


Lonsdale-Based Adelaide Desalination Plant



Millennium Drought & SA River Murray Crisis

The Consequences for South Australia – Avoidable

Lonsdale-Based Adelaide Desalination Plant - Preventable

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<http://civictrust.net.au/page19.htm>

1


Select Committee Hearing : Adelaide Desalination Plant *30th June 2011*

Twenty-years of water reform, led by Canberra, failed South Australia when it counted the most, during the Millennium Drought. What happened was un-Australian. It was driven by market greed once water was finally converted into a commercial commodity. To avoid public scrutiny, it was given away for free to irrigators by state water allocation plans to allow their trade to the highest bidder.

WAC further asserts the crisis in South Australia's section of the River Murray was avoidable by better demand management by governments. The problems began in the late 80s and continued to compound as water reform or better called water privatisation progressed.

The contract to build the Adelaide Desalination Plant was framed in a "climate of crisis" created by the Rann Government as it went along with the flow and the National Water Initiative. This in turn was reflected in the Adelaide Aqua contract and the need to build the plant as quickly as possible. The debt created as a consequence has been used to justify further privatisations and austerity measures to cut wages and conditions of the public service. A significant opportunity to save Adelaide Coastal Waters has been lost and will be made worse by the toxic pollution from the desalination plant.

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**Topics**

- ◆ Some History
- ◆ What Happened During Millennium Drought
- ◆ Conclusions
- ◆ Recommendations

(Capacity of Adelaide Desalination Plant is 100 GigalLitres or 100,000 Megalitres)

2

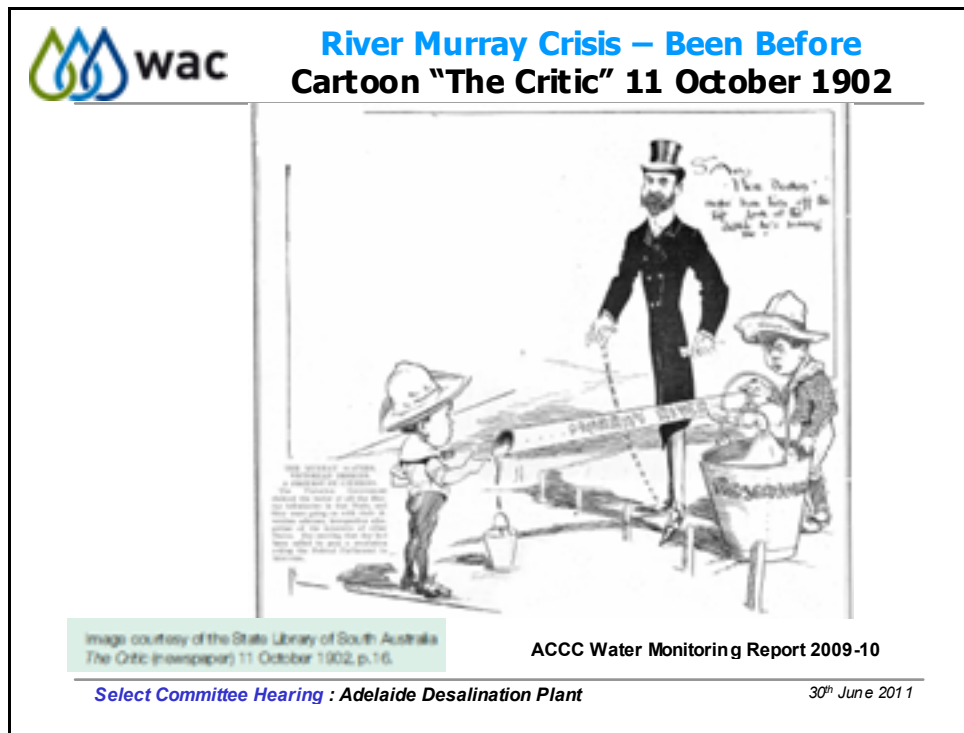
Select Committee Hearing : Adelaide Desalination Plant 30th June 2011

During the drought both the Howard and Rudd Governments failed to prevent the disaster. Beginning with the Bannon government, successive South Australian governments went along with the flow of water reform and the COAG reform club. In 2007 flows to South Australia fell significantly below our Minimum Entitlement of 1850 GL.

Calls for a "State of Emergency" by the "The Advertiser" in July 2008 went unheeded. An Interstate State of Emergency in the basin should have been called when a dredge was required to keep the Murray Mouth open.

Note that since the floods, flows over the border into South Australia have ranged up to approximately 90,000 megalitres or 90 gigalitres per day! Flows are currently around 20,000 megalitres per day. The Adelaide Desalination Plant is only capable of producing 270 megalitres per day when fully operational.

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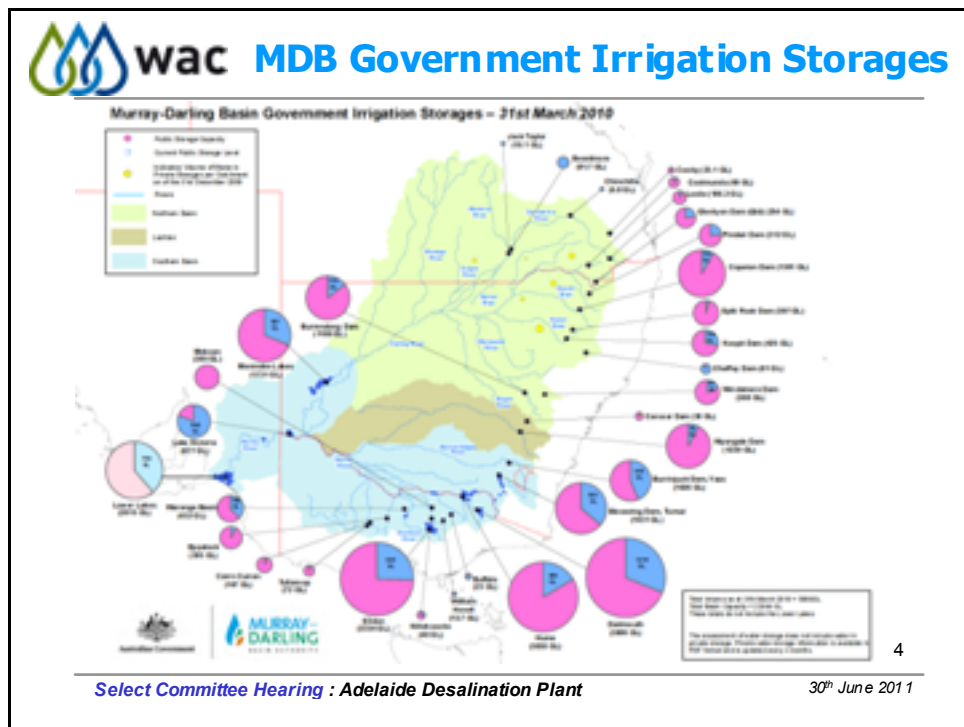


Of course we have been here before, the problems of early irrigation were investigated by the 1902 Interstate Royal Commission which led to the system of regulation in the River Murray.

This process has not yet been repeated as private economic interests are being put before the common good. As a consequence, the government has lost its mojo. Fragile environments continue to be put at risk; by desalination plants, stormwater, waste water, marinas and deep water ports in South Australia. I would not be at all surprised if the damage to the marine environment from these sources far exceed that of recreational anglers.

According to Peter Ralph of UTS "Seagrass meadows, mangroves and salt marshes have recently been identified as some of the densest carbon sinks by area. They store five to ten times the carbon held in tropical forests and they hang on to this carbon for very long periods of time. "It is estimated that seagrasses cover 5,000 km² of the sheltered waters of Gulf St Vincent." They are one of this state's treasures that should be preserved at all costs.

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There are 65 major storages and 600,000 private dams in the basin.

They are capable of diverting one and half times the average flow of every river.

In addition there are 25,560 km of irrigation supply and drainage channels.

Total public storage capacity is 22,664 GL.

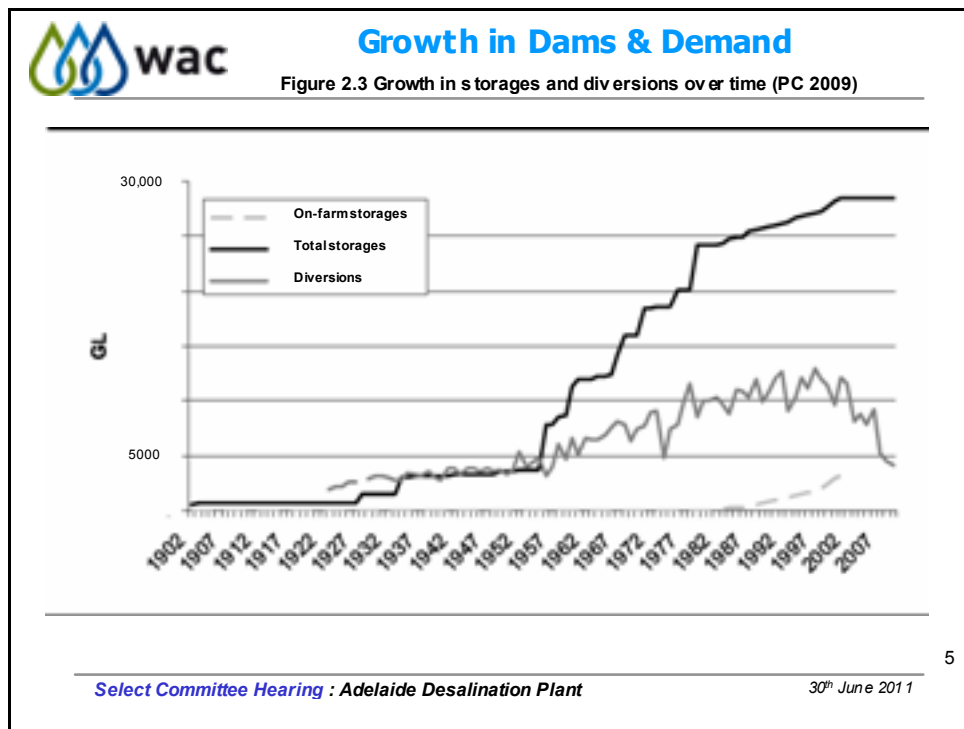
If an Olympic size swimming pool was this volume, the Adelaide Desalination Plant would be a very expensive 11,000 litre rainwater tank!

Dams were established to drought-proof or rain-proof the basin.

These storages currently hold 83% or 18,361 GL.

It would take the Adelaide Desalination Plant 184 years to produce this volume of water.

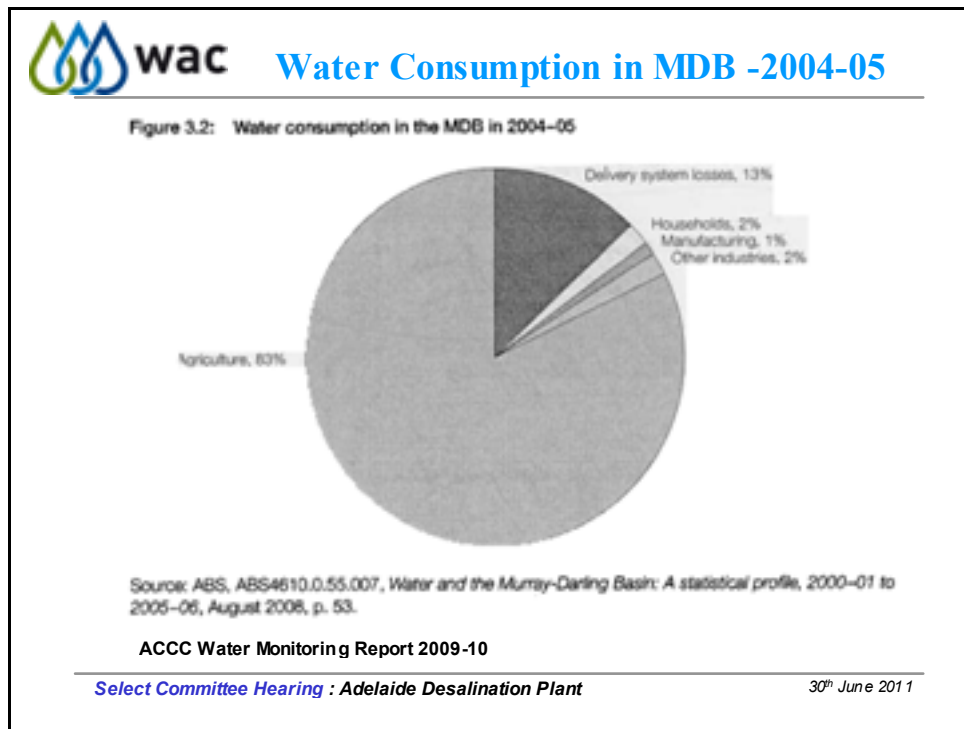
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Diversions from the Basin increased 331% from the 1950s to 2000.

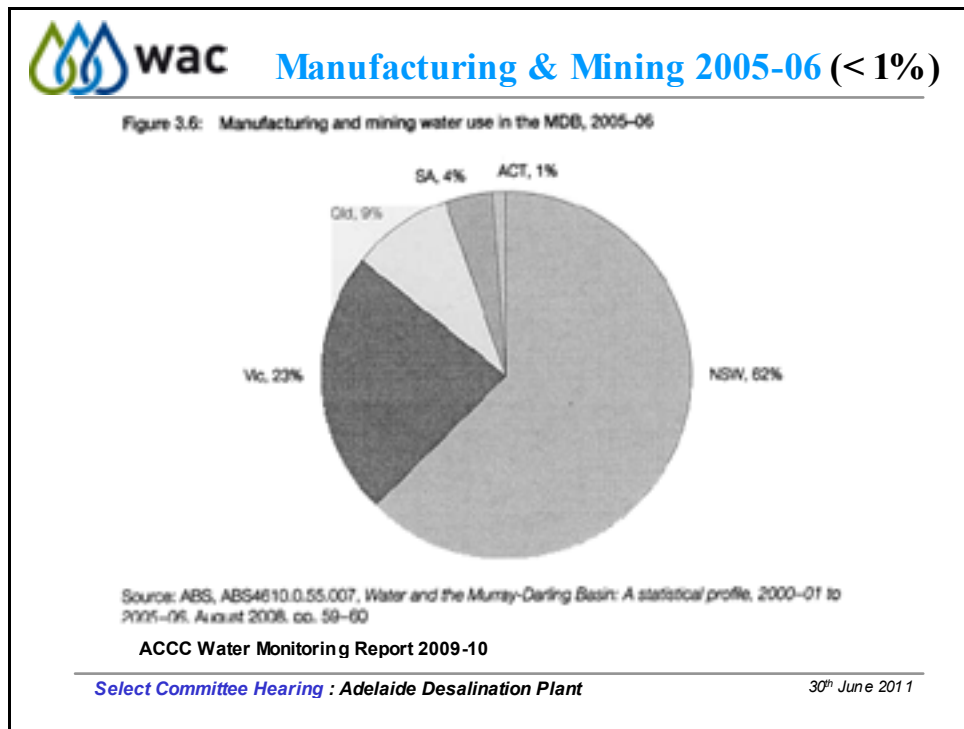
It is also clear the Interstate Royal Commission of 1902 served South Australia well for most of the last century until economic rationalism arrived.

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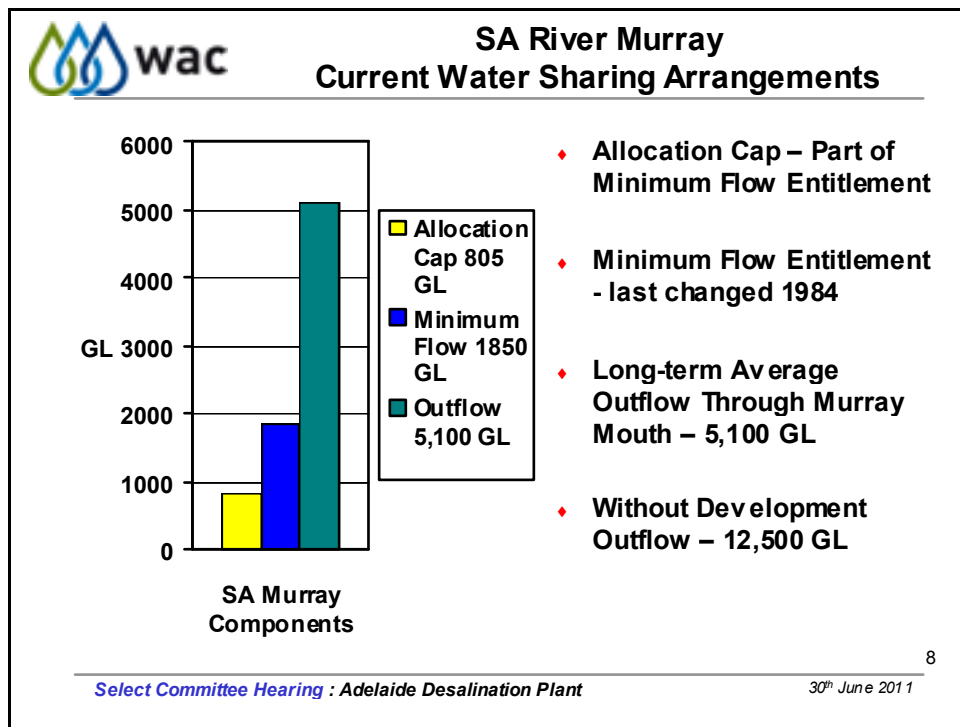
In 2004-05 households consumption from the basin was 2%, or 189 GL of the basin consumptive water resources, industry 1% and agriculture 96% including losses.

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In 2005-06 manufacturing & mining used less than 1% of water of the basin consumptive water resources. Of this amount NSW used the largest proportion.

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The Minimum Entitlement of 1850 GL maintains water level from the border to the barrages. Included is a diversion cap of 805 GL. The cap was a result of the 1967/68 drought and in modern terminology, South Australia already has a Sustainable Diversion Limit designed around drought conditions.

Former Minister Maywald increased the cap for irrigation by 76 GL in 2008 the same year the 50 GL Adelaide Desalination Plant was announced.

The average outflow of 5,100 GL is what should be happening under current water sharing plans.

This needs to become a regulated outflow.

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wac		SA River Murray Water Allocations July 2008	
Water Use Purpose	Allocations of Water (GL)		
Irrigation	554.0	(68.9%)	
Industrial	4.2	(0.52%)	
Stock and Domestic	6.8	(0.84%)	
Recreational & Environmental	22.9	(2.8%)	
Metropolitan Water Supplies	650 (over a rolling five year period) i.e. 130 GL five year average (16%)		
Country Town Water Supplies	50.0	(6.2%)	
Wetlands	15.8	(2%)	
Environmental Land Management	21.3	(2.7%)	
TOTAL	805		

Select Committee Hearing : Adelaide Desalination Plant 30th June 2011 9

The cap in South Australia for urban water is 180 GL and 554 GL for irrigation.

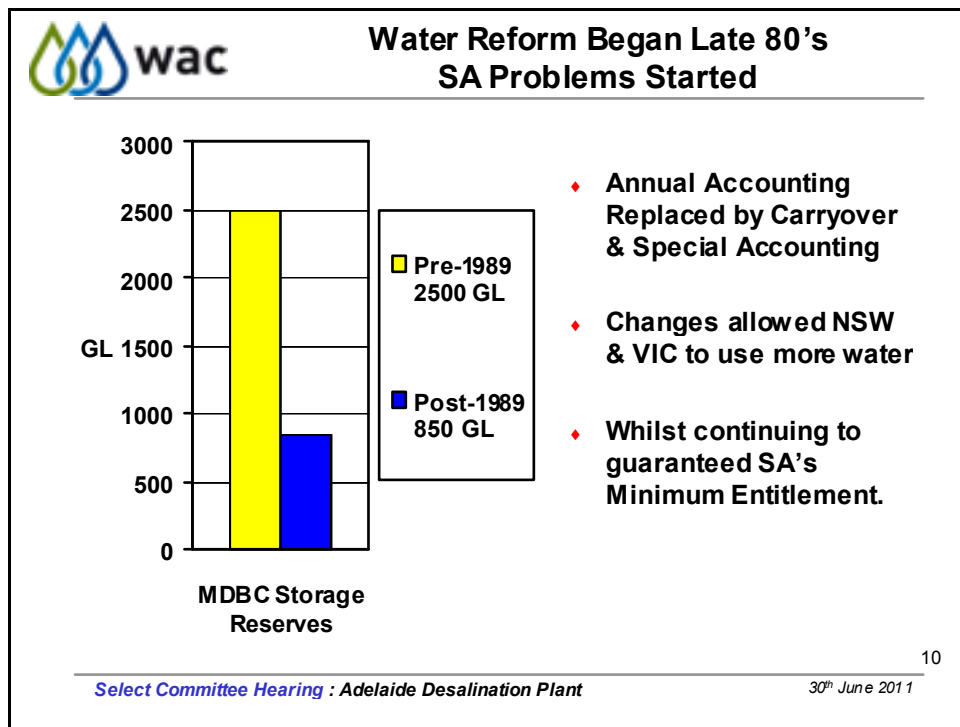
The majority of water is piped. The scale of the efficiency of water use is unmatched by the eastern states.

The cap is also a barrier to water trade.

The Basin Guide makes no commitment to its continuance.

South Australia's long-standing conservative approach to water management is at significant risk from water reform.

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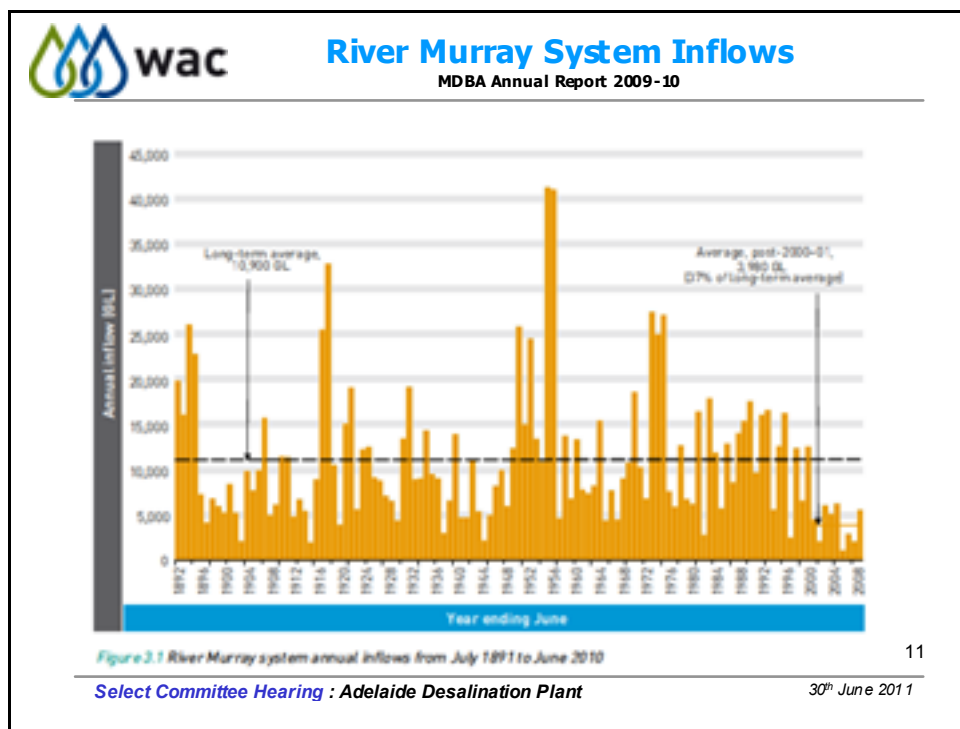
In 1989 the Bannon Labor Government agreed to reduce the storage reserve designed to safe-guard South Australia's Minimum Entitlement. This reserve was reduced from 2,500 GL to just 850 GL to allow upstream states to use more water, and they did.

Carryover allows upstream irrigators to keep unused water allocations, particularly for those growing annual crops vs permanent plantings.

This turned public water storages into private water banks.

Privatisation of water is taking place by unbundling water licenses from land to allow their trade by state Water Allocation Plans. These plans are subject to the approval of the Minister for Water and become statutory documents once approved.

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Severe droughts and major floods are routine in the Basin, it is not climate change but climate variability.

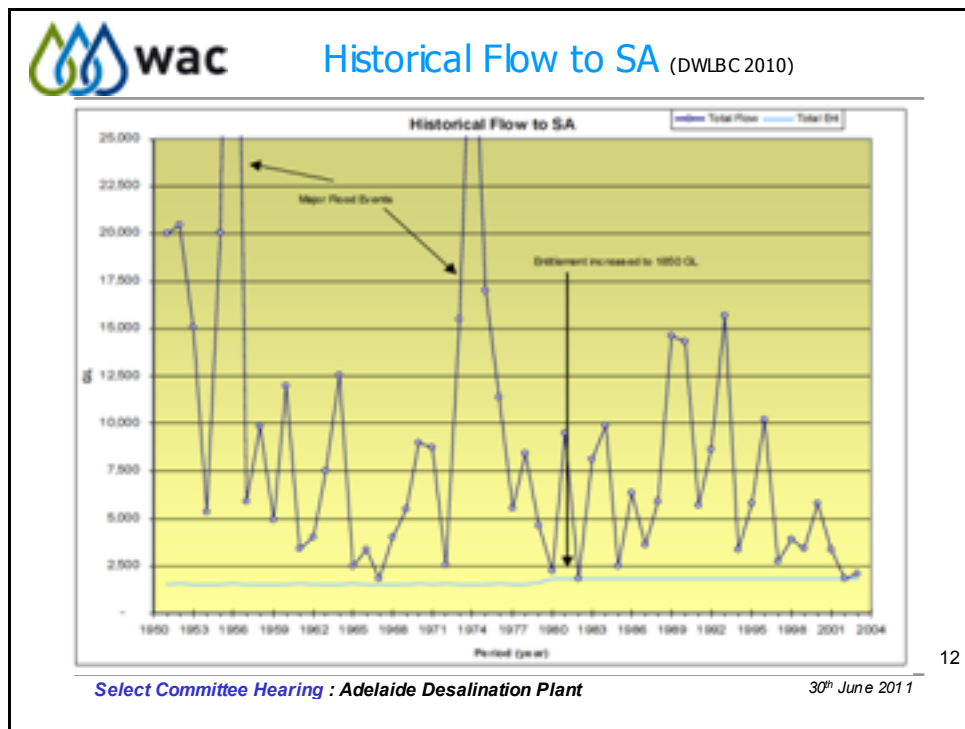
Inflows can range from a few thousand to 40,000 GL.

They began to trend down in 1996. Post 2000 the average inflow was 3,900 GL.

Designing consumption around long-term averages misrepresents the true picture.

Above average flows occur only 34% of the time because major flood events creates significant bias in the statistic. Such statistics should not be used. The use of long-term averages are mandated in the Commonwealth's Water Act of 2007.

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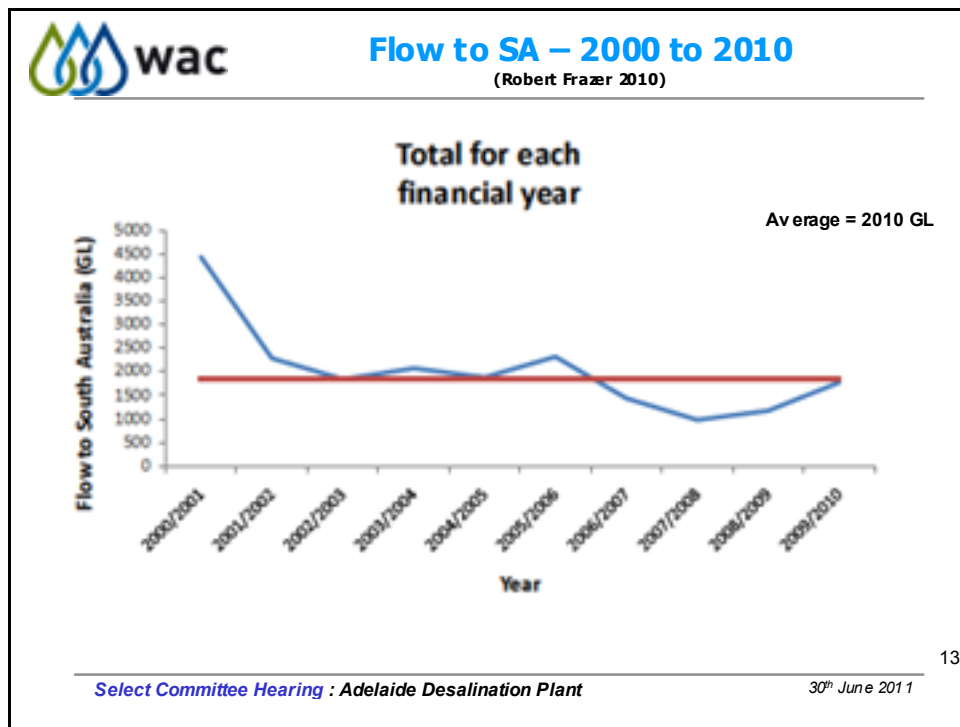
12

Since the 1990s the trend of in-flows to South Australia began to trend dramatically down.

First to go was the unregulated flows through the Mouth.

By 2003 all that left was South Australia's Minimum Entitlement, the blue line at the bottom of the graph.

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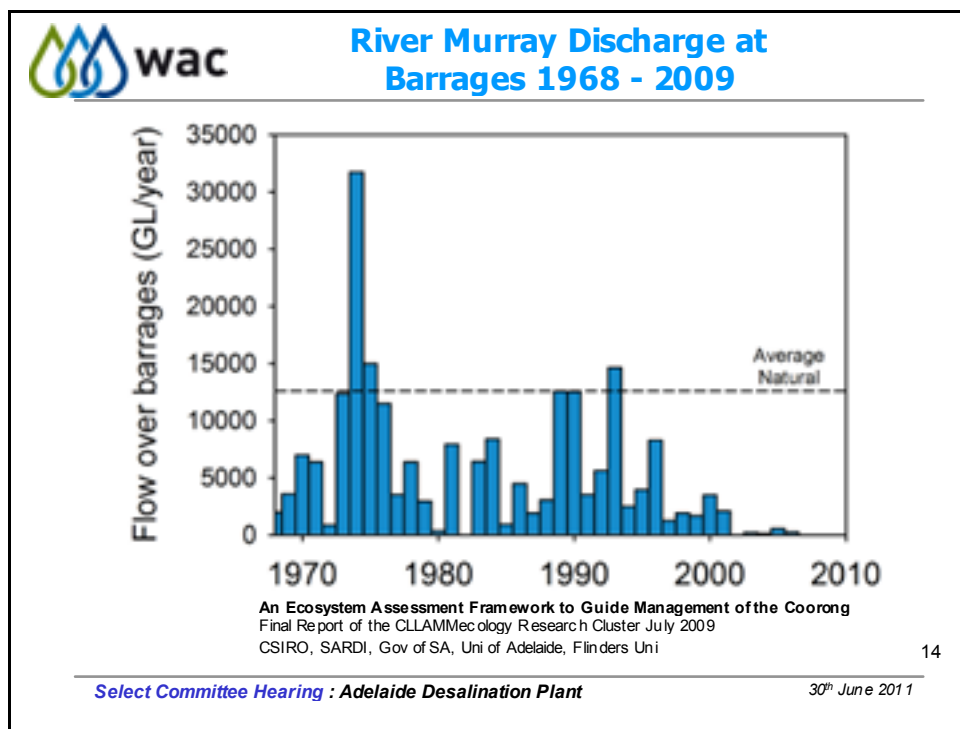


The flows below 1850 GL caused South Australia's crisis.

They were used to justify the interventions in the River Murray, the 100 GL Adelaide Desalination Plant and the Langhorne Creek Pipeline. This pipeline, which as tradition dictates was mostly paid for by public money of upwards of \$100 million, was then given away to the Creeks Pipeline Company Ltd for them to operate and benefit from. This was done to establish a further component of the new private water industry being planned by the Rann Government without the approval of the South Australian people.

The average flow during this decade of 2010 GL shows we could have survived by careful flow management.

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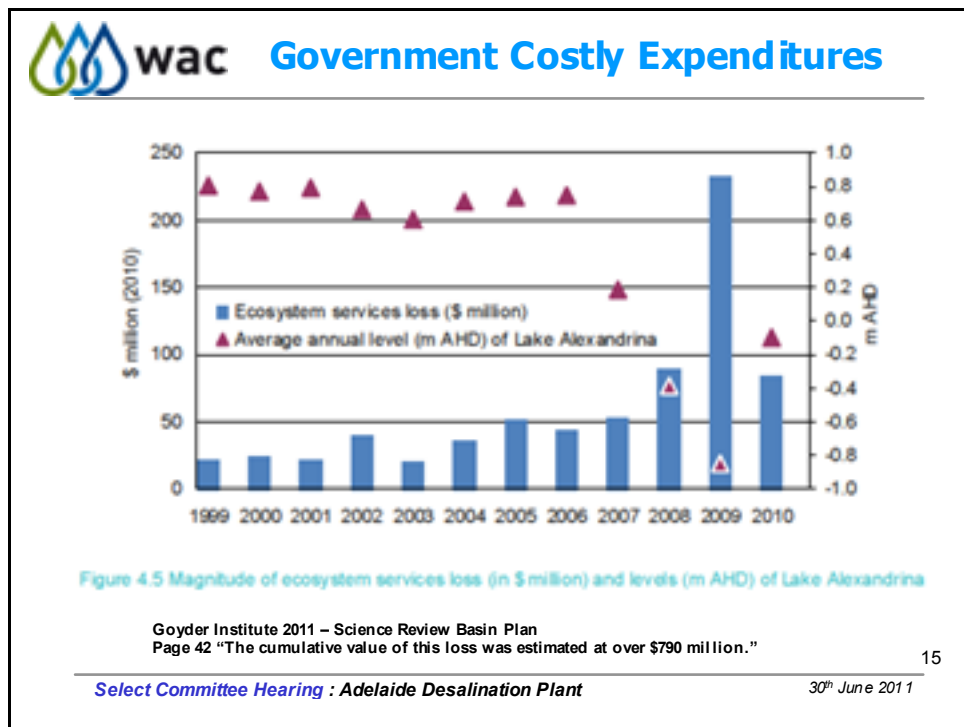
The bar graph of discharges through the Barrages illustrates the impact of bias in water sharing plans vs. the environment. This bias has been in place since 1895.

The river's share of water can fall to 20% during severe droughts and rise to 80% during major floods.

Significant problems are created when there are persistent years of low flows as occurred during the Millenium Drought.

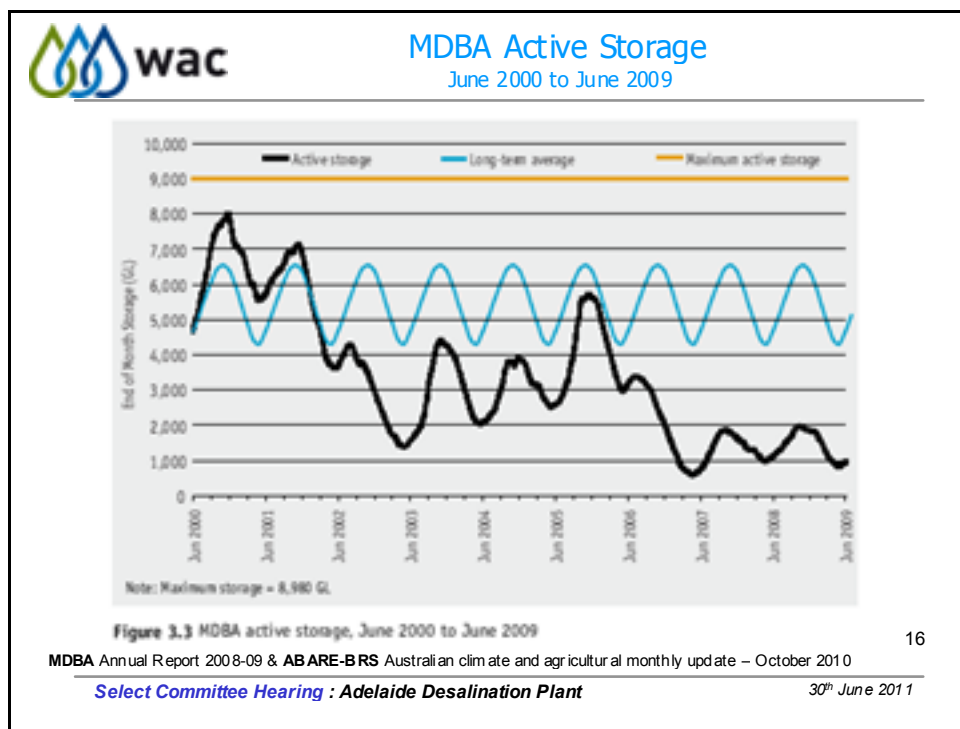
This is not the fault of irrigators but the fault of Governments who failed to adequately manage the appropriation of water.

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This is a graph from the recently released Goyder Institute report which reviewed the Basin Guide for implications on South Australia. The total amount of these costs, which are detailed in Table 4.2 of the report amount to \$791 million and do not include costs associated with building the Adelaide Desalination Plant. Quoting from the report "These ecosystem service losses may have been significantly reduced had the system been provided with base and environmental flow requirements."

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Between 2000 and 2007, significant draining of basin storages took place.

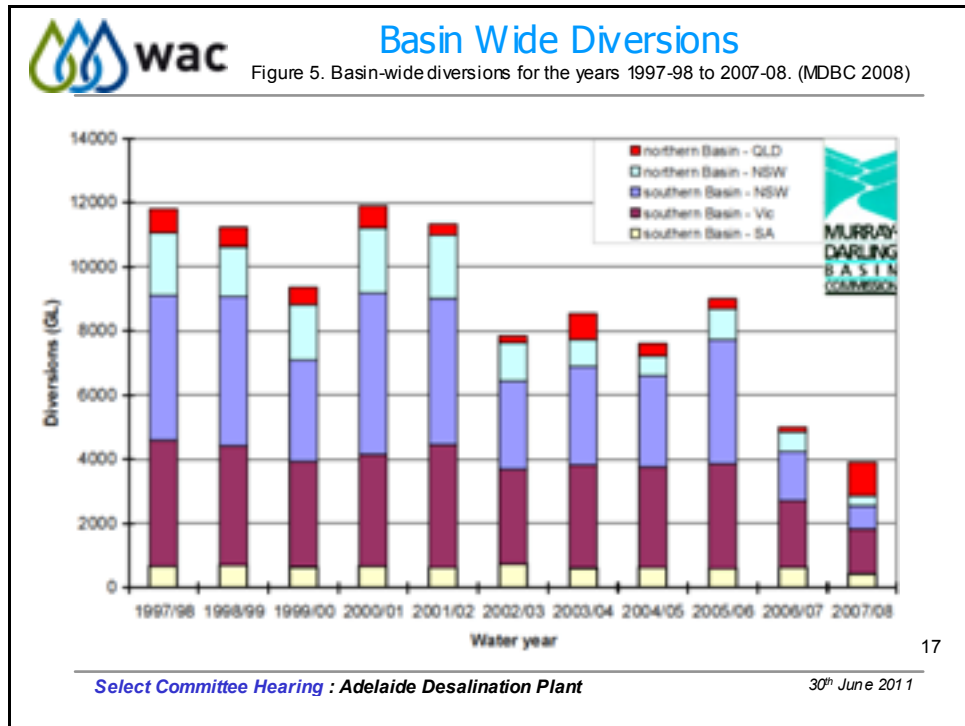
Public storages went from a record high of 13,900 GL in 2000 to a record low of 500 GL by 2007.

Quoting from a May 2006 New South Wales government document:

"Typically, NSW makes as much water available to licensed water users in any year as is available to the State, within the limits of the Murray-Darling Basin cap. This maximises water use in any one year but means that NSW maintains minimum water reserves for the next year. This is a deliberate policy of NSW that ensures that it is the decision of the individual user whether to use water or not to use the water they are entitled to, trade the water or save some to carry-over into the following season."

This was clearly not designed for a sustained drought or to meet its obligations to ensure sufficient flows to South Australia.

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Given the scale of basin wide diversions, it is clear the reduction of inflows which began in 1997 were ignored.

South Australia's share of diversions is the yellow bar at the bottom of the graph.

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Statistic		2005/06	2006/07	2007/08	2008/09
Flow to SA (GL)		231 1	1433	973	1170
Difference vs. 1850 (GL)		461	-417	-877	-680
Basin Wide Diversions (GL)		9,228	5,260	4,514	4,119
Irrigation Allocations SA (%)		70 - 100	80 - 60	4 - 32	2 - 18
Total Temporary Water Trades (GL)				1,231	1,883
Snowy Borrows (GL) (Total 2002/06= 795 GL)		273			
Water Diverted for Cotton, Rice, Cereals, Pasture (GL)		6,179			

Select Committee Hearing : Adelaide Desalination Plant 30th June 2011 18

Total surface water diversions between 1997 and 2009 totalled 104,680 GL. **Our share was 6%. Just 1.7% of this water would have prevented South Australia's disaster.** Urban users were put on water restrictions. Irrigators allocations were cut but there was no restrictions on what their water could be used for. Most is used for export. The failure and consequences for South Australia were spectacular and exceed the State Bank Disaster in terms of the total economic, environmental damage and social costs. Murrumbidgee irrigators were allowed to borrow 795 GL from the Snowy. Diversions for cotton, rice, cereals and pasture amounted to 11,766 GL in 2004 to 2006 alone. Just how much irrigation water was used to support the live cattle, sheep and cow trade for example while South Australians were made to suffer? During the depth of the drought the highest average price for temporary water in 2008-09 was 37 cents per kilolitre. 100 GL of temporary water would have cost South Australia \$37 million. It is now worth 2 cents per kilolitre i.e. \$2 million for 100 GL. 100 GL of permanent high reliability water would have cost \$310 million. What Government in their right mind would build a 100 GL Desalination plant at a cost of \$1.8 billion with operating costs of \$200 million per year when water was availability from the basin?

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		MDBA Irrigated Farms Performance 2005 – 06			
		No Businesses	Water Applied GL	GVIAP \$m	<i>GVIAP</i> \$/kilolitre
GVIAP Gross Value of Irrigated Agriculture Production	Cereals	1,714	624	180	0.29
	Hay	4,159	649	161	0.25
	Cotton	638	1,574	798	0.51
	Rice	1,055	1,251	274	0.22
	Other broadacre crops	490	118	np	np
	Fruit & Nuts	3,116	413	1,011	2.46
	Grapes	4,845	515	721	1.40
	Vegetables	1,062	152	555	3.65
	Nurseries, cut flowers & turf	426	12	150	12.31
	Diary	3,170	1,028	901	0.88
	Meat cattle	6,181	554	593	1.07
	Sheep & other livestock	3,422	439	143	0.83
	Totals	18,634	7,370	5,522	0.75

19

Select Committee Hearing : Adelaide Desalination Plant 30th June 2011


In 2005-06, 18,634 irrigation businesses used 7,369 GL of basin water.

The gross value of their production averaged 75 cents per kilolitre of water used.

Those who used the most water earned the least.

Almost the entire Australian cotton crop is exported as virtual water, with little local value adding.

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		Industry Water Consumption Figures Sourced MCA Submission to NWC		
		Industry	IGVA (\$m)	Water Consumption (GL)
IGVA Industry Gross Value Added	Forestry and Fishing	\$2,347	51	\$46.02
	Mining	\$64,223	413	\$155.50
	Manufacturing	\$99,688	589	\$169.25
	Water Supply	\$7,407	2,083	\$3.56
	Electricity and Gas	\$14,444	271	\$53.30
	Other Industries	\$577,333	1,059	\$545.17

20

Select Committee Hearing : Adelaide Desalination Plant 30th June 2011


Irrigation is a poor cousin when compared to the economic efficiencies of other industries and Australian households.

In 2005/06, the Australian median household earnings per kilolitre of water used was \$221 per kilolitre.

The consequences of not using water from the Basin makes neither economic or environmental sense when the alternatives are desalination plants.

The water for BHP Billington's Roxby Downs project should come from the basin or by piping recycled waste and stormwater from Adelaide, perhaps a new role for the Adelaide Desalination Plant?

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 MDB Water Entitlements Market						
Table 3.2 Tradeable water entitlements on issue, 2007-08 (PC 2009)						
Regulated systems			Unregulated systems		Groundwater	
	Number	Nominal volume (GL)	Number	Nominal volume (GL)	Number	Nominal volume (GL)
NSW	10 401	8 464	1 345	110	2 867	1 004
Victoria	37 260	3 550	7 704	162	6 236	490
Queensland	10 893	3 142	1 018	349	369	76
SA	3 703	980	223	1	5 719	215
ACT	27	64	0	0	114	1

Source: NWC (2008).

Total Regulated 16,200 GL; Total Unregulated 622 GL; Total Groundwater 1,786 GL

SA Share Regulated 6% Unregulated 0.2% Groundwater 12%

Select Committee Hearing : Adelaide Desalination Plant 21

30th June 2011

Tradable water entitlements on issue of 16,200 GL were originally granted for free by State Governments as they were a license to use water. They are now being given away for free again to create the new water market which allows anybody to purchase our water.

South Australia holds just 6% because it capped diversions in 1967/68. In the scheme of things, South Australia deserves more water for consumptive use and more reliable environmental flows.

During the drought, diversions ranged from 12,123 GL in 2000-01 to a record low of 4,119 GL in 2008-09.

Clearly, significant quantities of these entitlements are worthless and need to be cancelled by the States. A significant amount of the water being purchased by the Commonwealth is common water vapour (air space).


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This is a picture of a broadacre farm being converted to grapevines on the Gomersal Road Tanunda in 2008.

What Government in their right mind would allow the conversion of a viable dry broadacre farm into irrigated vineyards during one of the most protracted droughts in history?

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**Conclusions**

- ◆ **The River Crisis in South Australia was avoidable**
- ◆ **No Need to Build Adelaide Desalination Plant or BHP Billington Desalination Plant in Upper Spencer Gulf**
- ◆ **Systemic failure in governance to conserve and place restrictions on what could be grown**
- ◆ **The Commonwealth water buyback of 900 GL failed South Australia. They did not call a “State of Emergency”**
- ◆ **South Australia’s model of Minimum Entitlement and Cap should be copied not destroyed.**
- ◆ **Basin Plan Sustainable Diversion Limits need to be set for the full range of water availability scenarios and not just long-term averages.**

23

Select Committee Hearing : Adelaide Desalination Plant 30th June 2011

In 2007-08 the National Water Commission released its first national water market report, 1,231 GL of temporary water was traded in that year. In 2008-09 this grew to 1,883 GL.

Despite the severe drought water was available in the basin.

The Commonwealth failed to call a State of Emergency to prevent South Australia's disaster. Instead they left us to the mercy of the new national water market.

Their water reforms can not be trusted by South Australians or by its agencies such as the MDBA, set up to implement its economic reform agenda.

South Australia's decades of water conservation should be copied and not destroyed.

We deserve more water not less.

The Basin Plan needs to be designed around droughts and not only floods.

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Key Recommendations

- ◆ **Referendum on Privatisation of Water and Water Services**
 - **Achieved in Italy on 13th June 2011 when 96% of votes were against water privatization.**
- ◆ **Basin Plan provide for an Interstate State of Emergency during severe droughts**
- ◆ **Interstate Royal Commission to determine root causes of the disaster in the Murray-Darling Basin**
- ◆ **South Australian Water Supply Commission of Inquiry with the powers of a Royal Commission needs to be established as a matter of urgency.**
- ◆ **All capital cities and towns needs plans to harvest stormwater and recycle wastewater to protect their marine environments.**

24

Select Committee Hearing : Adelaide Desalination Plant

30th June 2011

South Australians need to know where our politicians stand on upholding the public's trust that water remains their common property. A referendum must be held to debate and approve the privatisation of water and water services.

The draft Water Industry Act is more Commonwealth economic reform to privatise the common property of South Australians. Its objective is to further breakup water supply and services to create a private water industry.

While "SA Water" remains a corporation it will be privatised.

Water reform's market principles are being applied to all prescribed water regions of the state through Water Allocation Plans, South Australia will loose control of its water. Only a South Australian Water Supply Commission of Inquiry will be able to unravel the decades of bad policy and gross mismanagement of water and its consequences without political and market interference.

Both Sir Thomas Playford and Don Dunstan would have acted by now. Lastly it is time to focus on saving our Gulfs from stormwater, wastewater, desalination brine and unsuitable development, our seagrass beds are hidden carbon treasures.

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