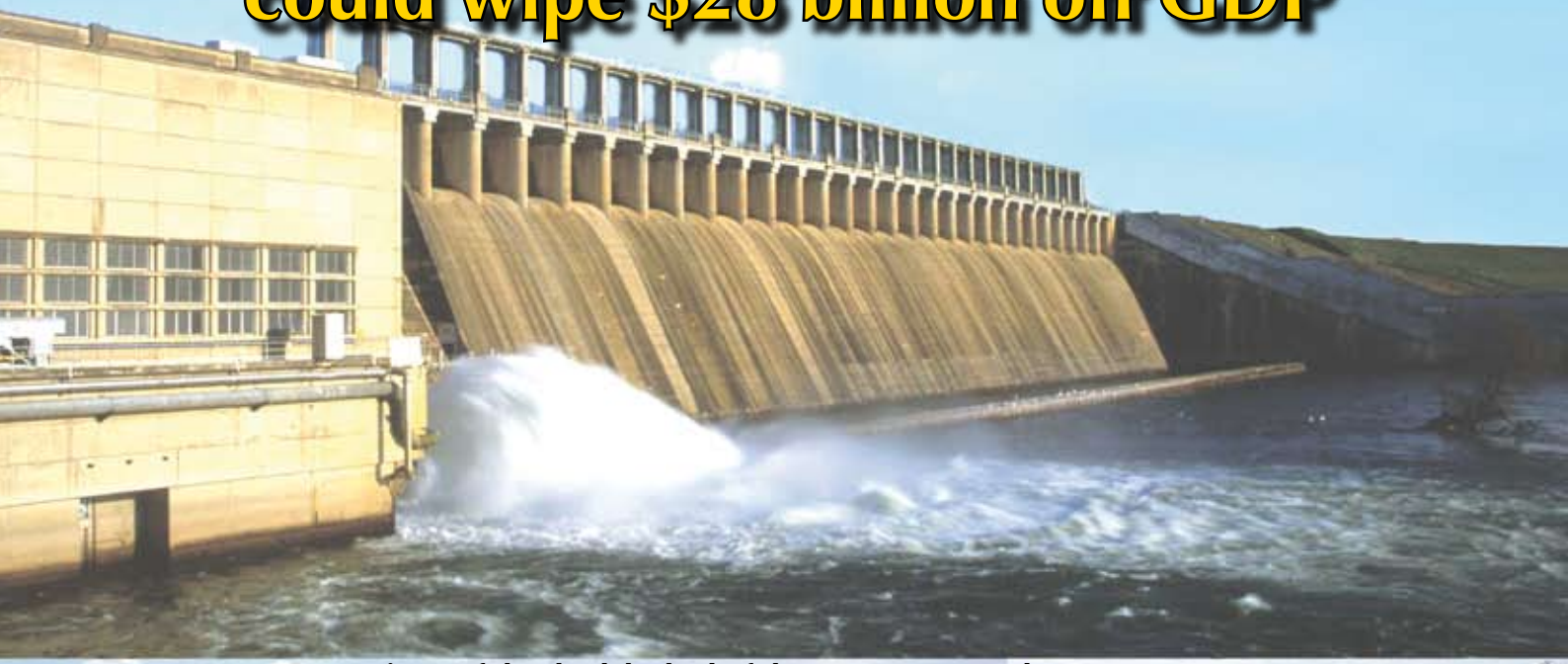
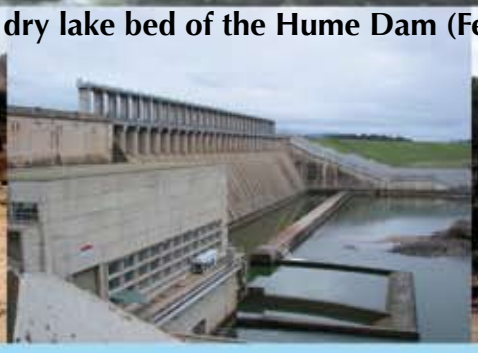
Federal Murray-Darling Basin water plan could wipe $28 billion off GDP



Views of the dry lake bed of the Hume Dam (February 2007)



The federal Murray-Darling Basin water plan could:

- take approx 3,500,000 megalitres from irrigation farming
- wipe $28 billion (2.9%) off Australia's GDP
- create a permanent, man-made Basin drought
- force up consumer food prices

Urgent solutions

- a moratorium on permanent water-trade
- build a weir at Wellington in SA to save 1,000,000 megalitres p.a.
- Governments to comprehensively consult with all irrigation groups in the Basin
- Governments to bring back high-level expertise for a Basin crisis management-team
- Investigate emergency water supply measures

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EXECUTIVE SUMMARY OF POLICIES

Policy 1: As the Federal Government is seeking to take responsibility for managing the Murray-Darling Basin's water, it must work with the states to effect an immediate three-year moratorium on the permanent water-trade out of existing irrigation districts or regions, until a full and comprehensive consultation is undertaken with all stakeholders in the Basin, region by region, using community-agreed science to determine a water plan for the Basin.

Temporary water-trade should continue, and permanent water-trade may continue, but only within a region.

However, due to the current dire financial circumstances of significant numbers of irrigators, following successive years of low allocations (including two years of zero allocation in NSW), we reluctantly accept that the only way that some farmers can survive on the land is to permanently sell some water to the MDBA for the national water plan and environmental flows for the Murray icon sites.

Policy 2: The federal and South Australian governments must act immediately to prevent the loss of up to 1,000,000 megalitres annually in the lower lakes, by the construction of a weir at Wellington and building an associated pipeline facility to ensure supply to all South Australia users.

Policy 3: The federal and state governments must urgently look to constructing new storages, for example a dam at Murray Gates, for higher level water security.

Policy 4: The Water-Sharing Agreement between the NSW, Victoria and South Australian governments must be suspended in nominated drought sequences, and emergency priorities set to ensure the survival of all towns and industries within the Basin.

Policy 5: Managed investment schemes (MIS) are creating serious ongoing distortions in the commodities and water markets. The Federal Government must urgently legislate to prevent the establishment of further MIS and schemes of a similar nature. To this end, there must be an immediate moratorium on the development of land previously not irrigated.

Policy 6: Governments must urgently revise the very narrow and flawed concept of "over-allocation" of irrigation water. They must understand that water allocations have to be understood in terms of security of supply, which in turn is attuned to the high variability of rainfall in the Basin, which in turn determines the most suitable types of agriculture for the Basin.

Policy 7: There must be restricted environmental flows during a proclaimed drought, and dilution flows. Urgent priority must be given by the Federal Government to doing comprehensively agreed community-based science of the needs of the Murray-Darling system before there is any commitment to environmental flows.

Policy 8: The Federal Government must undertake an immediate public consultation process in NSW, Victoria and South Australia, to cover all aspects of the National Water Initiative (NWI) and National Water Plan and the water impacts of the drought.

The results of the extensive consultation process must be presented to a ministerial meeting, at which key user groups from each irrigation area and region of all three states are to be represented.

Policy 9: For the immediate situation, the Federal Government must commit to addressing the issues to ensure the survival of the farming sector in the short term. This should include:

- the waiving of all fixed charges for water and council rates;
- financially helping to compensate the states for the consequent service and delivery charge losses, especially fixed annual water charges;
- providing low-interest loans and grants for existing farmers to re-establish after the drought; and
- a moratorium on development of land previously not irrigated.

Policy 10: For the future running of the Basin:

- strong strategic authority must be given to the Murray-Darling Basin Authority to manage the water crisis and engage the previous (retired), credible and knowledgeable water managers who have had long experience in the administration of the Basin;
- a new policy plan must include the MDBA overseeing catchment plans and flood-plain management;
- the veto power of each state on the Murray-Darling Basin Ministerial Council must be changed to a majority vote so as to safeguard the survival of all industries and towns in each state; and
- lateral policy approaches are needed to urgently seek measures to augment next season's water, including :
  - immediate steps to import from overseas cloud-seeding technology and expertise, which has the potential to add 500,000 megalitres to the Alpine storages next season for irrigation and hydro-electricity;
  - using tankers to ship in fresh water for State capitals from New Zealand;
  - an undersea fresh water pipeline from the Tasmanian highlands to Melbourne;
  - tapping the substantial flow from the Gellibrand River instead of drawing on dry rural catchments for Melbourne's water; and
  - tapping the Great Artesian Basin as a short-term alternative supply.

At the core of the Murray-Darling Basin water crisis

The Snowy Mountains Scheme was designed to store Alpine run-offs to augment the rivers flowing westwards for irrigation and for hydro-electricity. Yet the Basin is in major crisis. Farmers face bankruptcy and consumers face hefty price increases because of bad management and fatally flawed federal and state policy.

- Under the federal and state National Water Initiative (NWI), the policy of allowing permanent water-rights to be traded treats water as a private good instead of a "mixed good", being partly a public good and partly a private good. This is a fundamental misunderstanding of the nature of water, which is at the heart of the water crisis (see below). It assumes, as the NWI states, that market forces can allocate water among farmers, cities and the environment. In fact, the allocation of water between sectors involves value judgements and other considerations that cannot be solved by markets.
- The open trade of permanent water has led to the purchase of water by managed investment schemes (MIS operate on tax concessions to wealthy investors instead of market forces), and by governments (for environmental flows). This has forced up the price of farmers' water, bringing about the collapse of water infrastructure and regional communities as water shifts out of irrigation regions.
- The failure to build a weir at Wellington in South Australia, and then to pipe water to towns and farmers downstream, has allowed a massive 1,000,000 megalitres to evaporate annually from the lower lakes of Alexandrina and Albert at the end of the Murray River. This water (equal to 8 per cent of all the Basin's irrigation water) could have been saved to substantially offset the current drought.
- The shift in emphasis of the Snowy Mountains Scheme from irrigation for food supply to electricity, has been one of a number of issues that have compounded other bad water management decisions, such as putting environmental flows down rivers in a drought when under natural conditions the river would be dry.
- **If it was not for the opening up of permanent water trade which has allowed the enormous expansion of MIS, the failure to build the Wellington weir and recent bad management decisions, the Basin would not be facing its acute current water shortage, the collapse of a major food source, rising food prices and farmers taking up to seven years to replace lost permanent plantings.**
- Furthermore, the haste of governments to buy water to extinguish water rights, because of alleged gross over-allocation of water, completely defies the evidence about over-allocation and is a flawed concept.
- The Federal Government and Opposition have ignored the 2004 interim recommendations of the Federal Agriculture Committee, which was shocked at the chronic lack of science behind *The Living Murray* recommendations for up to 1,500 gigalitres of environmental flows. The committee strongly recommended that there be no purchasing of water for environmental flows until the environmental science on the Basin has been comprehensively collected. Yet the 2007 Federal Water Plan intends to allocate even more water to environmental flows when the scientific survey of the Basin has still not been done.
- Water allocation and the system of irrigation rights are a highly complex legal, economic and social system, with operational variations from region to region in the Basin. Operating such a system requires a high level of expertise, with water authorities working alongside locals who understand the operation of water in their region. Yet politicians have attempted to completely reshape the Basin's water law and management in one year, when the original 1917 interstate water-sharing agreement took 13 years to negotiate, and many years to consolidate. Governments have completely failed to understand the complexity of water, believing instead in a highly simplistic notion that markets can automatically allocate water resources. The 249-page *Water Bill 2007* was expedited through Federal Parliament with bi-partisan support in a few hours. This demonstrates the catastrophic failure of politicians on all sides of politics to understand the nature of water and the nature of the current crisis.

Further, the failure of governments to draw on the best irrigation and water expertise and to consult with the stakeholders with practical knowledge and long experience in the Basin is unconscionable. It is now critical that governments listen and consult immediately with these experienced stakeholders.

How the federal Murray-Darling Basin Water Plan could wipe $28 billion (2.9%) off GDP

Expediting the 249-page *Water Bill 2007* through Federal parliament with bipartisan support last August only confirms that political leaders don't understand the implications of the national water policy. What is the point of spending billions in welfare on drought-stricken farmers now, if the federal water plan is set to wipe out large numbers of the farmers when the drought finishes by eroding farmers' water rights? There is policy confusion between the drought and a long-term national water management plan.

The national water plan has evolved from the National Water Initiative (NWI), which set the stage by separating farmer's permanent water-entitlements from land title. In the 10-year run up to the 2004 NWI agreement, farmers were told that the plan was to allow water to be traded from low to high-value agriculture. In reality, it allowed water to be permanently traded to any buyer.

The Prime Minister's own Science, Engineering and Innovation Council confirmed this new reality in a 2005 submission to the Productivity Commission (PC). The submission said that the new national water trading market "opens up the opportunity … for the city to purchase irrigation water from willing sellers. It is probably the cheapest source of new water for several cities, and it is already taking place to some extent." (p. 206) The PC incorporated this proposal in its recommendations. (*Review of National Competition Policy Reforms*, Productivity Commission, Report No 33, February 2005, p. 209).

Last year, the federal Water Minister, Malcolm Turnbull, in a feature article he wrote for *The Australian* (October 2, 2006) on the

national water shortages, said that "among the six major options for our big cities" is "buying water from irrigators", and that this was already "proceeding in Adelaide and Perth". Soon, irrigation water is to be traded to Bendigo, Ballarat and Melbourne, with the full blessing of Mr Turnbull, the National Water Initiative, the PM's national water plan and the federal Opposition.

Worse still for farmers, environmental researcher, Jennifer Marohasy, estimated that the $10 billion plan announced by the Prime Minister on January 25 would return to the environment "a third of all current diversion for irrigation agriculture". (IPA Review, March 2007)

Theoretically, the federal plan involves:

- Buying back water entitlements because of over allocations. At current drought prices, the $3 billion allocation could purchase 1,500,000 megalitres, while at normal season prices, it could purchase around 3,600,000 megalitres.
- Investing $6 billion to modernise the Basin's irrigation system to deliver 2,250,000 megalitres in water savings to governments for environmental flows and, notionally, deliver another 1,350,000 megalitres in savings to farmers. Supposedly, the savings are to come from efficiency gains in water delivery, on farms, in metering and measuring, and in river and other water storages. While in all likelihood, the government would get its full quota for the environment and wetlands, farmers would be lucky to receive 20 per cent of the promised savings, because the target savings are gross overestimates of what the system is capable of delivering.
- It is unclear if the purchases of the 500,0000 megalitres for *The Living Murray* scheme is separate from, or to be included in, the new federal plan.

The targeted savings in the federal plan are unrealistic. However, in theory, if the plan did take at least 1,500,000 megalitres plus 2,250,000 megalitres of targeted savings that are highly doubtful, minus a small savings return to farmers, it would result in about 3,500,000 megalitres net being removed from irrigation. (Further, if *The Living Murray* purchases are not included in the federal plan, then another 500,000 megalitres would be added to volume bring removed from agriculture.)

In economic terms, indicative figures suggest that losing 3,500,000 megalitres of irrigation water would cost $7 billion at the farm gate (1 megalitre on average produces $2,000 on a farm) and a staggering $28 billion across the Basin's communities (regional economic benefits average four times the farm-gate value).

If achieved, this would cut food production, force up food prices, drive up inflation and wipe 2.9 per cent off Australia's GDP. (Further discussion in yellow box below. Detailed analysis of the federal plan available as brochure appendix at www.newsweekly.com.au)

The government has announced targets before auditing each irrigation region to evaluate over allocations and realistic savings.

The further the federal water plan proceeds, the more it will diminish the farming sector, weakening its resistance to more water being taken for more environmental flows, or for Melbourne, or eventually from the Snowy to Sydney, as demand from the growing cities increases.

Federal plan will wipe $28 billion off the economy: are these figures reasonable?

Yes. The Australian Farm Institute shows that agriculture at the farm gate makes up about 3 per cent of GDP, or about $30 billion. Its multiplier into the economy is 4, making agriculture plus its input and output worth 12 per cent of the economy, or about $120 billion.

The Murray-Darling Basin produces about 40 per cent of Australia's agricultural output or about $12 billion at the farm gate and $48 billion into the economy. This includes both dry-land and irrigation agriculture.

The federal water plan involves taking 29 per cent of water out of irrigation production, worth on *average* $14 billion of agriculture. *However*, given that just 3 per cent of the area produces over 50 per cent of all the Basin's output, based on irrigation agriculture, it is not unreasonable to estimate that taking that 29 per cent of irrigation water out of production would cut $28 billion out of agriculture and associated industries.

Policy 1: As the Federal Government is seeking to take responsibility for managing the Murray-Darling Basin's water, it must work with the states to effect an immediate three-year moratorium on the permanent water-trade out of existing irrigation districts or regions, until a full and comprehensive consultation is undertaken with all stakeholders in the Basin, region by region, using community-agreed science to determine a water plan for the Basin.

Temporary water-trade should continue, and permanent water-trade may continue, but only within a region.

However, due to the current dire financial circumstances of significant numbers of irrigators, following successive years of low allocations (including two years of zero allocation in NSW), we reluctantly accept that the only way that some farmers can survive on the land is to permanently sell some water to the MDBA for the National Water Plan and environmental flows for the Murray icon sites.

Urgent plan to stop huge losses in the Basin

About 1,000,000 megalitres, representing about 8 per cent of all the irrigation water in the Basin, evaporate annually from the lower lakes of Alexandrina and Albert near the end of the Murray. Large volumes of water are put down the Murray to dilute water in the lower reaches for Adelaide and agriculture. This leads to the huge evaporation losses in the lower lakes, at a substantial cost to the rest of the Basin. These massive losses are entirely unnecessary.

A weir at Wellington, to hold water back up the Murray, can avoid the huge evaporation losses. This would require piping water to towns and irrigators down stream of Wellington. It would allow a million megalitres of water to be annually saved in the system and held in storages right back up to the main Basin dams. Had the weir been built even this past year, it would have helped stem the huge losses of permanent plantings now expected in the Basin.

Had the weir been built and the water sold to farmers, it would have raised hundreds of millions of dollars for the South Australian government to pay for the cost of the weir. The failure to build the weir is likely to prolong the effects of the drought by two-to-three years and keep food prices high.

Policy 2: The federal and South Australian governments must act immediately to prevent the loss of over 1,000,000 megalitres annually in the lower lakes, by the construction of a weir at Wellington and building an associated pipeline facility to ensure supply to all South Australia users.

Policy 3: The federal and state governments must urgently look to constructing new storages, for example a dam at Murray Gates, for higher level water security.

Suspend the interstate water-sharing agreement

From July 1 to September 12 this year, allocations of water among the states have been:

- NSW – 23,900 megalitres;
- Victoria – 37,000 megalitres;
- South Australia – 91,000 megalitres. This flow could increase from 1,200 megalitres per day to around 7,000 megalitres per day in summer, if the interstate water-sharing agreement is prematurely reinstated, before there are adequate inflows to the upper storages. Much of this flow would evaporate in the lower lakes.

Unnecessary high flows to SA will continue to drain the upper storages, the Hume and Dartmouth dams. This in turn will prolong the effect of the drought on the irrigation regions, even if there is a return to normal seasons next year. This means that plantings that die off this season, and which take several years to mature, may take several years longer before they mature and farmers make a profit again.

As with the other states in a drought, SA should be guaranteed adequate water for essential supplies to towns, farmers and for salt-dilution flows. This will share the pain evenly across the Basin, and underscores the urgency of building a weir at Wellington.

Policy 4: The water-sharing agreement between the NSW, Victoria and South Australian governments must be suspended in nominated drought sequences, and emergency priorities set to ensure the survival of all towns and industries within the Basin.

The bipartisan federal water plan, originally proposed by the Prime Minister, is based on four fundamental policy mistakes.

Fundamental mistake 1:

Federal and state governments have backed managed investment schemes.

Managed investment schemes (MIS) are distorting rural investment, agricultural markets, water allocations and water prices. MIS involve wealthy investors receiving large up-front tax breaks for investments in large corporate farms. Most never make a profit, have a life of about 15 years and then potentially leave a gaping black hole in food and fibre production after having put true farmer competitors out of business. This is no way to run agricultural industries.

About $3.6 billion has been invested in MIS since the 2001-02 financial year, almost $1.2 billion in 2006. They have an annual compound growth of around 3 per cent (*Weekly Times,* March 29, 2006), involving the buy-up of about 105,000 hectares of land annually. A 2007 taxation ruling will stop the establishment of new MIS after the middle of 2008. In the mean time, there is a rush to establish new MIS plantings. The big increase in plantings and their dramatic need for water are driving water prices to unprecedented levels.

MIS typically operate by charging a high up front fee, several times the cost of establishing the project. For example, a tree-planting project will see investors charged $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 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." (*Weekly Times,* March 29, 2006).

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 the Productivity Commission says is the efficient way to allocate resources like water. They are solely driven by wealthy investors – many having 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.

MIS 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 overproduction is rapidly turning some high-value farm products into low-value products. Responsible for 15 per cent of the wine grape industry, MIS have contributed to the collapse in prices for wine grapes, from around $600-$800/tonne a few years ago, to $150-$200/tonne in 2006.

What is more, some of the MIS timber projects are turning what were once proven, highly profitable broad-acre cropping, grazing, dairy and sugar cane land into considerably lower valued timber plantations. This is the opposite of the NWI water-trading objective of allowing water to be sold from low to high-value agriculture.

As the number of MIS grow, they are severely distorting the water market.

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

Second, MIS, with their financial ability to buy into the water market, are the major source of water trade between catchments. In 2005, MIS were responsible for 85 per cent of the secure water traded out of Victoria's largest water authority, Goulburn-Murray Water. In 2006, water-brokers estimated that 75 per cent of Goulburn-Murray water and up to 100 per cent of Lower Murray water sold out of the catchments were traded to just three MIS – Timbercorp, SAI Teys McMahon and Macquarie Agribusiness (*The Age,* September 17, 2006). The loss of water from areas with genuine farmers is leading to the collapse of water infrastructure, stranded assets and failing communities. There is no compensation for these losses.

Third, 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

Huge managed investment pumping stations on the Murray River.

forcing up water prices in drought times. In other words, today's MIS are tomorrow's water barons.

Fourth, MIS intensive plantings of young trees, which absorb a considerable amount of water in their growth stage over 10-15 years, dry up surface flows and reduce groundwater 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.

It is a contradiction for the Federal Government to insist that it will not subsidise agriculture, asking "Why should taxpayers subsidise farmers?", but then have taxpayers subsidise wealthy city investors in MIS that seriously distort agricultural markets and drive genuine farmers out of business.

Policy 5: Managed investment schemes (MIS) are creating serious ongoing distortions in the commodities and water markets. The Federal Government must urgently legislate to prevent the establishment of further MIS and schemes of a similar nature. To this end, there must be an immediate moratorium on the development of land previously not irrigated.

Fundamental mistake 2:

There is widespread over-allocation of water in the Basin

The federal plan says that $3 billion is needed to buy between 1,500,000 megalitres and 3,600,000 megalitres because of "over-allocations" in the Basin.

This is a gross misunderstanding of water allocations in the Basin. Again, Jennifer Marohasy, in her *IPA Review* article of March this year, identified this misunderstanding, both in terms of actual allocations and conceptually.

In actual terms, "According to the National Water Commission's 2005 baseline assessment, of the 340 surface-water management areas, just 1 per cent is reported to be over-allocated. There are also 367 groundwater management units and, of these, just 5 per cent are reported … as over-allocated.

"In other words, 99 per cent and 95 per cent of our surface and groundwater management areas, respectively, are not currently classified by the Federal Government as over-allocated. These official statistics are difficult to reconcile with the Prime Minister's claims that we have a water crisis because of 'over-allocation'," says Marohasy.

Even more beguiling for farmers is the whole notion of "over-allocation", which has been sold to politicians by green organisations such as the Wentworth Group. "Over-allocation" suggests too many licences for the available water, farmers being starved of water and environmentally-stressed rivers. Conceptually, this idea of "over-allocation" is a flawed concept.

First, irrigation water has been capped at half the Basin's flows.

Second, more irrigation licences simply mean the same water spread across more farmers and hence lower reliability of supply. Many farm industries, particularly cotton and rice, are geared to lower reliability of supply.

Hence, the $3 billion allocated to buy back water licences is wrongly targeted. It fails to understand that many agricultural industries are geared to low-security entitlements, making the idea of "over-allocation" a flawed and misleading concept.

What is more, there is a well-founded fear among farmers that, when the buyback and water savings plans fail to meet their targets, future governments will resort to buying water, or taking water, from farmers. If more water is taken from farmers, water security of entitlement is lowered.

This leads to a major contradiction in the objective of the Prime Minister's federal plan and the National Water Initiative to shift water from low-value to high-value agriculture.

The government considers high-value agriculture to be industries such as olives, grapes and almonds. These trees and vines are permanent plantings requiring high-security water. The failure to deliver adequate water in just one season will see these plants die. Replacement plantings take up to seven years to produce a crop. But the more water that is taken for environmental flows to achieve unrealistic targets and to extinguish licences, the lower the security of supply of water for high-value agriculture. This is the opposite of what is required by permanent plantings.

As Jennifer Marohasy rightly explains, high-value permanent plantings require high-security water, and Prime Minister Howard says that is what his new $10 billion water plan will deliver.

"At the same time, however, the Federal Government claims that it wants more natural river-systems whose [environmental] water-flows mimic the seasons. But if this were the case, [the government] would not devise plans that seek a high level of water security which favour perennial crops. Indeed, in many ways, rice and cotton suit a land of drought and flooding rains."

Clearly, the government and the opposition have based policies on a seriously flawed concept. Furthermore, their policy will deliver the *opposite* of their stated intentions of increasing security of supply. This will undermine their further objective of increasing "high-value" agriculture, while undermining other forms of agriculture more suited to the Basin of drought and flooding rains.

Policy 6. Governments must urgently revise the very narrow and flawed concept of "over-allocation" of irrigation water. They must understand that water allocations have to be understood in terms of security of supply, which in turn is attuned to the high variability of rainfall in the Basin, which in turn determines the most suitable types of agriculture for the Basin.

Fundamental mistake 3:

The federal water plan is to buy huge amounts of water from farmers for environmental flows.

The Federal water plan aims to deliver between 3,050,000 and 4,550,000 megalitres (29 per cent of all irrigation water) for environmental flows. Yet, when the House of Representatives Standing Committee on Agriculture, Fisheries and Forestry scrutinized *The Living Murray* proposal, it strongly rejected the suggestion of 500 gigalitres for environmental flows.

All political parties were represented on the Committee. Its interim March 2004, *Inquiry into future water supplies for Australia's rural industries and communities - Interim Report*, was approved by an 11:1 majority. The committee was shocked by the lack of science behind *The Living Murray* proposal. It issued an urgent call to the Federal government to have the Murray-Darling Basin Ministerial Council, under COAG, postpone plans to commit an additional 500 gigalitres of environmental flows 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.

In order to achieve these objectives, the committee recommended that sufficient funds be diverted from the $500 million in environmental funds allocated to improving the health of the Murray River by the federal and state governments.

The committee noted that when the Murray-Darling Basin Commission 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. Relying on expert panels is no substitute for basic data.

Improving the environmental health of the Murray-Darling 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 such as wet lands and billabongs, and flood effects on the regeneration of flora and fauna;
- instream structures: the siting and management of locks, dams and weirs that 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; and
- the volume of water flows down the rivers in the Basin.

Furthermore, stakeholders along the Murray have a close understanding of the environmental issues and must be more involved in the practical issues of managing the river's health.

After the House of Representatives Agriculture Committee was shown that some of the modeling outcomes, which had been described as providing overwhelming evidence of river degradation, had error factors as high as 90 per cent, it 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?'"

Today, governments have still not done the science to justify environmental flows, yet the federal plan is to massively increase its commitment to environmental flows.

Policy 7. There must be restricted environmental flows during a proclaimed drought, and dilution flows. Urgent priority must be given by the Federal Government to doing comprehensively agreed community-based science of the needs of the Murray-Darling system before there is any commitment to environmental flows.

Fundamental mistake 4:

Governments are effectively privatising water by allowing water-trading to allocate water between rural, urban and environmental uses.

At the heart of the water-trading problem is the attempt to treat water as a "private good", tradeable like other consumer goods, or land, or houses, to the highest bidder, allowing an auction system to allocate water between sectors. Yet, under the NWI process begun in 1994, farmers were never told that a primary reason for water-trading was to make irrigation water "the cheapest source of new water for several cities", as the Productivity Council announced in its 2004 *Review of National Competition Policy Reforms*. Nor were MIS a concern to irrigators until their rapid growth over the past few years.

In reality, in economic terms water is a "mixed good", with different public and private aspects at different stages of its collection and distribution. It is a "private good" when traded on a temporary basis between farmers. However, at the point of collection and allocation to different sectors (agriculture, urban, industrial and environmental), it has major "public good" characteristics. In the case of environmental flows, they are always a "public good", provided by government because the private sector will not provide flows that don't bring a direct economic return.

- Ironically, even Professor Peter Cullen of the National Water Commission, an advocate of permanent water-trading, has been forced to admit that the primary allocation of water requires it to be treated as a "public good". He said that when water is allocated between sectors: "There are political judgments that have to be made. The choice between irrigation, rural towns, Adelaide and the environment is a value judgment which I think politicians are going to be making." (ABC's *Difference of Opinion,* February 19, 2007).

- Indeed, the Prime Minister contradicted his public support for water-trading when he confirmed the "public good" aspect of water in his January 25 water speech, saying: "Before rising to national prominence, Alfred Deakin oversaw the first great wave of irrigation development as Victoria's Attorney-General. Having studied water problems in the United States, he made sure that all Victoria's surface water was public property." (*The Australian*, January 25, 2007. Web version. http://www.theaustralian.news.com.au/story/0,20867,21115813-601,00.html)
- A UN Food and Agriculture Organisation 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. It states:

  "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 [human-centered], 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." (Economic valuation of water resources in agriculture, Kerry Turner et al, FAO, Rome, 2004, Chapter 3. www.fao.org/docrep/007/y5582e/y5582e00.htm#Contents)
- Similarly, a research report for the World Bank also strongly argues that primary allocation of water resources requires decisions by governments. It says:

  "… 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 …

  "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 jurisdiction over all sectors of water use …" (Water Allocation Mechanisms: Principles and Examples, Ariel Dinar et al, World Bank, 1997. http://ideas.repec.org/p/wbk/wbrwps/1779.html)

The fundamental confusion about the nature of water among policy-makers, especially as to how water is allocated between sectors, is at the heart of the irrigators' angst over the National Water Initiative and the federal water plan.

For this reason, the above policies strongly call for a moratorium on permanent water-trading to allow time for policy-makers to clarify the nature of water, then to consult comprehensively with all stakeholders to work out a considered plan for the Basin.

Policy 8: The Federal Government must undertake an immediate public consultation process in NSW, Victoria and South Australia, to cover all aspects of the National Water Initiative (NWI) and National Water Plan and the water impacts of the drought.

The results of the extensive consultation process must be presented to a ministerial meeting, at which key user groups from each irrigation area and region of all three states are to be represented.

Urgent assistance for farmers

Given the severity of this climatic and man-made drought, urgent assistance is needed for farmers in the Basin. Those with permanent plantings set to die off will have no income for up to seven years.

Policy 9: For the immediate situation, the Federal Government must commit to addressing the issues to ensure the survival of the farming sector in the short term. This should include:

- **the waiving of all fixed charges for water and council rates;**
- **financially helping to compensate the states for the consequent service and delivery charge losses, especially fixed annual water charges;**
- **providing low-interest loans and grants for existing farmers to re-establish after the drought; and**
- **a moratorium on development of land previously not irrigated.**

Urgent consultation and management issues

Changes must be made to the operation of the main Basin authorities if future management is to solve the problems that have led to this crisis.

Policy 10: For the future running of the Basin:

- **strong strategic authority must be given to the Murray-Darling Basin Authority to manage the water crisis and engage the previous (retired), credible and knowledgeable water managers who have had long experience in the administration of the Basin;**
- **a new policy plan must include the MDBA overseeing catchment plans and flood-plain management;**
- **the veto power of each state on the Murray-Darling Basin Ministerial Council must be changed to a majority vote so as to safeguard the survival of all industries and towns in each state; and**
- **lateral policy approaches are needed to urgently seek measures to augment next season's water, including :**
  - immediate steps to import from overseas cloud-seeding technology and expertise, which has the potential to add 500,000 megalitres to the Alpine storages next season for irrigation and hydro-electricity;
  - using tankers to ship in fresh water for State capitals from New Zealand;
  - an undersea fresh water pipeline from the Tasmanian highlands to Melbourne;
  - tapping the substantial flow from the Gellibrand River instead of drawing on dry rural catchments for Melbourne's water; and
  - tapping the Great Artesian Basin as a short-term alternative supply.

Appendix 1: Analysis of the 2007 federal water plan

The $10 billion Federal water plan was outlined by the Prime Minister in a speech on January 25, 2007. It has since been adopted by the Federal Opposition and in essence confirmed in *The Water Bill 2007,* which was expedited through Federal parliament with bipartisan support in August. There are two aspects of concern about this policy. First, its anticipated water savings are unrealistic, gross overestimates. Second, the plan is to impose these savings during a period of prolonged drought, with the current year indicating the lowest rainfall and irrigation allocations in the Murray Darling Basin's history. This is adding unbearable, unnecessary burden on an already stress farming sector.

A National Plan for Water Security outlines how the national plan will effect future irrigation allocations. It proposes:

(a) Allocating $6 bn to modernise the Basin's irrigation system to produce efficiency gains in water delivery, on farms, in metering and measuring, and in river and other water storages. The savings are to come from the following:

- $3 bn of federal funds accompanied by $750 m from irrigation for off farm infrastructure, to achieve savings of 1,500gl, split 750gl to farmers and 750gl to the environment. "We will be looking for transformative proposals whereby irrigation distribution systems reach 90 per cent efficiency for water delivery."

COMMENT: District and regional irrigation channels typically are 70% efficient. Efficiency savings in areas of greatest loss could increase possibly to 80%, but 90% is utterly unrealistic given that there will always be some seepage into groundwater beds from channels and evaporation of water is up to 1.5 meters deep per sq meter of channel surface. The only way to achieve higher savings would be to have all irrigation water pipe delivered, but the plan says that piping or lining of all channels "is not economic".

- $1.5 bn for on farm efficiency savings because "up to 20% of water delivered to the farm gate may be lost in on-farm distribution channels" and "roughly 10-15% of water applied to crops is lost through over-watering". Anticipated savings of 1,200gl are to be shared with 600gl going to the environment and 600gl to farmers.

COMMENT: The losses are over estimates and based on falsely believing that flood irrigation wastes water. In fact, studies show that flood irrigation on laser graded land, properly applied at the right time to the right crops is less wasteful than other forms of irrigation. This aspect of policy fails to account for the many hundreds of millions of dollars farmers have already invested in water saving irrigation methods – including laser grading of land, use of lateral and centre pivots and subsurface drip irrigation – at their own expense, often on the advice of government authorities. These water savings measures can cost farmers $4,000-$6,000 per ha. Hence, the anticipated savings are again gross overestimates.

- $225 m (matched by irrigators) to be invested in accurate water meters, to "save" 700gl to be taken for the environment.

COMMENT: Most on farm water meters are Dethridge wheels, which on average delivers about 10% more water to farmers that their entitlement. Hence a farmer with a 500mgl entitlement, will typically receive up to 550mgl to the farm gate. Farmer's have geared their farming practices to this delivery. The water received is their share of the total bulk entitlement for the region or district. Taking this extra water from farmers is effectively part of the profit margin from their farms. This is not a "savings" to the system, but a loss of part of the farmer's water right and a serious economic loss to the farmer.

- $500m to "improve the efficiency and effectiveness of river operations and storages" to save 500gl to go to the environment.

COMMENT: Again this is an unrealistic estimate of savings in the Basin.

In summary, the $6 billion to modernise the Basin's irrigation system aims to deliver:

- 2,250gl in water savings to governments for environmental flows;

and

- 1,350gl in notional savings to farmers.

In all likelihood, the Federal Government will try to obtain its full quota for the environment. This is reasonable to assume given that, when the Federal Parliamentary Agriculture Committee reviewed the science of *The Living Murray* and recommended in its 2004 interim report that there be no environmental flows until comprehensive scientific studies of the Murray Darling Basin were completed, the Federal government ignore the recommendations and proceeded with finding 500gl for environmental flows.

On the other hand, farmers would be lucky to receive 10 per cent of the promised 1,350gl in savings, because the targeted savings are gross overestimates of what the system is capable of delivering.

(b) Another $3 bn is "to adjust water entitlements in the Murray-Darling Basin". This $3bn is to buy back water entitlements to either extinguish licences or for environmental flows. Six months ago, when priced at about $830/mgl, $3bn would have purchase about 3,600gl, and would likely do so again in a normal season. However, at current drought prices of about $2,000/mgl, these funds would purchase about 1,500gl from irrigators.

(c) It is unclear if the purchases of another 500gl for *The Living Murray* scheme is separate from, or to be included in, the new federal plan.

SUMMARY: How much will the government take from irrigation agriculture?

While the targeted savings in the federal plan are unrealistic, in theory, if the plan did take 2,250gl (see (a)) plus 1,500gl (see (b)) away from irrigation agriculture, minus a small savings return to farmers, it would result in *about* 3,500gl net being removed from irrigation farming. Although, if *The Living Murray* purchases are not included in the federal plan, then another 500gl would be added to volume bring removed from agriculture.

In economic terms, indicative figures suggest losing 3,500gl of irrigation water would cost $7 billion at the farm gate (1 megalitre on average produces $2,000 on a farm) and a staggering $28 billion across the Basin's communities (total economy benefits average four times the farm-gate value).

If achieved, this would cut food production, force up food prices, drive up inflation and wipe 2.9 per cent off Australia's GDP.

Appendix 2: Water Trading involves serious market failure, because markets fails to capture the true value of irrigation water.

Governments have claimed that when permanent water is traded for up to $2,200 per megalitre –from farmers to towns, cities or governments wanting water for environmental flows – this water is being traded from low to high value use. This is false reasoning, water does not behave in the market like other goods. The price of irrigation water does not reflect its true value.

The real value of irrigation water is close to $8,700 per megalitre. Would cities or governments pay $8,700 per megalitre, four-to-seven times the market price, for town use or environmental flows? This would mean that providing water to urban consumers would be about $8.70 per kilolitre, about nine-times the current cost of about 90¢ per kilolitre. Governments would far more likely build more desalination plants to provide water at $1.60-$1.80 per kilolitre, or undertake recycling or build new dams.

The problem with water trading from irrigation to other uses is that this trade does not capture the real value of water. What governments have failed to understand is that water is not a *private good,* where the market price capture the real value of the product when it is bought or sold.

Rather water is a *mixed good,* with both *public good* and *private good* aspects. Trading a mixed good does not capture its real value. For example, trading permanent water out of a region involves trading water:

- from the farmer;
- from the regional bulk entitlements;
- away from regional on and off-farm local infrastructure that has been geared to the bulk entitlement; and
- from the regional industries dependent on farm production.

It doesn't capture the value of other farmers being force to shut down when their assets are stranded along irrigation channels that are no longer viable after 30-to-50 per cent of the water has been traded out of the channel. It also fails to capture the external environmental value of water to the area, for example, the value of wildlife dependant on irrigation channels.

Water markets only capture the production value at the farm gate, not these other economic losses. It is only by measuring the economic value of these losses that a true value can be put on water.

Currently, government agencies are buying permanent water entitlements from NSW general security irrigators for up to $1,200 per megalitre and Victorian high security water for up to $2,500 per megalitre. These prices are well above normal, due to the drought causing a shortage or water.

The following are indicative figures, but they measure the main costs of trading a megalitre of water out of a region.

Value of water at the farm gate, on average	=	$2,000
Value of product into the economy: farm gate value x 4	=	$8,000

These are annual losses i.e. the loss in perpetuity of an income stream, or a measure of the extent to which the local economy contracts permanently. Water traded from a Murray Darling Basin farm turns land that can be highly productive in grapes, citrus, horticulture or dairy into scrubland running one sheep per 5-10 acres.

In addition there are on and off-farm capital infrastructure costs that are a one-time loss in value. On-farm, the average infrastructure cost – of irrigation channels, laser grading of land, use of lateral and centre pivots and subsurface drip irrigation – is $4,000-$6,000 per hectare, say an average of $5,000 per hectare. Farmers on average apply 7 megalitres per hectare each season, which allows them to make further farm production possible. Hence:

Value of on-farm infrastructure behind each megalitre	=	$5,000 per hectare / 7 meglaitres per hectare
	=	$714 per megalitre
Then there is the value of off-farm infrastructure, including, regional channels, system regulators, etc, which cost about	=	$40-50 per megalitre (say $45)
Hence the value of water lost to the economy is: the recurrent economic loss + loss of on farm infrastructure + loss of off-farm infrastructure	=	$8,000 + $714 + $45
	=	$8,759/megalitre (say $ 8,700)

This calculation does not consider the fact that as water is traded out of a region, services in local communities wind down to a certain point where the loss of a critical mass causes an implosion of infrastructure and services. Schools, hospitals, banks and farm support and downstream processing industries close down. For this reason, water has to be seen as fundamental to production as land, labor, capital and energy.

If water was priced at $8,700, most city, government and industry buyers would look to alternatives sources rather than buying water off farmers.

The fundamental failure of the National Water Initiative, of policy advisors and governments has been that they have not grasped the nature of water. They have tried to treat water as a *private good* – to be traded like cars, clothes, food and other items the normal market place. They have failed to understand that water, as a *mixed good* (with some *pubic good* and some *private good* characteristics), the market grossly undervalues the real value of irrigation water to the economy, and so underestimates the damage water trading to the economy. In other words, applying cost-benefit analysis to water use when the market price is say $2,000 per megalitre, fails to capture the true cost of the water being lost from an irrigation region.

If the national water plan is pursued to its full target of 3,500,000 megalitres of water for environmental flows, use the true annual cost figure to farming will cost the Australian economy $28 billion in lost production annually. That does not include the loss of billions of dollars of investment in on and off-farm infrastructure.

Other water is being traded to cities. Here, governments have failed to balance the cost of trading water from food production to cites for flushing toilets and watering gardens.

Other water is being traded to managed investment schemes (MIS), where water is traded from farmers operating on market forces to corporate farms operating not on market forces but on large tax concessions to wealthy investors. In some cases, when water is traded from say dairy farms or horticulture or sugar cane farms to MIS tree plantations. This is water being traded from high to low value agriculture, the opposite to the government's intention.

Appendix 3: Why a Weir at Wellington is needed to save evaporation losses in the lower lakes

In normal seasons, up to 1,000,000 megalitres are lost in evaporation from the lower lakes of Alexandria and Albert from the normal allocations to South Australia under the Interstate Water Sharing Agreement.

In the current 2007 situation, the interstate water sharing agreement has been suspended and SA has received reduced flows. Therefore, some are claiming that water savings from building a weir at Wellington would be minimal as currently there is little water being released over Lock 1 into the lower lakes to evaporate; and when there is a return to normal season then the weir will not be needed anyhow.

These comments are over simplifications that miss the point.

Under a number of scenarios below, there is a risk that if there is one relatively normal season over the next few years that the Inter-state Water Sharing Agreement will be *prematurely* restored This would mean that normal flows to SA will be restored and that the losses of 1 million megatlitres pa will begin again, before it is clear that the drought is actually over or before the main storages are sufficiently replenished to restore reasonable irrigation allocations again.

First, it must be realized that during this current drought sequence, South Australia has had more than its regular entitlement delivered over the border. The exceptions have been:

- for 2006-07 when it received 1,470 gigalitres, ie 79% of the 1,850 gigalitres entitlement; and
- after the resource has been needlessly squandered over several years, this year (2007-08) the Interstate Agreement has again been suspended and supply to SA reduced so as to ensure supply to all three States for urban, stock and domestic, and critical needs to industries with permanent plantings that require long lead times to re-establish.

Therefore, despite the recent extended dry period, in some recent years huge amounts of water have been released into the lower lakes only to evaporate, while farmers and regional towns throughout the Basin have been suffering. Had there been a weir at Wellington such that 1 million megalitres a year had been saved cumulatively in the system in recent years, the Basin would not be facing a massive die off of permanent plantings this season.

Second, even if the current extended dry period ends and the Basin returns to normal seasons, the major reservoirs could take a number of years to reach reasonable capacity. It has been so dry that one season of normal rain will see well below normal season inflows. Again, a weir that saves a million megalitres a year will replenish the reservoirs much faster, hastening the return of agriculture to normal irrigation allocations.

Third, nobody knows how long the drought or the extended dry period may continue. One normal season will neither fill the reservoirs nor necessarily signal a return to normal seasons. During the 1938-45 drought, 1939 was a well above normal wet season year, while the following years returned relatively dry. Again, a Weir at Wellington is critical to replenishing the Basin's upper storages, Hume and Dartmouth. By storing as much water as possible from one normal rainfall year, rather than evaporating in the lower lakes, provides otherwise lost water to irrigation agriculture in subsequent years.

Building the weir

The building of a weir at Wellington should be seen as a national issue, not a state issue. When the Dartmouth Dam was built, the Inter-state Water Sharing Agreement was altered in favour of South Australia. It guaranteed South Australia's flows, with the upper states sharing the remainder. However, the altered agreement did not take into account the protracted drought sequence currently being experienced, which is following the pattern of the Federation drought and the drought of the 1930s and '40s. This drought has unnecessarily destroyed large segments of rural industries in the upper states and is now putting at risk permanent tree crops and vines in three states.

The Wellington weir must be constructed as a Federal-three-states initiative, not just a South Australian initiative.

When the Weir is in place, in a future nominated drought period, the water sharing agreement must be suspended. South Australia should receive all its essential needs for Adelaide, other urban and stock and industry needs plus all irrigation needs, including piped water for irrigation and urban needs downstream of the weir. This should come to around 700-800 gigalitres.

All savings above this should be retained in the upper storages and be utilized to secure the survival of the industries in all states, during the drought sequence.

The precedent for suspending the agreement has been made during the current drought, in order to secure town, stock and domestic and critical industry needs. This means that even when the Weir is in place, the agreement must still be suspended in a nominated drought to secure the survival of rural industries in the three States.

The normal Inter-state Water Sharing Agreement should be reinstated as soon as the drought is over.

In addition to this measure there must be a re-focus by governments towards the building of new dams, such as Murray Gates, in order to provide additional back-up security storage, so that there is no repeat of this current fiasco.

These measures would be much more cost-effective than having government providing survival welfare to farmers and funds for the re-establishment of rural industries.