, Douglas and Dwyer 2004[21])."[22]

Logically, if the PC's statement is true, that "water is not a large component" of farm inputs, then raising the price of water will not be much of an incentive to ensure water savings measures.

In reality, the claim that "water is not a large component" of most farming is very simplistic and indicates the need for more detailed knowledge of farm industries and variability of circumstances.

The figure of 1-2% for horticulture depends on whether this includes the cost of on farm enhancements, such as such as drip irrigation system, small sprinklers, overhead sprinklers, mobile sprinklers, filtering systems and power costs for pumping. Factored in, horticulture costs are more likely to be 3-5% of costs.

Consider other forms of farming, like a Victorian dairy farm with say a 300 mgl water title. It was not long ago that the cost of delivery was $30/mgl. It then rose to about $60/mgl. It is anticipated to rise to $100/mgl in the near future. This represents cost rises respectively from $9,000 to $18,000 to $30,000. A rise from $30 to $100 would wipe out the profit margin of many dairy farmers.

Further, in drought years the price of water can increase dramatically. During recent drought years, farmers in different industries were reporting water costs of 30% to 50% of their farm costs.

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[20] Banks, Gary, Productivity Commission Chairman, *The drivers of Australia's productivity surge.* Paper Presented at Outlook 2002, hosted by the Department of Industry, Tourism and Resources and the Australian Bureau of Agriculture and Resource Economics, National Convention Centre, Canberra, 7 March. Figure 4, pg 6.

[21] Appels, D, Douglas R and Dwyer, G 2004, *Responsiveness of demand for irrigation water: a focus on the southern Murray–Darling Basin*, Productivity Commission Staff Working Paper, Canberra, cited in Productivity Commission *Discussion Draft,* P 210

[22] Op.cit., Productivity Commission *Discussion Draft,* P 210

Some forms of farming are better able to absorb water cost increases than others. Horticulture in central Victoria can absorb higher cost increases than dairy farmers in normal years. But, then horticulturalists are forced to absorb very high water costs in drought years. If an apple tree is starved of water one year, it will produce no fruit the next, and the farmer will lose two years of production, even if there is plenty of water available in the second year. Such a farmer is forced to pay a high price for water in order to keep his farm going. Should the drought extend for two years, all the more costly. A dairy farmer cannot cover costs paying the high price that horticulture can pay. If water is cut from a dairy farm, then farm production drops proportionally.

Then other issues come into play. Horticulture largely goes to the domestic market. Victorian dairy is largely for export and what is exported are significantly valued-added products, positively assisting Australia's large trade imbalance and Current Account Deficit.

The PC *Discussion Draft*, overemphasises savings from drip and spray irrigation over flood irrigation. Which of these are the more efficient delivery systems depends on a number of factors, such as, soil types and absorption characteristics, crop type and land gradients. Then there are the added costs of various delivery systems, in terms of infrastructure, maintenance and pumping costs.

In many cases, flood irrigation is still the most efficient deliverer of water and the lowest-cost delivery system. There is good evidence to show that in the right circumstances, well managed flood irrigation can be more efficient than poorly managed spray irrigation systems. In other cases, the highest output yield comes from a combination of drip, spray and flood irrigation at different stages in the growing season. The costs are high, but these multiple delivery systems are used to achieve high valued crops, largely for export.

Hence, there is no single, ideal efficient water delivery system. It depends on local circumstances. Then the economics of delivery costs depend also on the anticipated farm gate return, which depends on the type of crop and quality grade target.

Recommendation 2. That the PC and governments recognise that there is no one ideal form of on farm irrigation delivery system and that farmers should be provided financial incentives to invest in the most efficient forms of irrigation for their farms.

Recommendation 3. That, rather than using price penalties to encourage water savings on farms, the PC recommend that governments offer positive financial incentives to farmers for on farm enhanced water savings irrigation infrastructure, just as the Federal government provides financial incentives to the states to implement competition policies under National Competition Policy.

How will water trade to urban and environmental sectors affect irrigation costs?

It is likely that for some years into the future the supply of water for human use will remain constant, and relatively short of demand. This is for various reasons:

- Droughts/long dry spell. Australia appears to be going through a relatively dry period, similar to the dry spell from around 1880-1940.

- Massive tree plantings. Rural managed investment schemes, with big tax write-offs, have focused on the wine industry and on tree plantations. The latter are huge in size, and many are in the catchment areas for major reservoirs, or rivers and streams used for irrigation. These plantations are using large amounts of naturally falling rain water, substantially reducing runoffs and therefore, the availability of water for urban and other agricultural use.

- Bad management of national parks is also leading to reduced runoffs in some catchments.

- Poor land use management in some catchments where hobby farms with substantial onsite dam capacity have reduced flows into major water storages.

- The policy adopted by several state governments to build no new reservoirs.

On the other hand, the demand for water is likely to rise, because of:

- Environmental flows: increasing demand for environmental flows, like the 500 gl flow down the Murray, will reduce water availability.

- Population growth. Over the next fifty years, Australia's population is expected to expand by several million. Most of this growth will be in the cities, bringing urban demands into increased conflict with irrigators.

- Unrestricted growth of cities. State governments are hooked onto the revenues that come from rapid expansion of the metropolitan area, where land values are high. Current expansions of major cities are mostly in areas where urban water supplies are tight. Instead, governments should be encouraging population expansion in areas where there is plenty of available water, like the north coast of NSW and central and northern Queensland.

- Large managed investment schemes involving large scale farms, which, particularly in forestry and wine grapes, are distorting the water market (See later)

Therefore, in the medium-long run water supply is unpredictable, likely to be tight and could decline in many catchments, while demand could increases substantially in urban and environmental markets.

Very importantly, as the supply curve for water is inelastic, the price for water could rise substantially. Small demand increases against inelastic supply curves can see prices increase substantially. This is what happened to irrigation water prices during the recent drought. This is what happens in electricity markets.

Of further concern, if substantial amounts of water rights are brought up by non-users, there could be the added factor of water barons manipulating water supply and pushing prices to very high levels, particularly in times of drought. Witness the manipulation of

electricity prices in California to extraordinary high levels by companies controlling only 6-8% of the market during the 2000-2001 electricity crisis.[23]

Further, cities can always pay more than farmers for water. Urban authorities can spread the cost over businesses and households, where marginal price rises are more easily absorbed.

On the other hand, farmers are price takers, not price markers. They cannot easily pass on cost increases.

Hence, the steady effect of increasing demand against inelastic supply will be to drive up the price of water, including irrigation water. In turn, this will drive a number of farmers out of business.

As some leave, this will have the effect of stranding assets. It is important to understand the process that occurs when this happens. Down any irrigation channel there is a percentage loss of water. A typical, earthen (unlined) channel will operate on a 75% efficiency rate. This means it will lose 25% of the water through seepage and evaporation in the delivery process. Only a small number of farmers have to sell their water out of the channel and the efficiency rate can drop to 50%. With half the water lost in delivery, the cost of delivery makes the channel unviable. At that point, all the farmers go out of business, whether they are efficient or not.

This indicates that the third party costs of water trade out of a channel and a district will be significantly higher than the PC *Discussion Draft* and its *Stranded Irrigation Assets* working paper anticipates.

The stranding of assets and losses to the economy are already being seen in places like Kerang and Pyramid Hill. Kerang lost 10% of its water in a few short years, and local studies estimate the local economy shrank by 20%. The idle farms are reverting to scrub, salt has risen and these areas are become degraded environments. In addition, this has led to shire rates paid by irrigation farmers being increased by as much as 45% in some regions. The effects of individual elements of water reform cannot be considered in isolation. The structural adjustment payments form the Federal to successive State Governments – that should have mitigated against a region's losses – have been mis-appropriated into general revenue coffers.

If this is the likely process at the micro level, what is the likely effect of a progressive shift of water from rural to urban use over the next 50 years, particularly if the supply of water remains broadly at current levels and if demand for rural and, particularly, urban use increases?

Urban areas will invariably win out over irrigation users. Bendigo, Geelong and Ballarat are all eyeing irrigation water to overcome their shortages. During the recent debate over the failed Snowy Hydro public float, proposals were aired that recommended piping water, set aside for irrigation farming, from the Snowy to Sydney. In 1967, Henry Bolte's government promised that the new Upper Thompson Dam would provide 144,000 mgl annually to Gippsland farmers. A decade later and a different government reduced this pledge to

[23] Borenstein, Severin, "The Trouble With Electricity Markets: Understanding California's Restructuring Disaster", *Journal of Economic Perspectives*: Volume 16, Number 1—Winter 2002.

12,000-14,000 mgl annually to Gippsland farmers. The most ever delivered was 10,000 mgl, and the rest has been piped to Melbourne.

These are examples of what the irrigation sector of Australian agriculture can expect to face over the next fifty years. This means a shrinking supply of irrigation water for agriculture.

Environmental flows are likely to win out over irrigation users, if governments continue to listen to environmental advocates in place of sound over scientific evidence. The recommendations of the by The House of Representatives Standing Committee on Agriculture, Fisheries and Forestry in 2004, against environmental flows until the science was demonstrated, involved the first critical evaluation of the science behind *The Living Murray,* and the science was shown to be seriously inadequate.

The supply curve for water is inelastic. If supply is at worst uncertain, and at best constant, then the price of irrigation water must rise across large areas of farming. Water prices have already been substantial in recent years, and, on all indications, are set to rise substantially in the future. This scenario must bring into question the viability of substantial areas of agriculture. This would see Australia reverting largely to dry land farming.

It is important to reiterate that Australian farmers are not competing on a level playing field with the rest of the world. They have to compete with corrupt world markets where OECD figures show that their farm gate price is, on average, equal to the corrupt world price. Farmers are price takers and cannot simply pass on rising input costs. Hypothetically, if they were to pass on the costs, this would conflict with the policy objective of providing low-cost quality food to Australia consumers.

The result is likely to be a combination of factors making a range of irrigation industries not viable, and Australia being increasingly left reliant on dry land farming.

Recommendation 4. That the PC recommend to the Federal government new financial incentives for the states to undertake a full audit of the water availability in each of the states' catchments, and an audit of irrigation entitlements.

Recommendation 5. That the PC recommend to the Federal government that NWI competition payments to the states should be earmarked for use in water savings infrastructure or for the construction of new water storages.

Recommendation 6. That the PC recommend to governments that in regions where there is ample water supply they build infrastructure and provide incentives for future population expansion so as to mitigate future population pressures on regions with insufficient water supply.

The flaws in shifting water from low-valued to high-valued agriculture

The key purpose of NWI policy on water trade was to allow the trading of water from low-valued to high-valued agriculture. Various modelling has claimed to show substantial

benefits of allowing water trade for this purpose. This paper questions those modelling outcomes.

1. What is classed as low-valued and high-valued agriculture? As the Australian Farm Institute points out, agriculture is worth 3.2% of the economy, but the farm dependent economy – the input sector, agriculture, and the out-put sector – make up 12.2% of the economy, valued at about $72 billion.[24] In other words, a proper evaluation of the value of a particular farm product is not measured just by the farm gate price, but by the added value from farm inputs and outputs.

Hence, a high farm gate price product may be worth less to the economy than a low farm gate priced product. In which case, if there was water trade to the high farm gate priced product, it would incur a net cost to the economy, in which case, water trade involves a market failure. Clearly, there is a definitional problem in what is high-valued and low-valued agriculture.

2. The further water is traded out of a catchment, the more are the transmission losses, and the greater the costs from having lost that water. This would compound the losses if the water was being traded to a high farm gate priced product that incurred little value adding (as in 1. above). This would compound the net loss to the economy.

The corollary of this is that the more that water is used in the catchment where it is collected, or the closer to where it is collected, then the less are the losses in transmissions more water there is available for use and for adding net value to the economy.

3. Only about 10% of Australia's irrigation agriculture is "high-valued' agriculture. This means that there is only a limited amount of water that can be taken from "low-valued" for "high-valued" agriculture. Take the wine grape industry. Substantial amounts of water have been traded to corporate wine grape farms, which, like many tree plantations, involve large managed investment schemes with substantial corporate tax breaks. This has led to an significant oversupply of a number of wine grape varieties, with prices falling from $600-800/tonne to $150-200/tonne this year.

Again this raises a problem about defining what is a "high-valued" farm industry. What is today's high valued industry can easily be tomorrow's "low-valued" industry. What validity is then to be placed on economic modelling showing big increases in agricultural production from water trade, if the industries concerned can rapidly become low-valued industries? Agricultural history is full of boom and bust stories, reducing highly optimistic modelling figures to mere guesstimates.

4. Conversely, 90% of Australian agriculture is "low-valued", as measured at the farm gate. This can be taken two ways.

Some of this becomes "high-valued" in output industries, adding substantially to the economy, and to exports.

Some of this goes on to provide low-cost food and fibre products, with two desirable objectives, providing:

[24] *Australia's Farm Dependent Economy: Analysis of the Role of Agriculture in the Australian Economy*, research paper by the Australian Farm Institute, 2005.

- low-cost, quality food products to Australian consumers; and
- farmers a competitive edge on world markets for bulk commodities like grains.

Hence, it is a mistake to treat what is classed as “low-valued” agriculture as second class to so called “high-valued” agriculture. Each has legitimate but different economic and social objectives.

5. Little understood is that, not only is there a limited amount of high-valued agriculture, there is no need to shift water out of catchment areas from low- to high-valued agriculture. The nature of the Murray-Darling and Goulburn systems is that so called “high-valued” products can be grown almost anywhere in this large region. The climate, soil types, and other conditions are common right across the basin. Therefore, it is better to put the agriculture where the water is rather than shift the water to where a particular farm is situated.

6. From the farmer’s viewpoint, he/she wants to make a profit. High-value added agriculture may or may not provide high profits, noting that high-valued added usually means incurring high input costs. Hence, it does not automatically follow that high-valued added means high profits and a reasonable return on investment for farmers.

7. How does one conduct a true cost-benefit analysis of a water trade from “low-valued” to “high-valued” agriculture? The following seem to be important factors, and issues somewhat neglected:

- What is full benefit of the transfer in terms of gains in input, agriculture and output. Similarly, what is the full cost in terms of input, agriculture and output lost.

- Given that the economics of irrigation are finely balanced, not just to a particular farm, but involving all the farmers down an irrigation channel, then what is the full cost of the loss of farms as a result of the stranding of assets?

- What are the multiplier effects in the broader local communities to which the water was traded and from which it was taken?

Given the complexity of assessing the real costs and benefits of water trade, as discussed above, there is still another consideration. Cost-benefit analysis can indicate that a particular water use can add more to the economy than another use, and so increase the value of agricultural output. Generally, the higher the value of the output, the higher the price of the final product. However, Australian governments have also sought to ensure the provision of low-cost food to the Australian people; and this is delivered by lower-valued output. This also serves another non-economic objective, food self-sufficiency and security for an island continent.

8. There are other practical impediments to trading and transferring water long distances:

- Only a limited amount of water can physically be traded between regions because of local needs, channel flow restraints, etc., and not much more can be traded than is being traded now.

- There are geographical constraints on water trading. Darling River water that enters the Murray at Wentworth will not flow "back up" the Murray to Cobram and down to Shepparton.

9. There are good environmental reasons to restrict water trading between catchments. Over the past 80 years of irrigation in the Murray Darling Basin, farmers, scientists and catchment management authorities have developed strict rules on how much water can be put on land in the various regions without creating problems like higher water tables and salinity.

Open water trading would put at risk the environmentally complex array of irrigation rules across many catchments and risk environmental degradation of farm lands.

10. Banks lend for 10-year farm investments, with the farmer's land title and water right as security. As water rights are detached from property titles allowing farmers to sell off their water, then banks are likely to stop lending for farm investment; or they will insist on holding the water title as security. As the risk of stranded assets increases, this will make it more difficult for banks to lend to those who as third parties lose out on water trade.

Recommendation 7. That the PC and governments recognise that the concept of low-valued to high-valued agriculture is a flawed concept, very difficult to measure and can conflict with the other economic and social objectives, like providing the Australian people with low-cost food, and helping Australian farmers achieve a competitive advantage over their highly subsidised foreign competitors. That the PC and governments recognise that it is better to shift agriculture around the basin to available water than to shift water to agriculture; and that farmers are in the best position to judge water use for low and high valued crops.

Recommendation 8. That the PC recommend to governments that irrigation water trade be restricted to trade between farmer users of water within a catchment area.

Environmental flow market

There have been moves through COAG for the Federal and State governments to purchase irrigation water for environmental flows down the Murray-Darling Rivers. Again, this will invariably put another price pressure on irrigation water.

Any moves towards environmental flows should be considered when and only when the proper science on river and riparian zone health has been completed. The science in favour of environmental flows was heavily scrutinised by The House of Representatives Standing Committee on Agriculture, Fisheries and Forestry in 2004.

Its interim report[25] was on *The Living Murray* proposal to take up to 1,500 gigalitres of water from farmers for river flows over ten years.

The report was approved by an 11:1 majority and issued with an urgent call to the Federal government to urge the Murray Darling Basin Ministerial Council (under the Council of

[25] *Inquiry into future water supplies for Australia's rural industries and communities - Interim Report,* the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry, Marc 2004.

Australian Governments or COAG) to postpone plans to commit an additional 500 gigalitres of water to the Murray River until:

- a comprehensive program of data collection and monitoring by independent scientists is completed;
- other alternatives to river management strategies, rather than just river flows, are considered and reported upon more thoroughly; and
- a full and comprehensive audit - focused specifically on the Murray-Darling Basin's water resources - including all new data, is conducted.

The Committee also recommended that sufficient funds be made available from the $500 million allocated to the Murray River by COAG for the achievement of these tasks, before there is any move to increase river flows.

Bill Hetherington, Chairman of Murray Irrigation Ltd., claimed there was a serious absence of hard data about the health of the Murray. He said that the findings from the five scientists Murray Irrigation has employed show "that salinity at Morgan has actually improved by 100 per cent in the past 20 years. There has been no change in turbidity, phosphorous and nitrate levels since they were collated in 1978. As well, the Murray cod are more plentiful than ever and carp numbers have diminished considerably. The water quality to our irrigators ... is a top world standard. So ... what is wrong?"

Dr Jennifer Marohasy, of the Institute of Public Affairs Environment Unit, said there is no substantial evidence to support popular urban myths about a serious decline in river health. Adding to Mr Hetherington's evidence, she said that:

- Irrigators take about 34% of total inflow into the river system on average;
- approximately 41% of inflows actually flow to the sea in an average year - quite a bit more than is represented by scientists or the media;
- Water tables had dropped significantly in substantial areas of the basin, and in the last twenty years the amount of land impacted by shallow water tables had dropped from 127,000 ha to 14,000 ha;
- A number of studies of macroinvertebrate populations had demonstrated healthy and diverse populations, which was at odds with the conclusions drawn in the *Snapshot of the Murray–Darling Basin River Condition*, based on computer modelling; and
- Decline of red gum populations along the Murray is not substantiated by the available evidence.

Dr Marohasy postulated that the cause of misconceptions about the health of the Murray River was the tendency of scientific reports to ignore the occurrence of natural extreme variations in river conditions.

"We have not really thought through the implications of 'natural' as opposed to 'healthy' in the context of an old river that runs through a semi-arid environment. In such an environment, during the inevitable frequent droughts, 'natural' logically equals dead fish and stressed red gums as surface water recedes and groundwater levels drop.

"Our scientists are currently compiling environmental indicators of river health all-the-while making their comparisons with hypothetical pristine environments where 'pristine' falsely equals 'well watered'. If, instead, we set our management goal as improving trends based

on current conditions (that is, a healthy working river), then the issue of trying to estimate the natural or pristine environment becomes redundant ..."

The Committee noted that when the MDBC capped water diversions from the river system in 1994-95, an opportunity was missed to put in place research programs to capture data on improvements in river health. A decade of valuable data to guide future management of the river was not collected.

Dr Lee Benson of Ecology Management, questioned the integrity of *The Living Murray* process, pointing out that in the absence of such data, the MDBC has reverted to relying on expert panels who can do no more than guess at what makes for better river health.

This is no substitute for basic data. Twenty-two issues affect river health, and river flow is just one issue. He said that stakeholders along the Murray must be involved more in the practical issues of river health.

Improving the environmental health of the Basin's rivers requires a complex response, involving analysis of the costs and benefits of possible variations to current management practices relating to 22 issues of river health, including:

- instream habitat: the logs, water plants, water turbidity and temperature that affect river life;

- riparian zone health, relating to stream bank stability, land and vegetation adjoining the river like wet lands and billabongs, and flood effects on the regeneration of the flora and fauna;

- instream structures: the siting and management of locks, dams and weirs which affect river flow, irrigation use and riparian zone flooding;

- seasonality of flows: the natural regeneration cycle is in July-September (coinciding with the periodic, traditional snow melt leading to river flooding), whereas main flow timing is November-February when farmers irrigate;

- salinity management, catchment area by catchment area;
- control of pest species;

- losses of water in the distribution channels and impoundments;

- volume of water flows down the rivers in the Basin.

He showed that some of the modeling outcomes, which had been described as providing overwhelming evidence of river degradation, had error factors as high as 90%.

The Committee concluded: "The level of disagreement between scientists is itself cause for concern. Of greater concern is the weight of evidence against the scientific reports.

"The Committee asks 'would scientists promoting new treatments or pharmaceuticals to address the health problems of human beings be so cavalier in terms of paucity of data and testing as appears to be the case with the decision making process associated with the health of the Murray-Darling Basin?'

Recommendation 9. That the PC and governments endorse the finding of the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry *Inquiry into future water supplies for Australia's rural industries and communities - Interim Report:*

Recommendation 1: In light of the Committee's severe reservations about the science, the Committee recommends that the Australian Government urge the Murray–Darling Basin Ministerial Council to postpone plans to commit an additional 500 gigalitres in increased river flows to the River Murray until:

- a comprehensive program of data collection and monitoring by independent scientists is completed;
- non-flow alternatives for environmental management are considered and reported upon more thoroughly; and
- a full and comprehensive audit focussed specifically on the Murray– Darling Basin's water resources, including all new data, is conducted.

Recommendation 2: The Committee recommends that the Australian Government ask the Murray–Darling Basin Ministerial Council to allocate sufficient funds out of the $500 million allocated to the River Murray by COAG to the abovementioned tasks, prior to proceeding with the proposal to obtain increased river flows.

Recommendation 10. That the PC recommend to governments the creation of a separate environmental water market, with water for environmental flows – where thorough, community agreed science shows they are needed – to be derived from water savings from infrastructure improvements and from tapping new water supplies, but not by purchasing irrigation water. The cost of this water should be borne by the whole population as, collectively, they are the environmental custodians of our river environments.

Managed investment schemes are distorting agricultural investment and water allocations

Managed investment schemes (MIS) are distorting rural investment, agricultural markets and water allocations.

- MIS are believed by irrigators to make up the bulk of water traded between catchments, as they buy up large amounts of water entitlements for their large projects.
- MIS tree plantations in catchment areas are absorbing water at zero cost, reducing surface and ground water flows into streams, rivers and water storages at a cost to other irrigation and urban water users.
- At the end of the life of each MIS, say 15 years in the case of blue gum plantations, the manager operators are left with huge water banks and huge land banks.

All three have the ability to force up the price of irrigation water.

About $3.6 bn has been invested in MIS since the 2001-02 financial year, almost $1.2 bn this year. They have an annual compound growth of around 36%,[26] involving the buy up of about 105,000 hectares of land annually.

Of the 59 new projects this year, investments break down into: 44% into tree plantations, 42% into horticulture, 5% into other agricultural investments and 9% other. The type of projects of recent years include: forest planting, "tax-effective tomatoes ripening in giant glasshouses in northern NSW, pearls in the Northern Territory, sandalwood, vineyards, olives, mangoes, almonds, truffles, even walnuts and cherries."[27]

In part, these schemes operate by charging a high up front fee, several times the cost of establishing the project. For example, a tree planing project might cost $9,000/ha, while the true establishment cost may be only $1,500/ha. Without going into the details of the tax minimising aspects of these the MIS, the point is that as tax minimising schemes,

> "most investors don't worry about a return at the end of 15 years. Their main concern is a tax deduction now. Given it is a 100 per cent deduction, the more they spend the better it is. And with any profit years away, it is unlikely the promoter will be held responsible for that performance until too late."[28]

Hence MIS investments are not based on market signals, on laws of supply and demand, or on issues of efficient allocation of land and water resources. They ignore the market signals that are supposed to ensure resources are allocated "to the highest use … [so] that the community gets the greatest return (broadly defined) from its scarce resources", which as the PC says is the efficient way to allocate resources, like water. They are solely driven by wealthy investors, many who have made a lot of money out of the recent bull-run on the Australian stock market, wanting to minimise their tax. The schemes are tax driven.

They frequently lead to overproduction and the collapse of rural commodity prices. The price collapse puts other farmers out of business, but it does not affect the operation of the MIS as its primary purpose is to minimise investors' tax liabilities, not to actually make a profit. This is particularly devastating on family farms.

This overproduction is rapidly turning some high-value farm products into low-value products. With 15% of the wine grape industry, MIS have contributed to the collapse in prices for wine grapes. What is more, some of the MIS timber projects are turning what

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[26] Stephens, Mike, "Schemes are a big MIS-take", *Weekly Times*, ??, 2006.
[27] Hooper, Narelle, Anderson, Fleur, "The tax schemes that ate Australia, *The Weekend Australian Financial Review*, July 1-2, 2006.
[28] Stephens, Mike, "Schemes are a big MIS-take", *Weekly Times*, ??, 2006.

were once proven, highly profitable broad acre cropping and grazing land into considerably lower valued timber plantations.

The genesis of these MIS were the concessions the Federal government allowed in order to boost investment in tree plantations, so as to cut Australia's $2bn deficit on timber imports. In which case, the concessions should have been limited to the timber industry, and environmental planning limitations should have been placed on such schemes.

The market distortions extend to the water market.

First, MIS tree plantations reduce the supply of water in various catchments. Intensive planting of young trees, which absorb a lot of water in their growth stage over 10-15 years, dries up surface flows and reduces ground water flows. The use of this water is at zero cost to the MIS, but it has a negative cost in reducing the water flows down streams and rivers and into reservoirs.

Second, because MIS are flush with money from overcharging investors, they are in a position to buy up large amounts of water entitlements at above what would be normal market prices. This has the effect of raising the price of irrigation water across a system.

Third, irrigators believe MIS, with their huge ability to buy into the water market, are the major source of trade of water between catchments. In which case, it is distorted market signals that are causing water to be traded out of catchments.

Fourth, the water MIS buys is said to be going to high-value agriculture. But, with the supply glut they create, today's high-value products are tomorrow's low-value products. This makes economic modelling on water trade between catchments, from "low-value" to "high-value" agriculture, unreliable for policy decision-making. Arguably, all the modelling is measuring is the up side of a boom and bust cycle in an industry facing serious over investment due to the government providing substantial tax breaks to wealthy city investors.

Fifth, at the end of these schemes, the manager operators are left with huge water banks and huge land banks. That water can be used for a variety of purposes, including withholding supply and forcing up water prices in drought times.

Furthermore, there is great irony in the Federal providing huge tax breaks that subsidise MIS. The Federal government says that it will not subsidise agriculture as is done across most of the rest of the world, arguing, why should taxpayers subsidise farmers? Yet it is prepared to have taxpayers subsidise wealthy city investors in MIS schemes, which are seriously distorting agricultural and water markets and driving genuine farmers out of business.

Recommendation 11. That the PC recommend that the Federal government restrict managed investment schemes only to timber plantations, and that a set of environmental guidelines be produced to ensure that new plantations do not adversely reduce water flows to into catchments, adversely affect other forms of agricultural or urban or environmental water use.

New reservoirs

If Australia's water shortages are to be eventually overcome without seriously impacting on Australia's vital irrigation industries by shifting water from agriculture to the cities, then eventually governments will need to reconsider policy and tap into new water supplies.

In the course of COAG's proceedings, in the NWI and in the PC's water policy considerations, there has been no serious focus given to building new reservoirs, let alone any financial incentives to tap new water sources. Australia may be a dry continent, but per head of population we are one of the most water rich nations on earth, according to The World Resource Institute.

There are massive, untapped water flows in northern Australia, and other substantial flows in NSW and Victoria. The north Queensland rivers flowing to either east or into the Gulf of Capentaria have 9.7 times the flow of the Murray-Darling Basin. The Timor Sea rivers are 3.5 times the Murray-Darling flow.

Recommendation 12. That the PC recommend to governments that state and territory audits of available water include examination of the huge untapped resources in northern Australia (across north Queensland, the Northern Territory and the north of Western Australia), as well as substantial untapped water in NSW and Victoria. That this audit be conducted particularly with a view as to where future expansion of agriculture should be situated.

Recommendation 13. That the PC recommend to the Federal government new financial incentives for the states to build new water storages.