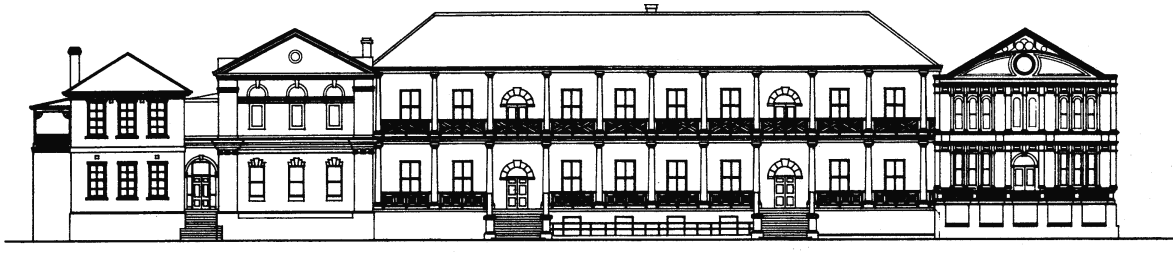
LEGISLATIVE ASSEMBLY

STANDING COMMITTEE ON PUBLIC WORKS

THE NATIONAL CONFERENCE OF PARLIAMENTARY PUBLIC WORKS AND ENVIRONMENT COMMITTEES 2002 ADELAIDE, SOUTH AUSTRALIA

"WATER – ENGINEERING SOLUTIONS AND ENVIRONMENTAL CONSEQUENCES"



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Chairman's Foreword

In late September 2002, delegates from the NSW Standing Committee on Public Works attended the National Conference of Parliamentary Public Works and Environment Committees held in Adelaide.

The conference offered a different format from that of previous years, focusing on a single theme throughout the program. The topic was "Water – Engineering Solutions and Environmental Consequences" and discussion was shaped around water management issues.

There is no doubt that the management of water is one of the most critical issues for government and community in Australia. The conference was, therefore, extremely relevant and topical. The Committee benefited from hearing from speakers whose areas of expertise enabled the delegates to comprehensively engage with a range of water related issues. This in turn provided useful insights for my Committee which is currently inquiring into urban water infrastructure.

The purpose of this report is twofold. Firstly, it is an accountability mechanism to inform the House of the Committee's activities. Secondly, it is to outline the issues raised by the speakers and it contains summaries of key conference sessions. Full transcripts are appended to the report.

On behalf of the Committee, I would like to thank our hosts from the South Australian Public Works Committee and the South Australian Environment, Resources and Development Committee for organising the conference.

Diane Beamer MP
Chairman

Functions of the Committee

The Standing Committee on Public Works was originally established in New South Wales in 1887. Its operations were suspended in 1930.

It was re-established by Motion of the Legislative Assembly on 25 May 1995 with the following Terms of Reference:

> *That a Standing Committee on Public Works be appointed to inquire into and report from time to time, with the following Terms of Reference:*
>
> > *As an ongoing task the Committee is to examine and report on such existing and proposed capital works projects or matters relating to capital works projects in the public sector, including the environmental impact of such works, and whether alternative management practices offer lower incremental costs, as are referred to it by:*
> >
> > - *the Minister for Public Works and Services*
> > - *any Minister or by resolution of the Legislative Assembly, or*
> > - *by motion of the Committee.*

The Terms of Reference were renewed on 3 June 1999 by the 52nd Parliament.

The Committee comprises seven members of the Legislative Assembly:

- Ms Diane Beamer MP, Chairman
- Mr Matthew Brown MP, Vice Chairman
- Mr Paul Gibson MP
- Mr Graham West MP
- The Hon. Peter Collins MP
- Mr Adrian Piccoli MP
- Mr Richard Torbay MP

The Hon Paul Whelan, Minister for Police and Leader of the Government in the Legislative Assembly, expanded on the role envisaged for the Committee by the Parliament in a speech to the House on 25 May 1995:

> *The Committee may inquire into the capital works plans of State-owned corporations and joint ventures with the private sector. The Committee will seek to find savings in capital works programs whilst achieving a net reduction in environmental impacts by public sector developers.*
>
> *The Committee's work is expected to provide incentives to the public sector to produce more robust cost-benefit analyses within the government budgetary process and to give more emphasis to least-cost planning approaches.*
>
> *The Committee will be sufficiently resourced to enable it to conduct parallel inquiries into specific projects and capital works programs generally.... it will have sufficient resources to inquire into the capital works program of all government agencies whose capital works programs affect the coastal, environmental and transport sectors.*

The Standing Committee on Public Works absorbed the functions of the Standing Committee on the Environmental Impact of Capital Works, which had been established by the 50th Parliament.

In the Fifty-First Parliament, the Committee examined health, education, Olympics, waterways and transport infrastructure as well as urban and environmental planning issues. It also investigated the development and approval processes for capital works procurement across the public sector.

In the current Parliament, the Committee has tabled nine reports:

- *Report on Capital Works Procurement (Report No 52/1)*
- *The National Conference of Parliamentary Public Works and Environment Committees 1999, Hobart, Tasmania (Report No. 52/2)*
- *Inquiry into Infrastructure Delivery and Maintenance: Volume One - Report on Office Accommodation Management (Report No. 52/3)*
- *The National Conference of Parliamentary Public Works and Environment Committees 2000, Darwin, Northern Territory (Report No. 52/4)*
- *Follow –Up Inquiry Into the Lake Illawarra Authority Report & NSW School Facilities Report (Report No. 52/5)*
- *Inquiry into Infrastructure Delivery & Maintenance: Volume Two - Land Fleet Management (Report No. 52/6)*
- *Inquiry Into Sick Building Syndrome (Report No. 52/7)*
- *Inquiry into Government Energy Reduction Targets (Report No. 52/8)*
- *Inquiry into Infrastructure Delivery and Maintenance: Volume Three - Building Maintenance Management (Report No. 52/9)*

Currently, the Committee is conducting the following inquiry:

- *Inquiry into Urban Water Infrastructure*

Introduction

National Conference of Parliamentary Public Works and Environmental Committees – Adelaide 2002 "Water – Engineering Solutions and Environmental Consequences"

The National Conference of Parliamentary Public Works and Environment Committees was held in Adelaide over three days from 30 September to 2 October 2002.

The conference offered a different format from that of previous years, focusing on a single theme throughout the program. The topic was "Water – Engineering Solutions and Environmental Consequences" and discussion was shaped around water management issues.

Speakers at the conference included many peak non-government environmental groups such as Australian Conservation Foundation, academic and research institutions such as CSIRO, water infrastructure corporations and community water management groups.

There were panel and hypothetical forums where State and Territory Committee members and stakeholders discussed matters such as environmental impacts of engineering solutions, water property rights, policy and application issues; and public private partnerships in water infrastructure and services. These discussions proved timely and relevant to the NSW Committee's current inquiry into Urban Water Infrastructure.

The conference also included site visits to a stormwater processing site in the City of Salisbury, the Paddocks Wetlands, and the Mawson Lake District providing delegates with a first hand examination of water management practices.

The NSW Committee was represented by Ms Diane Beamer MP, Chair; Mr Matt Brown MP; the Hon Peter Collins MP; and Mr Ian Thackeray, Committee Manager.

The following chapters contain summaries of each session.

Session 1 - "Water: The Need for Systems Thinking and New Paradigms"

Dr Graham Harris, Adjunct professor at the University of Adelaide. Previously Chief of the CSIRO's Division of Land and Water and Head of the CSIRO's Environmental Projects Office.

The CSIRO has done various analyses of some of the next 25 years worth of challenges facing this nation. The basic parameters are: wealth creation and GDP growth, participation, productivity and sustainability. In terms of productivity and sustainability, there are two fundamentals which we can change and they are water and energy. Whilst the concept of sustainability is well accepted, practical advances on the ground are proving quite difficult. We have to move beyond some of the present fascinations with market economics, resource depletion and unfettered capitalism. Market economies are necessary but not sufficient. New measures of sustainability and wealth need to be created. The CSIRO is looking for triple bottom line wins. The support of research and development is essential in that it is an investment in the future, not a cost. Partnerships need to be built which link research to government, industry and community action.

Traditional economic practice is couched in the context of non-spatial and non-natural equilibria, but now we are realizing that the ecosystems that sustain this landscape are dependent on and sustained by temporal and spatial variability – like flood, fire and storm. In regulating rivers and waterways, providing ourselves with security and certainty, we seriously interfere with and damage the natural processes of our landscape. What we are trying to do is look at the landscape as an integrated unit and balance the needs of natural systems, biodiversity, productive landscapes and wealth generation.

Water and energy prices are essentially at the core of this systems thinking. Mike Young, on ABC's Landline, said that one of the problems is that we make it too cheap to do the wrong thing and too expensive to do the right thing. By looking to shorter-term profits, we sacrifice natural capital, biodiversity, spatial and temporal variability, resilience and ecosystem services.

An example of future research directions, is the production of Titanium metal. By halving the energy required for production, we could build a world-class industry and create jobs. Titanium production is a key component of desalination plants, with synergies to both solar and renewable energy supplies. In doing this, a new sustainable industry could be developed. Furthermore, the Titanium produced could make lighter hybrid vehicles, driven with an electromechanical drive train (as has been produced by Holden), thereby reducing CO^2 emissions from transportation vehicles.

This process involves institutional and individual change, using new paradigms and the possibility of non-market based solutions. We need to build the right partnerships to facilitate more research, better education, more community involvement and accurate policy settings. The challenge is to approach water and energy issues with an atmosphere of trust and collaboration across communities, jurisdictions, industry, commerce and institutions, a "Team Australia" approach.

Debate and questions followed.

Session 2 – "Water As A Finite Resource – Price, Infrastructure and Who Pays For It?"

Mr Graham Dooley, Managing Director of United Utilities Australia and National Policy Director of the Australian Water Association

Water resource planning needs to be in terms of decades, not electoral cycles.
We have reached the sustainable limit of water harvesting in most of Australia. The only places not to have reached this limit are Far North Australia, the Far North West, the Kimberley and Pilbara regions, and Tasmania. We have run out of rivers and dams. Outside of moving northern waters south, we must start to seriously consider how best to reclaim and/or desalinate water.

The pricing structure of water in Australia can be looked at in terms of bulk and retail supplies. At 3c to 10c a kilolitre, and some farmers paying 0.03c per kilolitre, bulk water is almost "given away" straight out of rivers. Treated water for retail sale, costs about 10c to 20c, reclaimed water costs about 20c to 60c, desalination of brackish water costs about 80c a kilolitre and seawater costs about 180c a kilolitre. At this point in time, it is possible to convert sewage into drinking water, sewage into irrigation water, and saline groundwater into drinking water. Outside of health regulator concerns, the major obstacle to all of these treatments of water, is cost. With the cost of seawater treatment so many times that of current treated water, there is less incentive for more comprehensive water treatment strategies which have more sustainable outcomes.

Rural water users could reasonably tolerate a ten-fold increase in price, if they could be subsidized for creating infrastructure which is less wasteful than current methods. An example of this is the use of drip irrigation rather than broadcast spraying. Irrigation methods which apply water directly to the roots of plants, instead of spraying water from one point high into the air, resulting in 90% less water being lost to evaporation.

The result of well-publicised retail price increases has resulted in reduced water consumption rather than increased water utility revenue. When the unit price of water increased in Newcastle in the mid 1980s and Sydney in the 1990s, consumption patterns were altered, benefiting the environment and the ability of water utilities to moderate supply by reducing demand.

Since the 1980s successive State governments have placed water infrastructure lower and lower on the list of public funding. As a result of this, a look at the annual reports of State water utilities shows that a substantial amount of any cash surplus achieved by utilities ends up as revenue for Treasury. About 20-40% of the total water revenue raised goes straight to Treasury through tax equivalent regimes, dividend regimes, etc. This is because the health, education and law and order agendas are struggling to find additional funds, while the water utilities have an apparent surplus of funds – which should have been reinvested in infrastructure replacement but wasn't. Unfortunately, the solution to this problem does not lie in immediately stopping the flow of funds outside of water utilities, as this would place too much stress on the areas now receiving that funding.

Health regulations state that treated sewage cannot be drunk in Australia, although this in not the case in Europe, Britain and North America. Australian health regulators need to be convinced of the viability and reliability of such treatment processes, in order to see Australians looking at the "whole of water cycle" of cities and urbanized areas. This involves looking at both freshwater and wastewater cycles as a "whole of water cycle" process.

Leakage of both water pipes and sewerage pipes is an extensive problem. Between 15% to 25% of treated drinking water is lost through leakage. The waste water system leaks like a sieve in and out. About 90% of the rain water that enters the sewerage system then flows out of the system before it reaches a treatment plant, meaning that stormwater systems are overflowing with sewerage. Stormwater and flood control is typically the responsibility of local government, which is the agency of government with the least access to capital to fix this problem.

Richard Pratt's idea of moving very large amounts of water from northern Australia to southern Australia, has merit. Piping and pumping the water is simply too expensive. A possible solution is to dig canals, propelling the water with solar power. If Pratt's vision is implemented, it needs to be done in an absolutely environmentally sustainable way.

Due to Federal Government concerns regarding tax evasion schemes, infrastructure bonds have become a less viable option. Although large amounts of capital are potentially available through superannuation funds, the ability of high-income individuals to offset their tax responsibility through use of infrastructure bonds, has seen the scheme discontinued.

Public Private Partnerships provide communities opportunities to access water services sooner, due to private capital investment. PPPs also allow for the useful harvesting of cash available in capital markets.

Debate and questions followed.

Session 3 - "Water Rights: A New Definition"

Professor Mike Young, Director of CSIRO Policy and Economic Research Unit, Adjunct Professor with the Centre for Ecological Economics and Water Policy Research at the University of New England.

The way water resources is managed needs to be rethought. The fundamentals of water systems and management need to be revisited.

> *"We rolled out systems that were tailored to do little things to build big schemes without thinking about where we were going to end up."*

Although it was appropriate to uncouple water and property rights, the treatment of those rights needs to be revisited because it implies that water and land should also be managed separately. Land management has remained under the new Torrens title system whilst water management has returned to a former title management system. The key feature of Torrens title is a central register of ownership and interests, yet water licensing systems are much more fragmented:

> *"Water trading in Australia is sometimes over $3 million a trade yet we do not have licensed brokers or formal settlement procedures. There are some situations where trades have been done, the paperwork has been wrong and they have had to be undone because we do not realise we are not in serious business and serious financial arrangements and deals are often more valuable than land trading."*

Water interests need to be registered on something like a Torrens title system, with shares that are mortgageable for water entitlements. Shares can be classed into high and general security to reflect water shortages and remedy problems with over allocation. High trading/transaction costs for shares need to be addressed.

The current system of over allocation and issue of new licenses gives rise to legitimate expectations for Government compensation, if all licenses were activated. But if risk was better specified in each allocation then compensation expectations would be lowered.

Improving water efficiency needs to be accompanied by revision of current allocations. Because water efficiency means that there is less run-off returning into the river system through drainage, then increasing water efficiency on current allocations could actually deplete environment and other flows to irrigators.

Tree planting to prevent erosion and rebuild natural ecologies must also be re-examined:

> *"We are currently using taxation incentive to plant trees in the top of the River Murray Basin, to drive it. The bad news from that is that every time you plant a hectare of trees you take water out the river system."*

This means that you have to buy more water to compensate for this and recognise that more trees means less water will be available for irrigation.

The key change required to effectively measure flows is to start looking at water in net terms rather than gross, that is, the water that is consumed, not the amount that is pumped that really matters:

> *"Interestingly in America when they started setting up property rights in water they defined water use so you could only trade and sell the amount you consumed, the amount you evaporated and transpired, because if you did that you were not stealing from somebody else. In America they have class actions and third party interests are properly managed and accounted for. This means that the downstream people can take action to stop ministers signing licences and approving trades that create such problems."*

The system needs to link into land use change to account for what is happening with return flows and forestry. If somebody clears a forest then perhaps they can get credit for the water that is actually returned back into the system. In this way, the system is based on the water cycle and how and where the water flows from.

Furthermore, allocation systems must deem the amount of water that is being used. If somebody uses only half of that amount, it is very important to tell them that so they can only expect to trade half of it.

In terms of changing to Torrens title management, although some States are setting up water registers, no State is prepared to guarantee it. This needs to be resolved. Furthermore, a common title management system will also remove the arbitrage risk problems associated with inconsistent State management systems. A common system would also reflect the natural patterns of ground water and surface systems that cross borders.

Instead of having the current irrigation licence which says that you have a licence to pump, you have a licence that says you have a certain volume which you can purchase from somewhere else. The licence should show these conditions. The licence should be separate from the allocation system and the entitlement system. If a system of tradeable rights attached to one instrument, combined with an allocation system that was low cost and reflected the characteristics of a pooled resource, then water resource management would improve in Australia.

Debate and questions followed.

Session 4 - The Hon. John Hill MP, Minister for Environment and Conservation South Australian Legislative Assembly

Minister Hill is responsible for three departments / instrumentalities: the Environmental Protection Authority (EPA); the Department of Environment and Heritage; and the Department of Water, Land and Biodiversity Conservation. [1]

The Murray Darling Basin Commission has agreed to dredge the mouth of the River Murray, in order to avert the environmental problems associated with the accumulation of sand causing intertidal variation of temperature and salinity. Due to a series of drought years, the water left after extraction for irrigation and other purposes, which is usually 25-27 per cent of the natural flow, has not been enough to stop the environmental degradation of this area. In 2001, the Select Committee on the Murray River produced a report which made 94 recommendations, including the need to have 2,000 to 3,000 extra gigalitres of water for environmental purposes for the river. The South Australian Parliament is unanimous on this position.

From studies done by the CSIRO and others, it has been shown that sufficient water falls on Adelaide to make it completely independent of the river. However Adelaide is currently dependent on the Murray River for 40 to 90 per cent of its water, depending on rainfall. Adelaide is examining the possibility of re-engineering the water supply system to supply its needs and use that water more than once. By working to develop stormwater reuse projects, multiple benefits can be provided such as flood protection, stormwater quality improvement, groundwater resources protection, ecotourism and the creation of habitat and recreational amenity. An excellent mechanism for this, is wetlands, enabling reuse of water for irrigation, commercial and industrial use.

The Department of Water, Land and Biodiversity Conservation, has been working in partnership with the City of Salisbury and other partners, developing aquifer storage and recovery (ASR) technologies. As a result of these partnerships, South Australia has become a world leader in the application of ASR. Results to-date indicate the potential elimination of the need to discharge treated effluent to the marine environment. With the allocation of water to rural uses being reduced, the harvesting of treated effluent has the potential to further eliminate river water use. This is an example of triple bottom line wins.

A short discussion followed.

[1] The South Australian Government is following the Victorian model, in making the EPA an independent statutory body at arm's length from government. The Department of Water, Land and Biodiversity Conservation, has been created to integrate natural resource management. The Department of Environment and Heritage, looks after national parks, biodiversity issues, as well as coastal and marine issues. Within that Department, has been established the Office of Sustainability to provide advice across the whole of government as well as the whole community. With the introduction of the River Murray Bill, the Minister for the River Murray (Minister Hill has no department in association with this additional portfolio) will have delegated authority over planning authorities and authorities under 18 Acts of Parliament, having a reserve power to be consulted, to veto and to direct.

Session 5 – "Water: The Gap Between Policy Perception and Reality"

Mr Tim Fisher, Australian Conservation Foundation

There has been a shift in water policy management over the last 20 years from the domain of engineers and public works departments to a focus on environmental river health.

This change in approach has been occurring with water policy reform. The environment has been recognised as a water user and requires allocations. Council Of Australian Governments (COAG) reforms and national competition policy have also compelled States and Territories to look at water reform collaboratively.

However, there remains institutional structures managing water which entrench traditional perspectives. For example, big corporations allocating water on the one hand and commercially gaining from those allocations. Entitlements are generally identifiable for farmers/ irrigators but still poorly defined for the environment. Trading and property rights of water are unclear.

A big policy gap surrounds environmental flows. Although there has been identification of these issues, there is little action on implementation. There is also a concern that the monies being allocated to catchment reforms are not delivering:

> *"There is an issue of credibility for public programs: if we are spending all of that money, how come things are still continuing to degrade?*"

A revision of the 10-year old COAG water policy is needed. Environmental performance requirements need to be better articulated and there needs to be more accountability and monitoring and auditing of licenses.

More significantly, an environmental levy is proposed. If we maintain the current arrangements, it will not reverse degradation, only slow the rate of degradation. The costs of reversing degradation are significant and this is why a levy is proposed. Policies and programs that promote unsustainable development, such as the sugar industry, need to cease.

Debate and questions followed.

Session 6 – "The River Murray: Government Infrastructure and Environmental Needs"

Dr Peter Cullen, Landcare Australian Limited.

In 1902 the challenge was to develop a workable mechanism to manage the shared resources of the Murray-Darling Basin, and in 2002 we are in exactly the same situation – trying to balance competing interests and long term sustainability.

There are three key lessons to be learnt from that Federation period: a variety of economic interests, values, and notions of public good led to infrastructure investment - increasing irrigated land values, rather than water costs; by not recouping the costs of that infrastructure, wastage and uneconomic use developed; and that community pressures were needed to push governments to resolution.

The Prime Minister's Science Council recently stated that restoring a system costs between 10 and 100 times more than protecting it in the first place. So it seems we are always playing catch-up. We are never investing to create wealth, simply attempting to bandage past mistakes. More research needs to be done, in order to make knowledge-based decisions on the best way to move forward.

Perhaps one way forward is to introduce a strategic framework that categorises rivers into flow classifications. An example of this would be a conservation river, where up to 15 per cent of the flow can be accessed, a sustainable working river where up to 35 per cent of the flow can be accessed, or a managed working river where 70 per cent of the river can be accessed. It is pointless to spend $1.4 billion repairing damage, yet spend nothing to prevent damage to new systems.

It needs to be understood that flood flows do not necessarily go to waste. Rather, the deeply absorbed water aids the production and maintenance capacity of the flood plains. We have created dry land irrigation salinity. With fewer healthy sections of the Murray Darling Basin, the problem has been compounded by washing salt into the water, pumping the water out, then dumping salty water on our most fertile farm lands.

In terms of regulatory reform, we need to get away from the system where the water industry sets its own standards. We need a system which specifies targets rather than methods, in order to encourage innovation. The regulatory framework is one of the weakest parts of our water industry and warrants attention.

We cannot transfer knowledge from other systems to Australian rainfall and soils. A more strategic view needs to be taken of research. There are some instances of catchment groups paying for new research without having looked at the research which has already been published. Although research organizations such as the CSIRO, the universities and Cooperative Research Centres (CRCs) have been able to access substantial industry funds, taking on short-term research projects, we still need to establish a secure funding model to begin undertaking long-term research investments.

In terms of managing environmental water, in a potential open market environment, a national rivers corporation could reasonably be vested with the role of delivering environmental outcomes. A corporation would operate under corporations law, with directors acting in the interests of the corporation rather than State interests.

Every State is seeking access to water to allow for development, create community wealth, and try to maintain aquatic systems. Getting a balance between all these things while protecting river health, is the challenge that needs to be met in order to move forward.

Debate and questions followed.

Session 7 – Panel: "Public Private Partnerships – Provision of Infrastructure and the Delivery of Water and Environmental Services"

Speaker 1 – Mrs Karlene Maywald MP, Member for Chaffey, South Australian House of Assembly.

The speaker outlines two public/private partnerships in the Riverland.

- Qualco Sunlands drainage scheme

This scheme was developed to fix the problem of waterlogging in certain areas since irrigation was introduced in the 1950's. The issue was analysed extensively, involving significant community consultation. It took over seven years to deliver this partnership which commenced last year with the pumping on of a $7.2 million drainage scheme. One of the key lessons learnt in the project was that engaging the community in an effective way is critical. At the same time putting the community in charge of something without giving them the skills to deliver on it can be counter productive.

Also tokenism by bureaucrats does not assist in building relationships. Top down command and control structures in government can lead to significant conflicts in government and community agendas.

> *When you do not have the community coming alongside and working towards the outcome, you end up having long and lengthy delays, with litigation and a situation where you do not achieve a good investment of money in an acceptable timeframe."*

- Calperum Station project – drainage and salt intercept scheme

A more pro-active, direct and innovative community approach was taken in this project compared to the Sunlands project. About 10 years ago the Chicago Zoological Society and the McCormack Deering Foundation wanted to invest in the South Australian landscape. Around $18 million has been attracted by the Australian Landscape Trust in direct investment in partnership with governments, with private enterprise and with philanthropic foundations. The project involves adopting paddocks and managing wetlands. Significant volunteer capacity has been established and now permanent volunteers have management contracts to ensure the delivery of environmental outcomes.

The key requirement for change is to enable the community to invest in environmental sustainability by recognising property rights of the environment and reimbursement of irrigators. Also we need to quantify the benefits of environment restoration and identify whom those benefits accrue to. Private/public investments should not be used by the government to reduce government investment, however landscape restoration is beyond the affordability of government. Therefore partnerships with the private sector must be entered into.

Speaker 2 : Mr Steven Page, Director of Public Private Partnerships Unit, South Australia Department of Treasury.

The speaker outlines policy and issues regarding Public Private Partnerships (PPPs).

PPPs are about achieving service outcomes, not necessarily about building infrastructure. A common misconception about PPP is that it is the same as privatisation. PPPs do not necessarily involve the divesting of infrastructure and services. Often PPP involve significant control by the government and risk held by the government. For the most part, PPPs are located on spectrum of shared control and risk between government and the private sector.

The single reason that we go to private financing of infrastructure is to achieve value for money. Private capital is generally more expensive than public capital. The key is to get value for paying premiums of private sector finance. This is achieved through efficient allocation of risk between the private and public sectors. The idea is to motivate the private sector to deliver its outcomes on the basis of its capital risk in the project. If you are in a typical outsourcing arrangement you rely on contractual sanctions to get performance. In a PPP arrangement if the services are not delivered the private supplier does not get paid.

The key is to transfer the right amount of risk for a reciprocal return or value for money. This will vary considerably depending on the nature of the project and its service outcomes.

Speaker 3 – Mr Mike Terlet, Economic Development Director, United Water International

The speaker provides a description of the Adelaide water infrastructure contract or PPP for water and environmental services.

In 1995 the South Australian government corporatised the State water authority to create SA Water. Following this, a framework was developed to outsource certain SA Water functions. The SA government retained the ownership of assets and set prices for services. SA Water would continue to provide services in rural areas; SA Water would retain responsibility for bulk water supply, it would fund and nominate the capital investment program and would retain all customer billing services.

Proposals were sought from large international specialist water companies and United Water International was awarded the contract.

The Adelaide contract covers an area of 1446 square kilometres and serves around 1 million people. The mains water total length is 9000 km; the sewerage 7,000 km and there are 6 water treatment plants and 4 waste water treatment plants. Under its contract, United Water is responsible for the management, operations and maintenance of the waste water treatment plants and networks, a 24-hour emergency customer call centre, asset management, and capital works delivery.

The partnership is for a period of 15 years with the challenge of providing 20 per cent savings in costs whilst meeting ever increasing service standards. Over 6 years the partnership has realised savings of at least $10 million per annum whilst improving quality of water and services.

The contract is structured around defined performance standards which United Water has to deliver. There are 161 key performance indicators (KPIs) ranging from water quality parameters to response times for repairs and maintenance. Financial penalties apply for failure to meet any performance standards.

There is an unusual arrangement for asset maintenance and capital works in the contract. United Water is responsible for asset management and asset management planning including proposed capital expenditure requirements. However it is SA Water which reviews these proposals and manages the capital works program. This arrangement reflects the risk allocations sought by the private and public partners.

In summing up, the Adelaide water infrastructure contract reveals the following:

- The public authority must be clear in defining the outcomes from any PPP. An appropriate model can then be determined to meet the outcomes. The private sector can use its expertise around the world to design a model to meet outcomes.
- A long- term partnership between an asset owner and an appropriate service provider can deliver substantial cost savings while providing increases in service standards. The formulation of this partnership must recognise the ability of both parties, and risk profiles should be shaped by the ability of each party to manage that risk.
- To deliver real substantial cost saving the client must be willing to allow the contractor to effectively manage the provision of the service. The client must step back from the daily operations and rely upon the KPI's to determine whether the objectives and customer needs are really being met.
- Asset management should be an integral part of the infrastructure outsourcing contract.
- Efficiency gains, service standard improvements, and effective appropriate risk transfer can be achieved without the transfer of assets from the public to private sector.

Speaker 4: Mr Stephen Young, Executive Chairman, Equity and Advisory Ltd. (merchant bank)

The speaker outlines some value for money arguments for PPPs and details associated financing issues.

The public private partnership regime takes on many forms and applications and Western governments have been experimenting with the concepts for nearly a century. The most recent focus has been on the identification and allocation of risk.

Historically, many PPPs have been about government trying to get rid of all risk, now it is about transferring appropriate risk. Also the public sector is moving away from input specification, that is prescriptiveness about what will be built and how it will be operated, to determining the outputs, services or standards required.

The key attraction of PPPs is the possibility of better value for money. This may come about through a variety of ways:

- design innovation – the public sector may have said "If we were to do this, we would do it in this particular way; the private sector might choose to do it differently."
- whole of life operating efficiency – it may well be that they choose to man an asset or maintain an asset with a different cost regime than the public sector and. secondly, they may value risk differently; for example design or operating risk. They may be far more confident about their ability to manage those risks than the public sector; and finally;
- value for money is also qualitative.

The finance for PPPs involves various players, in particular, the private sector's consortium's financiers. There are two general funding sources: debt and equity. The debt and equity side are black and white in terms of negotiation.

> *"The banks provide senior debt out of the capital markets of quite sophisticated debt instruments such as capital index bonds and floating note rates which are seen in projects with a capital value greater than a couple of hundred million dollars. Private placement subordinate debt is another debt instrument that you will see and there is leased based finance…*
>
> *On the equity side, there are four or five different sources of equity. The first is from the public, and occasionally you will hear a major public/private partnership being spoken about in terms of the equity being sought from the public post formation. A number of infrastructure funds put a lot of equity into these sorts of projects. There is equity that comes from financial institutions… for any of these to deals to get up, both the operators and the constructors need to have equity in the game. Interestingly enough most large water corporations have a significant amount of equity in their own balance sheet for example United Water has billions of dollars- so they have quite significant levels of equity. When there are institutional investors they seek to have board representation, and they generally seek a risk rate of return for example 15 per cent as opposed to debt in the order of 6 per cent."*

The financier's concerns will relate to the commitment of the Government to the project. Governments have tended to be ambiguous about some areas of specification and make their minds up on the run on certain issues. Financiers are also concerned about these issues given the considerable tender preparation costs associated with large projects. The answer to these concerns is better understanding by governments of what it is trying to achieve and to articulate this to the private sector.

Debate and questions followed.

Session 8 – Panel: "What governments can do and how to do it?"

Speaker 1: Professor Don Bursill, CEO, Cooperative Research Centre for Water Quality.

Professor Bursill argues that there are three roles for government :

- leadership – formulating a vision for the community;
- stewardship – oversight of water resources to ensure sustainability; and
- management – implementing strategies and actions.

A poor scorecard of water management has marked the past. Even the most "efficient" irrigators are still identified with tremendous water wastage. In addition some traditional flood irrigation techniques combined with choice of water hungry crops, such as cotton and rice, farming may be misplaced in the arid parts of the country.

In terms of the future, what should change? A clearer vision for river system health is required by governments which enlists community support. For example:

> *"In the case of the Rhine, all the Governments in the Rhine catchment agreed that they wanted to see salmon back in the river again. This iconic objective was accompanied by a number of detailed water quality objectives from which various strategies and actions could be derived to ensure success."*

Australia appears hesitant to establish clear water quality objectives or set up good monitoring programs to gauge progress. For example, only 28 per cent of drainage cannel outfalls going back into the Murray Darling Basin have any sort of monitoring of volume or quality at all. Better leadership is required in water management.

Speaker 2: Mr Robin Dixon –Thompson, Rob's Water Systems (irrigation suppliers)

Water wastage in Australia is a key issue. Governments should be leading change in simple ways. For example, why shouldn't local council have underground watering systems to conserve 30 to 40 per cent of water usage? Politicians and governments need to actively stop water wastage directly. There is a need for a change of mindset.

Speaker 3: Mr Nathan Miller; Marketing Manager of Netafim, (drip irrigation company)

The challenge is water conservation, in particular, to use less water in agricultural and domestic applications. The solution will be through engineering, technical and agronomical solutions rather than expecting people to use less water – they will not drink less, wash or shower less, irrespective of policies.

Aside from new technology, there is a great deal which can done with greater application of existing irrigation technology on simple management of public spaces and green strips.

A further area to explore is the agronomical solutions, that is, finding plant varieties that use less water for the same results - the same quality fruit and vegetables and the same yield. There are already techniques in wine grapes being used to fool the vines into accepting lower water intake and producing equivalent results.

Gardens are generally over-watered in Australia. Plants can be trained to adapt to less water and still flourish. The Government should be encouraging the adoption of technology such as demanding that households have a device to irrigate gardens appropriately.

In summary the responsibilities should be as follows:

- research and development – government and private sector;
- product and solutions – private sector;
- marketing the need for water savings – government ;
- marketing implementation – government and private sector;
- training – government and private sector;
- assessment – government

Speaker 4: Mr Stephen Hains, City Manager of City of Salisbury

Salisbury Council pays for its water usage which is a significant incentive to use water wisely. Over 30 years ago, the city began a flood detention program which has evolved into an artificial wetlands which now have considerable recreation value.

The key issue to water management in SA is to find alternative ways of using water so that the State is not vulnerable to one particular source, i.e., the Murray River.

Better cooperation between the 3 spheres of government is very significant. There also needs to be legislative changes, for example, the ability to have licences for long term aquifer storage and recovery, rather than licences that give us authority to draw for 12 months.

Riparian rights is an issue to be further examined. Salisbury collects stormwater that flows across other local government areas. The issue about whose water is it and how that is dealt with is still unresolved.

Debate and questions followed.